MATHEMATICS (MATH)

MATH N01 F Supervised Tutoring: Math **0 Units**
NON-CREDIT COURSE: This course provides individual tutoring based on each student's needs in mathematics and computer science. Students wishing to use the Math Lab must enroll in this course. (Non-Degree Credit)

MATH 004 F Basic Mathematics I **2 Units**
36 hours lecture per term. This course is an intensive review of the fundamentals of arithmetic. Topics include arithmetic operations with whole numbers and fractions, rounding and estimation, and applied problems. Students are not permitted to use calculators. Pass/No Pass only. (Non-Degree Credit)

MATH 006 F Basic Mathematics II **2 Units**
Prerequisite(s): MATH 004 F with a grade of Pass.
36 hours lecture per term. This course is an intensive review of the fundamentals of arithmetic. Topics include arithmetic operations and applied problems with decimals, rounding, estimation, ratios, problem solving with proportions, percent and applications, the arithmetic of denominate numbers, introduction to the metric system, and measurement geometry. Calculators will be required for selected topics. Pass/No Pass only. (Non-Degree Credit)

MATH 007 F Essentials of Basic Math **3 Units**
54 hours lecture per term. This course is an intensive review of the fundamentals of arithmetic. The course includes arithmetic operations with whole numbers, fractions, decimals, and percent, estimation, and solving applied problems. Pass/No Pass only. (Non-Degree Credit)

MATH 010 F Basic Mathematics **4 Units**
72 hours lecture per term. This course is an intensive review of the fundamentals of arithmetic. The course includes: operations of arithmetic with whole numbers, fractions, decimals; percent; estimation; equations and applied problems; introduction to the metric system; and the arithmetic of denominate numbers. Calculators will be required for selected topics. (Non-Degree Credit)

MATH 015 F Pre-Algebra **4 Units**
72 hours lecture per term. This course includes operations on integers, fractions, mixed numbers and decimals, ratio, proportion and percentages, working with variable expressions, interpretation of statistical graphs, measurement and geometry, and an introduction to polynomials and graphing. Calculators will be required for selected topics. (Non-Degree Credit)

MATH 020 F Elementary Algebra **4 Units**
Advisory: MATH 015 F or any previous algebra course.
72 hours lecture per term. This course includes the properties of real numbers, factoring, exponents and radicals, solving and graphing linear equations, polynomials and rational algebraic expressions, and linear systems of equations. Calculators will be required for selected topics. (Degree Credit).

MATH 024 F Pre-Statistics **6 Units**
108 hours lecture per term. This course is an accelerated pathway to prepare students for transfer-level statistics. It covers core concepts from elementary algebra, intermediate algebra, and descriptive statistics. Topics include ratios, rates and proportional reasoning; arithmetic reasoning using fractions, decimals and percents; evaluating expressions, solving equations, analyzing algebraic forms to understand statistical measures; use of linear, quadratic, absolute value, exponential, and logarithmic functions to model bivariate data; graphical and numerical descriptive statistics for quantitative and categorical data. (Degree Credit)

MATH 026 F Support for Introductory Statistics **2 Units**
Corequisite(s): MATH 120 F.
Concurrent 36 hours lecture per term. This course is a review of the core prerequisite skills, competencies, and concepts needed in statistics. Students must be concurrently enrolled in MATH 120 F. Topics include concepts from pre-algebra, elementary and intermediate algebra, and descriptive statistics that are needed to understand college-level statistics. Concepts are taught through the context of descriptive data analysis. Additional emphasis is placed on solving and graphing linear equations and modeling with linear functions. Pass/No Pass only. (Degree Credit)

MATH 030 F Plane Geometry **4 Units**
Advisory: MATH 020 F or any previous Algebra course.
72 hours lecture per term. This course is an introduction to Euclidean geometry and includes theorems and proofs, sets, congruent and similar polygons, circles, geometric constructions, areas, volumes, geometric loci, elementary logic and deductive reasoning. Calculators may be required for selected topics. (Degree Credit)

