

Area: Mathematics  
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Degree: A.S. - Mathematics  
 A.S. - Physical Science/Mathematics  
 A.S. for Transfer Degree - Mathematics

### Mathematics Degree

The A.S. degree in mathematics provides a foundation of mathematics for students in preparation for transfer to a four-year program in mathematics or statistics. Course work includes a three-semester calculus series, differential equations, linear algebra, and statistics and/or symbolic logic.

#### Student Learning Outcomes

*Upon completion of this program, the student will be able to:*

- identify, formulate, and solve applied problems (using calculus and linear algebra) in verbal, numeric, graphical, and symbolic form related to science, economics, or business.
- recognize and construct valid arguments using deductive and inductive reasoning skills.
- define and utilize terminology of mathematics with emphasis in calculus, linear algebra, and either statistics, logic or problem solving.
- calculate derivatives and integrals using a variety of defined rules and strategies of calculus, algebraic properties and trigonometric identities.

Requirements for Degree	25 Units
MATH 400 Calculus I .....	5
MATH 401 Calculus II .....	5
MATH 402 Calculus III .....	5
MATH 410 Introduction to Linear Algebra .....	3
MATH 420 Differential Equations .....	4
<b>And a minimum of 3 units from the following:</b> .....	3
MATH 320 Symbolic Logic (3)	
or PHIL 324 Symbolic Logic (3)	
STAT 300 Introduction to Probability and Statistics (4)	

**Associate Degree Requirements:** The Mathematics Associate in Science (A.S.) Degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See ARC graduation requirements.

### Physical Science/Mathematics Degree

This program provides a broad study in fields of physical science and mathematics. It provides a good foundation for transfer to a four-year program in science.

#### Student Learning Outcomes

*Upon completion of this program, the student will be able to:*

- recognize and utilize correctly the terminology of math, statistics and/or science.
- analyze and interpret data, charts and graphs using quantitative and qualitative methods.
- recognize and construct valid arguments using deductive and inductive reasoning.
- evaluate new and accepted ideas about the natural universe using testable methodology.

#### Career Opportunities

This program is intended to provide a broad foundation of skills and knowledge to help students succeed in the completion of a bachelor's degree in a variety of science, math or engineering-related areas.

Requirements for Degree	18 Units
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**A minimum of 18 units from the following:**..... 18<sup>1</sup>  
 Transferable courses must be selected from the following areas:  
 astronomy, chemistry, engineering, geology, mathematics,  
 physical geography, physical science, physics, and statistics.

<sup>1</sup>excludes GIS and cultural geography courses

**Associate Degree Requirements:** The Physical Science/Mathematics Associate in Science (A.S.) Degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See ARC graduation requirements.

## Mathematics A.S. for Transfer Degree

This degree is designed to meet common lower-division requirements for a major in Mathematics at a CSU campus. Satisfactory completion of the ARC Mathematics transfer degree provides a solid foundation and satisfies the standard prerequisites for upper division coursework for Mathematics majors. However, it is highly recommended that students meet with a counselor since major and general education requirements vary for each college/university.

The Mathematics Associate in Science for Transfer (AS-T) Degree may be obtained by completion of 60 transferable, semester units with a minimum 2.0 GPA, including (a) the major or area of emphasis described in the Required Program, and (b) the Intersegmental General Education Transfer Curriculum (IGETC) Requirements.

### Student Learning Outcomes

Upon completion of this program, the student will be able to:

- evaluate, describe, and apply single variable calculus including various forms of derivatives and integrals, to analyze and solve problems.
- evaluate, describe, and apply multivariate calculus, linear algebra, and differential equations to analyze and solve problems.
- prepare logical arguments and use them to prove basic mathematical theorems.
- solve real-world application problems using appropriate mathematical problem-solving skills.

### Career Opportunities

Mathematicians work as statisticians, analysts, computer programmers, actuaries, researchers, planners, and educators. This transfer degree is designed to meet the common lower-division requirements for most bachelor's degrees in Mathematics.

Requirements for Degree	22 Units
MATH 400 Calculus I.....	5
MATH 401 Calculus II.....	5
MATH 402 Calculus III.....	5
MATH 410 Introduction to Linear Algebra.....	3
MATH 420 Differential Equations.....	4

Associate in Science for Transfer Degree Requirements: The Mathematics Associate in Science for Transfer (A.S.T.) Degree may be obtained by completion of 60 transferable, semester units with a minimum 2.0 GPA, including (a) the major or area of emphasis described in the Required Program, and (b) either the Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education-Breadth Requirements.

## Mathematics

### MATH 10 Developing Confidence in Math 1 Unit

*Advisory: Concurrent enrollment in another math course*  
*Hours: 18 hours LEC*

This course helps students to recognize common fears and misconceptions of mathematics, and to overcome math anxiety and avoidance. Strategies to achieve success in mathematical situations are discussed. This course is also useful for tutors, counselors, and teachers interested in helping others overcome their math anxiety. Credit/No Credit only.

