

Mathematics & Statistics

Degree: A.S. - Mathematics
A.S. - Mathematics-Physical Science

Area: Mathematics
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The A.S. degree program in mathematics gives students the opportunity to complete lower-division coursework, in preparation for transfer to a four-year program in mathematics.

Mathematics

Requirements for Degree Major: 25 units

Core Requirements	Units
MATH 400	5
MATH 401	5
MATH 402	5
MATH 410	3
MATH 420	4

Concentration Requirements

One course selected from:
STAT 301, MATH 320/PHIL 325 3

Recommended Electives

PHYS 410; One course selected from: CISP 340, 360, or 365.

General Education Graduation Requirements:

Students must also complete the general education graduation requirements for an A.S. degree. See graduation requirements.

Mathematics

MATH 10 Overcoming Math Anxiety 1 Unit

Formerly: MATH 202

Prerequisite: None

Advisory: Concurrent enrollment in a math course.

Course Not Transferable UC or CSU

Hours: 18 hours LEC

The course will help students to recognize their fear of mathematics and overcome their math anxiety and avoidance. The students will learn strategies to achieve success in mathematical situations. This course is also useful for tutors, counselors and teachers interested in helping others overcome their math anxiety. Credit/No Credit.

MATH 12 Mathematics for the Home and Workplace 2 Units

Formerly: MATH 203

Prerequisite: None

Course Not Transferable UC or CSU

Hours: 36 hours LEC

This course will use a variety of realistic consumer-oriented applications to refresh, reinforce, and extend students' mastery of basic mathematics concepts. The applications will include earned wages, buying and maintaining a car, working with food, budgeting, banking, and other consumer and job related activities. Calculator use will be an integral part of the course.

MATH 25 Computational Arithmetic 3 Units

Formerly: MATH 204

Prerequisite: None

Course Not Transferable UC or CSU

Hours: 54 hours LEC

This course covers instruction in the fundamentals of arithmetic with an emphasis on computational skills. Topics to be studied will include whole numbers, fractions and decimals, problem solving, and applications.

MATH 32 Pre-Algebra 3 Units

Formerly: MATH 215

Prerequisite: MATH 25 with a grade of "C" or better, or placement through assessment.

Course Not Transferable UC or CSU

Hours: 54 hours LEC

This course will briefly review the fundamentals of arithmetic, including whole numbers, fractions, and decimals. Course content will include order of operations, signed numbers, concepts of variables, exponents, ratios and proportions, area/perimeter/volume of geometric figures, and solving equations.

MATH 100 Elementary Algebra 5 Units

Formerly: MATH 51

Prerequisite: MATH 32 with a grade of "C" or better or placement through assessment process.

Course Not Transferable UC or CSU

Hours: 90 hours LEC

This course includes the fundamental concepts and operations of algebra with problem solving skills emphasized throughout. Topics include properties of real numbers, linear equations and inequalities, integer exponents, polynomials, factoring polynomials, rational expressions and equations, radical expressions and equations, rational exponents, systems of linear equations and inequalities, the rectangular coordinate system, graphs and equations of lines, and solving quadratic equations. AA/AS area 4C.

MATH 1000 Individualized Mathematics 3-5 Units

Formerly: MATH 200

Prerequisite: None

Course Not Transferable UC or CSU

Hours: 90 hours LEC

Students wishing to take Mathematics 32 (Prealgebra) for 3.0 units, Mathematics 100 (Elementary Algebra) for 5 units, or Math 120 (Intermediate Algebra) for 5 units may

enroll in "Individualized Mathematics". Students enroll in a specific hour, during the first class meeting and the student will designate the specific course. Course placement can be determined by either an assessment test through the assessment center before the semester or completion of prerequisites. Immediate advancement from one course to the next is allowed upon successful completion of prescribed work. Credit will only be given for the number of units assigned to a course and if the course is completed during the semester. Students who do not complete the course within the semester enrolled and who receive a notation of "In Progress" must reregister in the same individualized course the following semester in order to complete the course and receive full unit credit.