MATH 031 F Support for College Algebra **2 Units**
Corequisite(s): MATH 141 F.
Concurrent 36 hours lecture per term. This course is a review of the core prerequisite skills, competencies, and concepts needed in college algebra. Students must be concurrently enrolled in MATH 141 F. Topics include: a review of computational skills developed in intermediate algebra, factoring, operations on rational and radical expressions, absolute value equations and inequalities, exponential and logarithmic expressions and equations, conic sections, functions including domain and range, composition and inverses, and graphing. This course is appropriate for students who are confident in their beginning algebra skills. A graphing calculator is required. Pass/No Pass only. (Degree Credit)

MATH 032 F Support for Calculus for Business **2 Units**
Corequisite(s): MATH 130 F.
Concurrent 36 hours lecture per term. This course covers the skills and concepts necessary for success in MATH 130 F is required. Topics include factoring polynomials, solving linear, quadratic, polynomial, and exponential equations, graphing lines and parabolas, laws of exponents and logarithms, functions, and solving systems of linear equations. Students must be concurrently enrolled in MATH 130 F. Pass/No Pass only. (Degree Credit)

MATH 033 F Support for Liberal Arts Mathematics **1 Unit**
Corequisite(s): MATH 100 F.
Concurrent 18 hours lecture per term. This course is a review of the core prerequisite skills, competencies, and concepts needed in liberal arts mathematics. Topics include rounding, calculator usage, percentages, operations with fractions, using formulas and solving equations. Students must be concurrently enrolled in MATH 100 F. Pass/No Pass only. (Degree Credit)

MATH 034 F Support for Trigonometry **2 Units**
Corequisite(s): MATH 142 F.
Concurrent 36 hours lecture per term. This course is a review of the core prerequisite skills, competencies, and concepts needed in trigonometry. Students must be concurrently enrolled in MATH 142 F. Topics include: rational and radical expressions, laws of exponents, angles and triangles, graphing functions including transformations, calculator procedures, and geometry formulas. This course is appropriate for students who are confident in their beginning algebra skills. A graphing calculator is required. Pass/No Pass only. (Degree Credit)

MATH 040 F Intermediate Algebra **4 Units**

Prerequisite(s): MATH 020 F with a grade of C or better or by assessment through the college's multiple measures placement processes.

72 hours lecture per term. This intermediate algebra course is appropriate for students preparing to take MATH 129 F, MATH 141 F, MATH 141HF, or MATH 142 F. This course includes products and factoring, exponents and radicals, fractions, functions and graphs, linear and quadratic equations, linear inequalities, logarithms and related topics at an intermediate level. Calculators will be used for selected topics. This course also meets the prerequisite for MATH 100 F, MATH 120 F, MATH 120HF and SOSC 120 F. Students who receive credit for MATH 040 F may not receive credit for MATH 041 F. (Degree Credit) AA GE

MATH 041 F Combined Elementary and Intermediate Algebra **6 Units**

108 hours lecture per term. This course is designed for students who would like to complete elementary and intermediate algebra in one semester. It covers factoring, exponents, linear, quadratic, rational, and absolute value equations and inequalities, radical equations, operations with polynomials, radical and rational expressions, systems of equations and inequalities, linear, quadratic, exponential and logarithmic functions and their graphs, complex numbers, and conic sections. Students who have completed MATH 020 F may take MATH 040 F, MATH 041 F or MATH 043 F. However, students who receive credit for MATH 041 F may not receive credit for MATH 040 F. (Degree Credit) AA GE

MATH 043 F Intermediate Algebra for Statistics and Liberal Arts **4 Units**

Prerequisite(s): MATH 020 F with a grade of C or better or by assessment through the college's multiple measures placement processes.

72 hours lecture per term. This course emphasizes applications, mathematical modeling of data and interpretation of results. The course includes linear, quadratic, rational, exponential and logarithmic functions and their graphs, solving equations involving these functions, solving linear inequalities, and solving systems of linear equations at an intermediate level. Graphing calculators will be required for selected topics. (Degree Credit) AA GE

MATH 100 F Liberal Arts Mathematics **3 Units**

Prerequisite(s): MATH 040 F or MATH 041 F, with a grade of C or better or by assessment through the college multiple measures placement processes. Some assessments may result in the student being required or recommended to take MATH 033 F as a concurrent support course instead of taking a prerequisite course.