### MATH 23 Computational Arithmetic - Part I 2 Units

*Advisory: Confirm placement using ARC's Math Self-Assessment System*  
*Hours: 36 hours LEC*

This course introduces the fundamentals of arithmetic with an emphasis on computational skills. Topics include whole numbers, exponents, order of operations, factors, fractions, problem solving, and applications.

### MATH 24 Computational Arithmetic - Part II 2 Units

*Prerequisite: MATH 23 with a grade of "C" or better*  
*Hours: 36 hours LEC*

This course completes the fundamentals of arithmetic with an emphasis on computational skills. Topics include rounding decimals, operations on decimals, ratios, rates, proportions, percents, problem solving, and applications.

### MATH 25 Computational Arithmetic 3 Units

*Advisory: Confirm placement using ARC's Math Self-Assessment System*  
*Hours: 54 hours LEC*

This course covers fundamentals of arithmetic with an emphasis on computational skills. Topics include whole numbers, fractions, decimals, problem solving, and applications.

### MATH 32 Pre-Algebra 3 Units

*Prerequisite: MATH 24 or 25 with a grade of "C" or better; or placement through the assessment process.*  
*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 38 Pre-Algebra - Part I 2 Units

*Prerequisite: MATH 24 or 25 with a grade of "C" or better; or placement through the assessment process.*  
*Hours: 36 hours LEC*

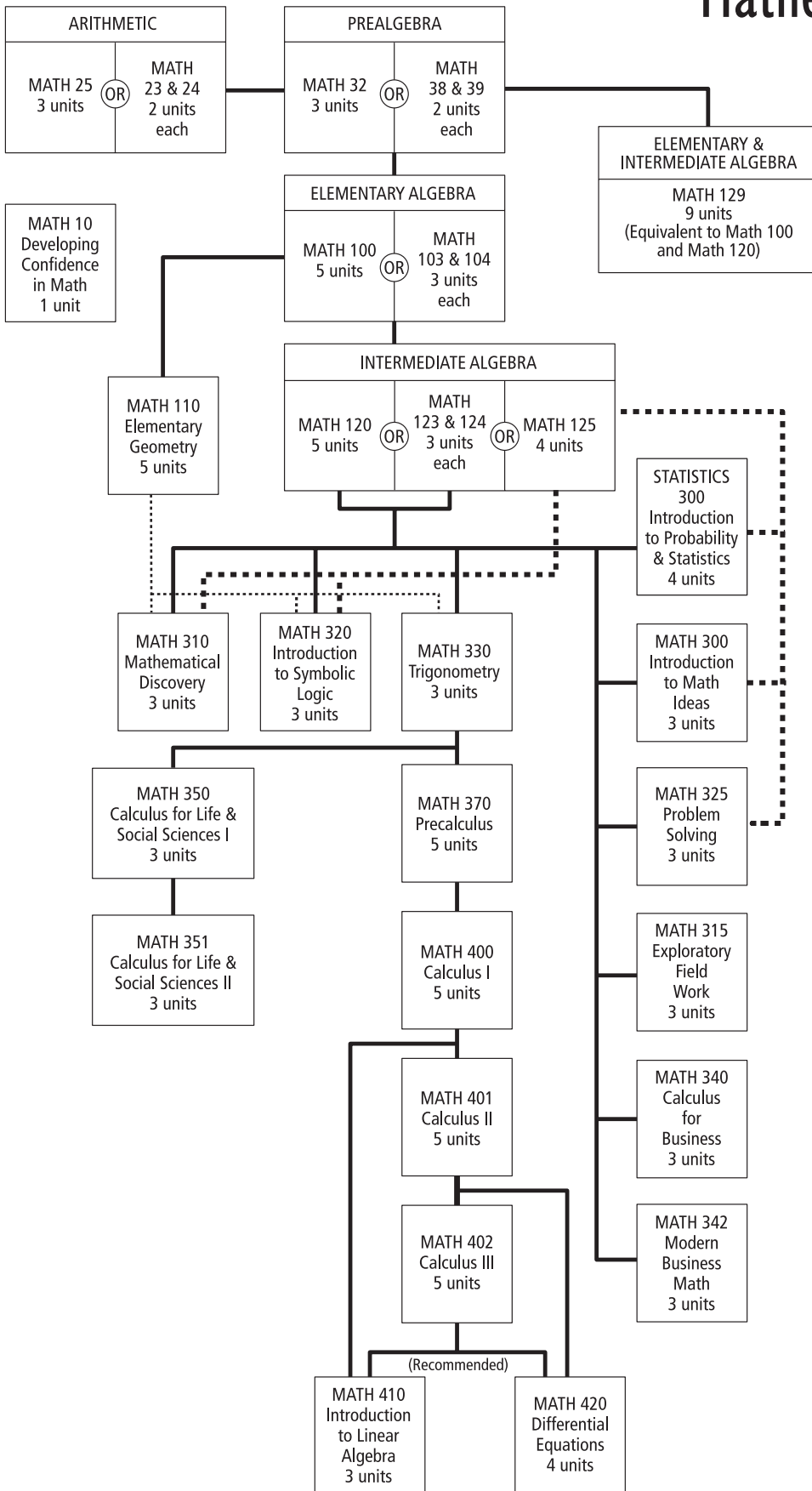
This course introduces material that is essential for success in algebra. Topics include order of operations, signed numbers, application problems, concepts of variables, exponents, and solving equations. In addition, the fundamentals of arithmetic are briefly reviewed, including operations on whole numbers, fractions, and decimals.