MATH 110 Elementary Geometry 5 Units

Formerly: MATH 52

Prerequisite: MATH 100 or one year of high school algebra with a grade of "C" or better or placement through assessment process.

Course Not Transferable UC or CSU

Hours: 90 hours LEC

This course covers elementary geometry with emphasis on plane geometry but with some work in space geometry. Problem solving techniques and logical thinking will be emphasized. AA/AS area 4C.

MATH 120 Intermediate Algebra 5 Units

Formerly: MATH 53

Prerequisite: MATH 100 with a grade of "C" or better, or placement through assessment.

Course Not Transferable UC or CSU

Hours: 90 hours LEC

This course reviews and extends the concepts of elementary algebra with problem solving skills emphasized throughout. Topics which are reviewed and extended include linear and quadratic equations, factoring polynomials, rational expressions, exponents, radicals, equations of lines, and system of equations. New topics include graphs and their translations and reflections, functions, exponential and logarithmic functions, graphs of quadratic and polynomial functions, nonlinear systems of equations, polynomial and rational inequalities, and an introduction to conic sections. AA/AS area D2 and 4C.

MATH 300 Introduction to Mathematical Ideas 3 Units

Formerly: MATH 1

Prerequisite: Mathematics 120 with a grade of "C" or better.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course focuses on elements of mathematical systems. It is designed to make fundamental concepts and processes more meaningful to the general student. Its content may include systems, logic, geometry, combinatorics, probability, statistics, sets, matrices, and number theory. Not recommended for students entering elementary school teaching or business administration majors. (CAN MATH 2) AA/AS area D2 and 4C; CSU area B3

MATH 310 Mathematical Discovery 3 Units

Formerly: MATH 2

Prerequisite: Mathematics 110 and 120 with a grade of "C" or better.

Course Transferable to UC/CSU

Hours: 54 hours LEC

In this course students will explore mathematical patterns and relations, and formulate and prove conjectures. Topics from number theory, probability and statistics, and geometry will be investigated. Recommended for students interested in education. A(CAN MATH 4) A/AS area D2 & 4C; CSU area B3.

MATH 320 Introduction to Symbolic Logic (Same as Philosophy 325) 3 Units

Formerly: MATH 12

Prerequisite: PHIL 320 or MATH 110, and MATH 120 with a grade of "C" or better

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course covers an introduction to symbolic logic including the logic of sentences (the statement calculus) and the logic of classes and relations (the predicate calculus), together with an introduction to the nature and development of deductive systems. Applications include examples of logic used in elementary mathematics and the analysis of verbal arguments. Not open to students who have completed PHIL 325. AA/AS area D2 and 4C; CSU area B3.

MATH 325 Problem-Solving 3 Units

Formerly: MATH 3

Prerequisite: MATH 120 with a grade of "C" or better, or placement through assessment process.

Course Transferable to CSU

Hours: 54 hours LEC

This course focuses on the problem-solving skills necessary to solve both real-life and nontraditional mathematics problems. Problem-solving strategies presented in this course include: drawing a diagram, eliminating possibilities, making a systematic list, looking for a pattern, guessing and checking, solving an easier related problem, working backward, algebraic representation, finite differences, and other related techniques. Divergent thinking, group work, and the clear presentation of mathematical work will be emphasized throughout the course.

MATH 330 Trigonometry 3 Units

Formerly: MATH 15

Prerequisite: MATH 110 and 120 with a grade of "C" or better or placement through assessment process.

Course Transferable to CSU

Hours: 54 hours LEC

This course focuses on the fundamental concepts of trigonometry and the relationships between them. Applications involve right and oblique triangles, circular motion, graphing, vectors and complex numbers. (CAN MATH 8) AA/AS area D2 and 4C; CSU area B3.

MATH 340 Calculus for Business and Economics 3 Units

Formerly: MATH 43

Prerequisite: MATH 120 with a grade of "C" or better, or placement through assessment process.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course includes analytic geometry, differential and integral calculus with applications in the fields of business, economics, social science and biological science. Not recommended for mathematics and physical science majors. (CAN MATH 34) AA/AS area D2 and 4C; CSU area B3; IGETC area 2.