Some assessments may result in the student being required or recommended to take MATH 033 F as a concurrent support course instead of taking a prerequisite course. 54 hours lecture per term. This course provides an introduction to a variety of mathematical topics including the mathematics of finance, set theory, probability, statistics, logic or geometry, and other selected topics. It is designed for students majoring in liberal arts, education or communication. Calculators or computers may be used for selected topics. Letter Grade or Pass/No Pass option. (Degree Credit) (CSU) (UC) AA GE, CSU GE, IGETC

MATH 120 F Introductory Probability and Statistics **4 Units**

Prerequisite(s): MATH 024 F or MATH 040 F or MATH 041 F or MATH 043 F, with a grade of C or better or by assessment through the college multiple measures placement processes. Some assessments may result in the student being required or recommended to take MATH 026 F as a concurrent support course instead of taking a prerequisite course.

Advisory: READ 096 F or reading skills clearance

Some assessments may result in the student being required or recommended to take MATH 026 F as a concurrent support course instead of taking a prerequisite course. 72 hours lecture per term. This course covers descriptive statistics, elementary probability theory and inferential statistics. Topics covered include summarizing data in tables and graphs, computation of descriptive statistics, sample spaces, classical probability theory, rules of probability, probability distributions, confidence intervals for population parameters, hypothesis testing, correlation and regression and Chi-Square Distribution with applications. Scientific and/or graphing calculators will be used extensively throughout the course. Computers utilizing software specifically designed for statistical calculations and graphing will be used for various topics. Students who receive credit for MATH 120 F may not receive credit for SOSC 120 F. (Degree Credit) (CSU) (UC Credit Limitation: MATH 120 F, MATH 120HF, PSY 161 F, PSY 161HF and SOSC 120 F combined maximum credit, one course) AA GE, CSU GE, IGETC (C-ID: MATH 110)

MATH 120HF Honors Introductory Probability and Statistics **4 Units**

Prerequisite(s): MATH 024 F or MATH 040 F or MATH 041 F or MATH 043 F with a grade of C or better or by assessment through the college's multiple measures placement processes.

Advisory: READ 096 F or equivalent or by assessment through the college's multiple measures placement processes.

Some assessments may result in the student being required or recommended to take MATH 026 F as a concurrent support course instead of taking a prerequisite course. 72 hours lecture per term. This Honors-enhanced course covers descriptive statistics, elementary probability theory and inferential statistics. Topics covered include: summarizing data in tables and graphs, computation of descriptive statistics, sample spaces, classical probability theory, rules of probability, probability distributions, confidence intervals for population parameters, hypothesis testing, correlation and regression and Chi-Square Distribution with applications. Scientific and/or graphing calculators will be used extensively throughout the course. Computers utilizing software specifically designed for statistical calculations and graphing will be used for various topics. Students who receive credit for MATH 120HF may not receive credit for SOSC 120 F. (Degree Credit) (CSU) (UC Credit Limitation: MATH 120 F, MATH 120HF, PSY 161 F, PSY 161HF and SOSC 120 F combined; maximum credit, one course) AA GE, CSU GE, IGETC (C-ID: MATH 110)

MATH 121 F Introductory Probability and Statistics with Support 5 Units
Prerequisite(s): MATH 024 F or MATH 040 F or MATH 041 F or MATH 043 F, with a grade of C or better or by assessment through the college's multiple measures placement processes.
Advisory: READ 096 F or reading skills clearance.
90 hours lecture per term. This course contains the same content as MATH 120 F, but includes a fifth unit of instruction to help students who can benefit from additional support. This course covers descriptive statistics, elementary probability theory and inferential statistics. Topics covered include summarizing data in tables and graphs, computation of descriptive statistics, sample spaces, classical probability theory, rules of probability, probability distributions, confidence intervals for population parameters, hypothesis testing, correlation and regression and Chi-Square Distribution with applications. Scientific and/or graphing calculators will be used extensively throughout the course. Computers utilizing software specifically designed for statistical calculations and graphing will be used for various topics. Students who receive credit for MATH 121 F may not receive credit for MATH 120 F, MATH 120HF, PSY 161 F, PSY 161HF or SOSC 120 F. (Degree Credit) (CSU) (UC) AA GE, CSU GE, IGETC

MATH 129 F College Algebra for Business Calculus 4 Units
Prerequisite(s): MATH 040 F or MATH 041 F with a grade of C or better, or math skills clearance
72 hours lecture per term. This course includes a review of basic topics from intermediate algebra, equations and inequalities, functions and graphing including exponential and logarithmic functions, building mathematical models in business, finance and economics, systems of equations and inequalities, and an introduction to spreadsheets and/or graphing software. The course is designed for students planning to enroll in MATH 130 F. A scientific calculator will be required; a graphing calculator may be required. (This course does not meet requirements in the Business Division and will not substitute for BUS 151 F. See Business and Computer Information Systems Division for Business requirements.) (Degree Credit) (CSU) (UC Credit Limitation) AA GE, CSU GE

MATH 130 F Calculus for Business 4 Units
Prerequisite(s): MATH 040 F or MATH 041 F with a grade of C or better or assessment through the college multiple measures placement process.
72 hours lecture per term. This course includes fundamentals of analytic geometry and calculus; differential calculus, integral calculus, and selected applications of calculus; functions and managerial planning and their use in economics and business. A scientific calculator will be required; a graphing calculator may be required. Computer applications may be included. (CSU) (UC Credit Limitation; MATH 130 F, MATH 151 F and MATH 151HF, combined maximum credit one course) (Degree Credit) AA GE, CSU GE, IGETC (C-ID: MATH 140)

MATH 131 F Calculus Business w/ Support 5 Units
Prerequisite(s): MATH 040 F or MATH 041 F, with a grade of C or better, or assessment through the college's multiple measures placement process.
90 hours lecture per term. This course contains the same content as MATH 130 F, but includes a fifth unit of instruction to help students who can benefit from additional support. This course includes fundamentals of analytic geometry and calculus; differential calculus, integral calculus, and selected applications of calculus; functions and managerial planning and their use in economics and business. A scientific calculator will be required; a graphing calculator may be required. Computer applications may be included. (Degree Credit) (CSU) (UC Credit Limitation; MATH 130 F, MATH 131 F, MATH 151 F and MATH 151HF combined: maximum credit, 1 course, 4 units) AA GE, CSU GE, IGETC

MATH 141 F College Algebra 4 Units
Prerequisite(s): MATH 030 F, and MATH 040 F or MATH 041 F, with a grade of C or better or by assessment through the college's multiple measures placement processes.
63 hours lecture and 27 hours lab per term. This course is designed to prepare students for the study of calculus. The topics to be covered include review of the fundamentals of algebra, relations, functions, solutions of first- and second-degree equations and inequalities, systems of equations, matrices, binomial theorem, polynomial functions, exponential and logarithmic functions, analytic geometry and conic sections, geometric and arithmetic sequences and series, and miscellaneous topics. Graphing calculators will be incorporated. This course may be taken prior to or concurrently with MATH 142 F or MATH 144 F. Both MATH 141 F or MATH 141HF or MATH 143 F and MATH 142 F or MATH 144 F are required for enrollment in MATH 151 F or MATH 151HF. (Degree Credit) (CSU) (UC Credit Limitation; MATH 129 F, MATH 141 F, MATH 141HF, and MATH 143 F combined; maximum credit, 1 course) AA GE, CSU GE, IGETC

MATH 141HF Honors College Algebra 4 Units
Prerequisite(s): MATH 030 F, and MATH 040 F or MATH 041 F, with a grade of C or better or by assessment through the college's multiple measures placement processes.
63 hours lecture and 27 hours lab per term. This Honors-enhanced course is designed to prepare students for the study of calculus. The topics to be covered include review of the fundamentals of algebra, relations, functions, solutions of first- and second-degree equations and inequalities, systems of equations, matrices, binomial theorem, polynomial functions, exponential and logarithmic functions, analytic geometry and conic sections, geometric and arithmetic sequences and series, and miscellaneous topics. Graphing calculators will be incorporated. This course may be taken prior to or concurrently with MATH 142 F. Both MATH 141 F or MATH 141HF or MATH 143 F and MATH 142 F or MATH 144 F are required for enrollment in MATH 151 F or MATH 151HF. (Degree Credit) (CSU) (UC Credit Limitation; MATH 129 F, MATH 141 F, MATH 141HF, and MATH 143 F combined; maximum credit, 1 course) AA GE, CSU GE, IGETC