MATH 342 Modern Business Mathematics 3 Units

Formerly: MATH 44

Prerequisite: MATH 120 with a grade of "C" or better, or placement through assessment.

Course Transferable to CSU

Hours: 54 hours LEC

This course is designed around applications of mathematics in economic and business contexts. Specific topics will include functions and related business formulas, tables and graphs, finance (interest and exponential models in economics), rates of change including applications and optimization, and linear programming. AA/AS area D2 & 4C; CSU area B3.

MATH 344 Finite Mathematics 3 Units

Formerly: MATH 42

Prerequisite: MATH 120 with a grade of "C" or better.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course covers sets, probability and combinatorics, expected value, matrix theory, systems of equations and inequalities, linear programming, and mathematics of finance with emphasis on applications in business administration, biological sciences, and social science. It also includes computer applications. (CAN MATH 12) AA/AS area D2 and 4C; CSU area B3; IGETC area 2

MATH 350 Calculus for the Life and Social Sciences I 3 Units

Formerly: MATH 16A

Prerequisite: MATH 330 with a grade of "C" or better or placement through assessment process.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course covers the concepts and techniques of functions, limits, analytic geometry and differential calculus. Applications from business, social and biological sciences will be emphasized. (CAN MATH SEQ D-MATH 350+351; CAN MATH 30) AA/AS area D2 and 4C; CSU area B3; IGETC area 2. (MATH SEQ D Sum Math 29,31,33 or Math 30, 32)

MATH 351 Calculus for the Life and Social Sciences II 3 Units

Formerly: MATH 16B

Prerequisite: MATH 350 with a grade of "C" or better.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course is the continuation of MATH 350. It covers integration and differentiation of commonly used functions, and applications of analytic geometry and calculus. (CAN MATH 32) AA/AS area 4C; CSU area B3; IGETC area 2. (MATH SEQ D Sum Math 29,31,33 or Math 30,32)

MATH 360 Introduction to Scientific Graphing Calculators 1 Unit

Formerly: MATH 28

Prerequisite: MATH 330 with a grade of "C" or better or placement through assessment.

Course Transferable to CSU

Hours: 18 hours LEC

This course introduces the basic functions and applications of scientific graphic calculators. It covers plotting, evaluating, and solving functions. It also discusses calculator-based solutions of problems from algebra and trigonometry; and introduces techniques that will be useful in subsequent courses like precalculus and calculus. A calculator of a model and type that will be specified by instructor is required.

MATH 370 Pre-Calculus Mathematics 5 Units

Formerly: MATH 29

Prerequisite: MATH 330 with a grade of "C" or better or placement through assessment process.

Course Transferable to UC/CSU

Hours: 90 hours LEC

This course includes application and graphing of polynomial, logarithmic, exponential and trigonometric functions, systems of linear and non-linear equation and inequalities, and analytic geometry including straight lines, conic sections, graphing and curve sketching. (CAN MATH 16) AA/AS area D2 and 4C; CSU area B3; IGETC area 2.

MATH 400 Analytic Geometry and Calculus I 5 Units

Formerly: MATH 9A

Prerequisite: MATH 370 with a grade of "C" or better, or placement through assessment process.

Advisory: MATH 405.

Course Transferable to UC/CSU

Hours: 90 hours LEC

This course is an introduction to differential and integral calculus. Its content includes limits, continuity, differentiation, and integration of algebraic and trigonometric, logarithmic, exponential and other transcendental functions. Some applications are also included. (CAN MATH 18) AA/AS area D2; CSU area B3; IGETC area 2 (MATH SEQ C Sum Math 17,19,21,23 or Math18)

MATH 401 Analytic Geometry and Calculus II 5 Units

Formerly: MATH 9B

Prerequisite: MATH 400 with a grade of "C" or better.