MATH 142 F Trigonometry 4 Units
Prerequisite(s): MATH 030 F, and MATH 040 F or MATH 041 F, with a grade of C or better or by assessment through the college's multiple measures placement processes. Some assessments may result in the student being required or recommended to take a concurrent support course, MATH 034 F, instead of taking a prerequisite course.
Some assessments may result in the student being required or recommended to take a concurrent support course, MATH 034 F, instead of taking a prerequisite course. 72 hours lecture per term. This is a one-semester course in trigonometry designed to prepare students for the study of calculus. The topics to be covered include the following: algebraic skills, measurements of angles, trigonometric functions and inverse trigonometric functions, trigonometric equations and identities, graphing of trigonometric functions, solutions of triangles, applications, complex numbers, polar coordinates and DeMoivre's Theorem. Graphing calculators will be used for selected topics. Course may be taken concurrently with MATH 141 F or MATH 141HF or MATH 143 F. Both MATH 141 F or MATH 141HF or MATH 143, and MATH 142 F are required for enrollment in MATH 151 F. (Degree Credit) (CSU) AA GE, CSU GE

MATH 143 F College Algebra with Support **5 Units**

Prerequisite(s): MATH 030 F and MATH 040 F or MATH 041 F, with a grade of C or better or equivalent or by assessment through the college's multiple measures placement processes.

81 hours lecture and 27 hours lab per term. This course is designed to prepare students for the study of calculus. This course contains the same content as MATH 141 F, but includes a fifth unit of instruction to help students who can benefit from additional support. The topics to be covered include review of the fundamentals of algebra, relations, functions, solutions of first- and second-degree equations and inequalities, systems of equations, matrices and determinants, binomial theorem, mathematical induction, polynomial functions, exponential and logarithmic functions, analytic geometry and conic sections, geometric and arithmetic sequences and series, and miscellaneous topics. Graphing calculators will be incorporated. This course may be taken prior to or concurrently with MATH 142 F. Both MATH 141 F or MATH 141HF or MATH 143 F, and MATH 142 F are required for enrollment in MATH 151 F. Students who receive credit for MATH 143 F may not receive credit for MATH 141 F or MATH 141HF. (Degree Credit) (CSU) (UC Credit Limitation; MATH 129 F, MATH 141 F, MATH 141HF and MATH 143 F combined: maximum credit, 1 course, 4 units) AA GE, CSU GE, IGETC

MATH 144 F Trigonometry with Support **5 Units**

Prerequisite(s): MATH 030 F and MATH 040 F or MATH 041 F with a grade of C or better, or by assessment through the college's multiple measures placement processes.

90 hours lecture per term. This is a one-semester course in trigonometry designed to prepare students for the study of calculus. The topics to be covered include the following: algebraic skills, measurements of angles, trigonometric functions and inverse trigonometric functions, trigonometric equations and identities, graphing of trigonometric functions, solutions of triangles, applications, complex numbers, polar coordinates and DeMoivre's Theorem. Graphing calculators will be used for selected topics. Course may be taken concurrently with MATH 141 F or MATH 141HF or MATH 143 F. Both MATH 141 F or MATH 141HF or MATH 143 F, and MATH 142 F or MATH 144 F are required for enrollment in MATH 151 F. (Degree Credit) (CSU) AA GE, CSU GE

MATH 151 F Calculus I (formerly MATH 150AF) **4 Units**

Prerequisite(s): MATH 141 F or MATH 141HF or MATH 143 F and MATH 142 F, with a grade of C or better, or by assessment through the college's multiple measures placement processes.

72 hours lecture per term. This course covers limits and continuity, differentiation of algebraic, transcendental and inverse functions, applications of differentiation, antiderivatives and indefinite integrals, and the definite integral. Graphing calculators or related software will be used for selected topics. (CSU) (UC Credit Limitation: MATH 130 F, MATH 151 F and MATH 151HF combined; maximum credit, one course) (Degree Credit) AA GE, CSU GE, IGETC (C-ID: MATH 210, MATH 900 S)

MATH 151HF Honors Calculus I (formerly MATH 150HF) **4 Units**

Prerequisite(s): MATH 141 F or MATH 141HF or MATH 143 F and MATH 142 F, with a grade of C or better, or by assessment through the college's multiple measures placement processes.

72 hours lecture per term. This Honors-enhanced course covers limits and continuity, differentiation of algebraic, transcendental and inverse functions, applications of differentiation, anti-derivatives and indefinite integrals, and the definite integral. Graphing calculators will be used for selected topics. (Degree Credit) (CSU) (UC Credit Limitation: MATH 130 F, MATH 151 F and MATH 151HF, combined maximum credit one course) AA GE, CSU GE, IGETC (C-ID: MATH 210, MATH 900 S)

MATH 152 F Calculus II (formerly MATH 150BF) **4 Units**

Prerequisite(s): MATH 151 F or MATH 151HF, with a grade of C or better

72 hours lecture per term. This is a second semester calculus course covering differential equations, applications of integration, integration techniques, improper integrals, sequences and series, conics, parametric equations, and polar coordinates. Graphing calculators will be used for selected topics. (Degree Credit) (CSU) (UC) AA GE, CSU GE, IGETC (C-ID: MATH 220, MATH 900 S)

MATH 152HF Honors Calculus II **4 Units**

Prerequisite(s): MATH 151 F or MATH 151 HF, with a grade of C or better

72 hours lecture per term. This Honors-enhanced second semester calculus course covers differential equations, applications of integration, integration techniques, improper integrals, sequences and series, conics, parametric equations, and polar coordinates. Graphing calculators will be used for selected topics. (Degree Credit) (CSU) (UC) AA GE, CSU GE, IGETC (C-ID: MATH 220, MATH 900 S)

MATH 170 F Discrete Structures **4 Units**

Prerequisite(s): MATH 141 F or MATH 141HF or MATH 143 F, with a grade of C or better, and MATH 142 F, with a grade of C or better

Advisory: MATH 151 F or MATH 151HF.

72 hours lecture per term. This course covers fundamental topics for Computer Science such as logic, proof techniques, sets, introduction to computer programming, basic counting rules, relations, functions and recursion, graphs and probability trees.(Degree Credit) (CSU) (UC) AA GE, CSU GE, IGETC (C-ID: MATH 160)

MATH 171 F Discrete Mathematics **4 Units**

Prerequisite(s): MATH 141 F or MATH 141HF or MATH 143 F, and MATH 142 F with a grade of C or better, or equivalent or by assessment through the college's multiple measures placement processes.

72 hours lecture per term. This is one of two courses in fundamental discrete mathematical concepts and techniques needed in computer-related disciplines. The topics covered include logic, truth tables, Boolean algebra, logic circuits, elementary set theory, functions, relations, proof techniques, combinatorics, elementary probability, and recurrence relations.(Degree Credit) (CSU) (UC) AA GE, CSU GE, IGETC

MATH 172 F Graph Theory and Linear Algebra **4 Units**

Prerequisite(s): MATH 141 F or MATH 141HF or MATH 143 F, and MATH 142 F, with a grade of C or better or by assessment through the college's multiple measures placement processes.

72 hours lecture per term. This is one of two courses in fundamental discrete mathematical concepts and techniques needed in computer related disciplines. Topics include the theory of graphs, trees, finite state machines, and linear algebra including matrix operations, eigenvalues, vector spaces, linear transformations, and inner product spaces. (Degree Credit) (CSU) (UC) AA GE, CSU GE, IGETC

MATH 203 F Mathematics for Future Elementary Teachers **3 Units**

Prerequisite(s): MATH 100 F or MATH 120 F or MATH 121 F or MATH 120HF or MATH 129 F or MATH 130 F or MATH 141 F or MATH 143 F or MATH 141HF or MATH 142 F or MATH 151 F or MATH 151HF or MATH 152 F or MATH 152HF or MATH 170 F or MATH 171 F or MATH 172 F or MATH 251 F or MATH 252 F or MATH 253 F or MATH 255 F or MATH 260 F, with a grade of C or better.