Course Transferable to UC/CSU

Hours: 90 hours LEC

This course is a continuation of MATH 400. Its content will include techniques of integration, improper integrals, indeterminate forms, applications of integration, infinite series, parametric equations and polar coordinates. (CAN MATH 20) AA/AS area 4C; CSU area B3; IGETC area 2 (MATH SEQ C Sum Math 17,19,21,23 or Math18)

MATH 402 Analytic Geometry and Calculus III 5 Units

Formerly: MATH 9C

Prerequisite: MATH 401 with a grade of "C" or better.

Course Transferable to UC/CSU

Hours: 90 hours LEC

This course is a continuation of MATH 401. It Includes calculus of functions of more than one variable, partial derivatives, extrema of functions of more than one variable, multiple integration, development of the vector calculus, line integrals, three dimensional analytic geometry and the theorems of Green, Gauss (Divergence), and Stokes. (CAN MATH 22) AA/AS area 4C; IGETC area 2 (MATH SEQ C Sum Math 17,19,21,23 or Math18)

MATH 410 Introduction to Linear Algebra 3 Units

Formerly: MATH 35

Prerequisite: MATH 400 with a grade of "C" or better.

Advisory: MATH 402.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course provides an introduction to linear algebra including matrices, determinants, vector spaces, linear transformations, eigenvectors. It is intended for majors in mathematics, engineering, economics, science and related fields. (CAN MATH 26) AA/AS area 4C; CSU area B3; IGETC area 2.

MATH 420 Differential Equations 4 Units

Formerly: MATH 9D

Prerequisite: Mathematics 401 with a grade of "C" or better.

Advisory: MATH 402.

Course Transferable to UC/CSU

Hours: 72 hours LEC

This course is a study of ordinary differential equations with emphasis on linear equations and systems of linear equations. It includes infinite series and, Laplace transform and matrix methods of solution. It stresses applications to engineering problems. It is recommended for electrical, mechanical, industrial, ceramic, and petroleum engineers, and for mathematics and physical science majors. (CAN MATH 24) AA/AS area 4C; IGETC area 2.

MATH 481 Honors Applications of Calculus 1 Unit

Formerly: MATH 8H

Prerequisite: Cumulative GPA of 3.0 or better; MATH 402 with a grade of "C" or better, and ENGWR 300 or 480 with a grade of "C" or better.

Course Transferable to UC/CSU

Hours: 18 hours LEC

This course focuses on professional applications of mathematics in such fields as biomathematics, economics, political science, computer science, earth science, social sciences and psychology. AA/AS area 4C