54 hours lecture per term. This course is designed for prospective elementary teachers. Topics covered include: problem-solving techniques, whole numbers and numeration, set theory, elementary number theory, integers, rational numbers, ratios, proportions, decimals, and percents. The course includes instruction delivery design and activity-based explorations. (Degree Credit) (CSU) AA GE (C-ID: MATH 120)

MATH 251 F Multivariable Calculus (formerly MATH 250AF) 4 Units

Prerequisite(s): MATH 152 F or MATH 152HF, with a grade of C or better

72 hours lecture per term. This is a third semester course in calculus covering solid analytic geometry, vectors in three dimensions, vector calculus, differential calculus of functions of several variables, multiple integration, vector fields and theorems. (Degree Credit) (CSU) (UC) AA GE, CSU GE, IGETC (C-ID: MATH 230)

MATH 252 F Linear Algebra and Differential Equations (formerly MATH 250BF) 4 Units

Prerequisite(s): MATH 251 F with a grade of C or better

72 hours lecture per term. This is a fourth semester calculus course covering matrices, determinants, vector spaces, ordinary differential equations of the first order, linear second-order differential equations, power series and numerical solutions, and Laplace transformations. (Degree Credit) (CSU) (UC) AA GE, CSU GE, IGETC

MATH 253 F Additional Topics in Linear Algebra (formerly MATH 250CF) 2 Units

Corequisite(s): MATH 252 F with a grade of C or better.

36 hours lecture per term. This course completes the introduction to Linear Algebra begun in MATH 252 F. Topics covered include linear transformations and their properties, the Dimension-sum theorem, matrices of linear transformations, inner product spaces and their properties, orthogonality, the Gram-Schmidt process, diagonalizability of symmetric matrices, and simplifying quadratic forms. (Degree Credit) (CSU) (UC) AA GE

MATH 255 F Linear Algebra 3 Units

Prerequisite(s): MATH 152 F or MATH 152HF, with a grade of C or better

54 hours lecture per term. This course develops the techniques and theory needed to solve and classify systems of linear equations. Solution techniques include row operations, Gaussian elimination, and matrix algebra. Properties of vectors in two and three dimensions are investigated, leading to the notion of an abstract vector space. Vector space and matrix theory are presented including topics such as inner products, norms, orthogonality, eigenvalues, eigenspaces, and linear transformations. Selected applications of linear algebra are included. (Degree Credit) (CSU) (UC) AA GE, CSU GE, IGETC (C-ID: MATH 250)

MATH 260 F Ordinary Differential Equations 3 Units

Prerequisite(s): MATH 152 F or MATH 152HF, with a grade of C or better

Advisory: MATH 251 F.

54 hours lecture per term. This course is an introduction to ordinary differential equations including both quantitative and qualitative methods as well as applications from a variety of disciplines. This course introduces the theoretical aspects of differential equations, including establishing when solution(s) exist, and techniques for obtaining solutions, including series solutions and singular points, Laplace transformations and linear systems. (Degree Credit) (CSU) (UC) AA GE, CSU GE, IGETC (C-ID: MATH 240)

MATH 290 F Pure Mathematics Seminar 2 Units

Prerequisite(s): MATH 040 F with a grade of C or better or by assessment through the college multiple measures placement processes.

36 hours lecture per term. This course is structured in order to engage students in dynamical mathematical subjects, including cutting-edge unsolved problems in pure/theoretical mathematics such as real analysis, complex analysis, geometry, topology, number theory, logic, experimental mathematics, as well as mathematical typesetting and document preparation, advanced topics, careers in mathematical science, mathematical writing and speaking, math conferences, math competitions, and math service learning. MATH 290 F and MATH 290HF differ from other Mathematics Seminars in that the topics are exclusively devoted to theoretical mathematics and proofs in it. Seminar courses in mathematics can be taken in any order. (Degree Credit)(CSU) (UC Review required)

MATH 290HF Honors Pure Mathematics Seminar 2 Units

Prerequisite(s): MATH 040 F with a grade of C or better or by assessment through the college multiple measures placement processes.

36 hours lecture per term. This Honors-enhanced courses offers students pure mathematics seminars which are structured in order to engage students in dynamical mathematical subjects, including cutting-edge unsolved problems in pure/theoretical mathematics such as real analysis, complex analysis, geometry, topology, number theory, logic, experimental mathematics, as well as mathematical typesetting and document preparation, advanced topics, careers in mathematical science, mathematical writing and speaking, math conferences, math competitions, and math service learning. MATH 290 F and MATH 290HF differ from other Mathematics Seminars in that the topics are exclusively devoted to theoretical mathematics and proofs in it. Topics assigned to honors students will emphasize additional rigor and depth, and honors students will participate in local, regional, and/or national competitions and conferences in mathematical science. Seminar courses in mathematics can be taken in any order. (Degree Credit) (CSU) (UC Review required)

MATH 291 F Applied Mathematics Seminar 2 Units

Prerequisite(s): MATH 040 F with a grade of C or better or by assessment through the college multiple measures placement processes.

36 hours lecture per term. Historically, covered topics are new each time this course is offered and taught topics are never repeated, to ensure currency. This course is structured in order to engage students in applied mathematics topics such as numerical analysis, dynamical systems, cosmology, finance, mathematical biology, inverse problems, as well as mathematical typesetting and document preparation, advanced topics, careers in mathematical science, mathematical writing and speaking, math conferences, math competitions, and math service learning. (Degree Credit) (CSU) (UC Review required)

MATH 291HF Honors Applied Mathematics Seminar 2 Units

Prerequisite(s): MATH 040 F with a grade of C or better or by assessment through the college multiple measures placement processes.

36 hours lecture per term. This Honors-enhanced course will engage students in applied mathematics topics such as numerical analysis, dynamical systems, cosmology, finance, mathematical biology, inverse problems, as well as mathematical typesetting and document preparation, advanced topics, careers in mathematical science, mathematical writing and speaking, math conferences, math competitions, and math service learning. (Degree Credit) (CSU) (UC Review required)

MATH 295 F General Mathematics Seminar **2 Units**

Prerequisite(s): MATH 040 F with a grade of C or better assessment through the college multiple measures placement processes.

36 hours lecture per term. This course is structured in order to engage students in a diverse number of dynamical mathematical subjects, including cutting-edge unsolved problems, abstract, interdisciplinary, computational, and experimental mathematics, mathematical typesetting and document preparation, advanced topics, careers in mathematical science, mathematical writing and speaking, math conferences, math competitions, and math service learning. Topics are of varying rigor and depth, depending on progress in the field and the abilities of the participants. (Degree Credit) (CSU) (UC Review required)

MATH 295HF Honors General Mathematics Seminar **2 Units**

Prerequisite(s): MATH 040 F with a grade of C or better or by assessment through the college multiple measures placement processes.

36 hours lecture per term. This Honors-enhanced course offers math seminars which are structured in order to engage students in dynamical mathematical subjects, including cutting-edge unsolved problems, abstract, interdisciplinary, computational, and experimental mathematics, mathematical typesetting and document preparation, advanced topics, careers in mathematical science, mathematical writing and speaking, math conferences, math competitions, and math service learning. An enriched approach in this course is designed for students in the Honors program. Topics are of varying rigor and depth, depending on progress in the field and the abilities of the participants. (Degree Credit) (CSU) (UC review required)

MATH 299 F Mathematics Independent Study **1 Unit**

Prerequisite(s): MATH 040 F with a grade of C or better or by assessment through the college multiple measures placement processes.

18 hours lecture or scheduled conferences per term. This course is for able students who wish to increase their knowledge of multiple areas of pure and/or applied mathematics through individual study and small group conferences. (Degree Credit) (CSU) (UC review required)