MATH 496 Teaching Assistant in Mathematics 1-4 Units

Formerly: MATH 46

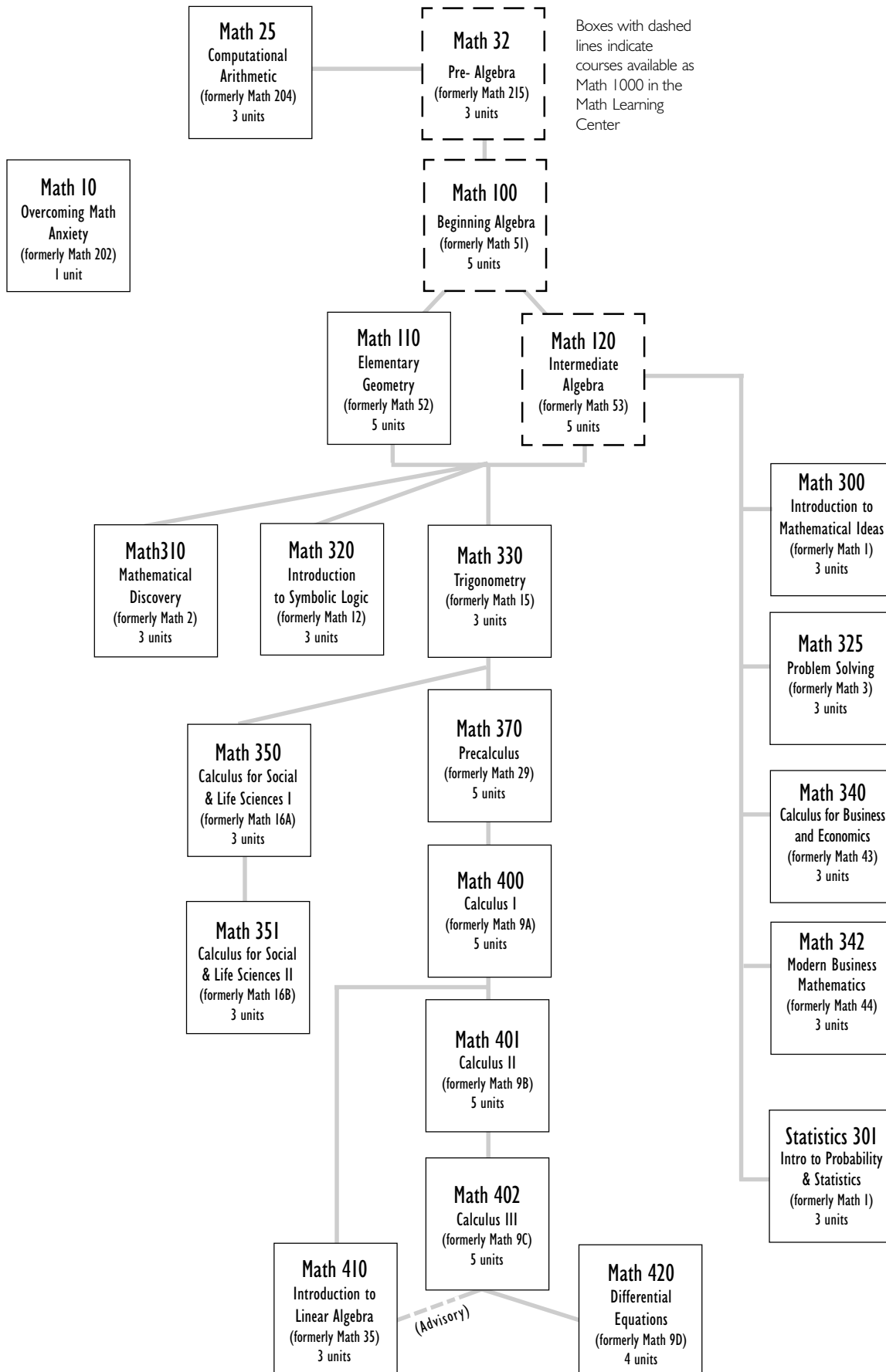
Prerequisite: MATH 120 with a grade of "C" or better.

Course Transferable to CSU

Hours: 9-36 hours LEC; 27-108 hours LAB

This course is intended for students who want to develop an in-depth understanding of the fundamentals of mathematics and to learn to work with individual students and small groups of students. Open entry and exit. May be taken twice for credit.

Mathematics Courses



Statistics

STAT 301 Introduction to Probability and Statistics 3 Units

Formerly: *STAT 1*

Prerequisite: MATH 120 with a grade of "C" or better.

Advisory: ENGRD 116.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course will introduce basic concepts of probability and statistics. It will include analysis of data, probability, distributions, tests of hypothesis, estimation, regression and correlation, and analysis of variance. Related application to psychology, social science, natural science, business and engineering will be explored. A scientific calculator that has a stat package (2-variable) is used throughout the course. (CAN STAT 2) AA/AS area D2 and 4C; CSU area B3; IGETC area 2

STAT 481 Introduction to Probability and Statistics - Honors 3 Units

Formerly: *STAT 1H*

Prerequisite: Cumulative GPA of 3.0 or better; MATH 120 with a grade of "C" or better, and ENGWR 300 or 480 with a grade of "C" or better.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course is an introduction to the concepts of statistics with a strong emphasis on the understanding and appreciation of the role of statistics in real life situations including computer analysis of real data. In addition to the topics presented in STAT 301, this honors course will include either additional topics of non-parametric statistics, design-of-experiment issues ensuring validity, analysis of variance and multiple regression or an applied research term paper using statistical methods and data collected from a work environment. AA/AS area D2; CSU area B3