### MATH 39 Pre-Algebra - Part II 2 Units

*Prerequisite: MATH 38 with a grade of "C" or better*  
*Hours: 36 hours LEC*

This course completes material that is essential for success in algebra. Topics include percent problems, proportions, solving algebraic equations, applications of equations, polynomials, graphing points and lines, and area/perimeter/volume of geometric figures.

# Mathematics Courses



A course that is connected to a course below it is a prerequisite for that course. See your counselor to choose the most direct path for your educational goals.

MATH 125 (see thick dashed line) satisfies the INTERMEDIATE ALGEBRA prerequisite for STATISTICS 300 and MATH 300, 310, 320 and 325.

MATH 125 does not satisfy the Intermediate Algebra prerequisite for MATH 315, 330, 340 or 342. These courses require MATH 120 or 124.

In addition, MATH 310, 320 and 330 require MATH 110 (see thin dashed line).

**STATWAY PROGRAM**  
This is a two-semester accelerated sequence to take students from ELEMENTARY ALGEBRA to STATISTICS in one year.  
Prerequisite: PREALGEBRA

STATISTICS 105  
Statway I  
6 units

STATISTICS 305  
Statway II  
6 units

MATH 23, 24, 38, 39, 103, 104, 123 and 124 are available as MATH 1000 in the Multimedia Math Learning Center.

**MATH 100 Elementary Algebra 5 Units**

*Prerequisite: MATH 32 or 39 with a grade of "C" or better; or placement through the assessment process.*  
Hours: 90 hours LEC

This course covers the fundamental concepts and operations of algebra with problem solving skills emphasized. Topics include properties of real numbers, linear equations and inequalities, integer exponents, polynomials, and factoring polynomials. Other topics include rational exponents, rational/radical expressions with associated equations, the rectangular coordinate system, graphs and equations of lines, systems of linear equations, and solving quadratic equations.

**MATH 103 Elementary Algebra, Part I 3 Units**

*Prerequisite: MATH 32 or 39 with a grade of "C" or better; or placement through the assessment process.*  
Hours: 54 hours LEC

This course covers the first half of the traditional MATH 100 course and includes the fundamental concepts and operations of algebra with problem solving skills emphasized. Topics include properties of real numbers, linear equations and inequalities, integer exponents, polynomials, systems of linear equations and inequalities, the rectangular coordinate system, graphs and equations of lines, and applications.

**MATH 104 Elementary Algebra, Part II 3 Units**

*Prerequisite: MATH 103 with a grade of "C" or better*  
Hours: 54 hours LEC

This course covers the second half of the traditional MATH 100 course. Topics include polynomial factorization, rational expressions and equations, radical expressions and equations, rational exponents, quadratic equations, and applications.

**MATH 110 Elementary Geometry 5 Units**

*Prerequisite: MATH 100 or 104 with a grade of "C" or better; or placement through the assessment process.*  
Hours: 90 hours LEC

This course covers aspects of elementary geometry. Topics include terms and definitions, properties of parallel lines and parallelograms, congruent and similar triangles, properties of triangles, right triangles, and basic trigonometry. Later topics include properties of circles, construction of loci, areas, and volumes. The course also emphasizes problem solving strategies, elementary logic, and reading and writing proofs.

**MATH 120 Intermediate Algebra 5 Units**

*Prerequisite: MATH 100 or 104 with a grade of "C" or better; or placement through the assessment process.*  
*General Education: AA/AS Area II(b)*  
Hours: 90 hours LEC

This course reviews and extends the concepts of elementary algebra with an emphasis on problem solving. Topics which are reviewed and extended include linear and quadratic equations, inequalities, factoring polynomials, rational expressions, exponents, radicals, graphing, 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.

**MATH 123 Intermediate Algebra, Part I 3 Units**

*Prerequisite: MATH 100 or 104 with a grade of "C" or better; or placement through the assessment process.*  
Hours: 54 hours LEC

This course reviews and extends the concepts of elementary algebra with an emphasis on problem solving. Topics include solving linear equations and inequalities, factoring of polynomials, solving quadratic equations, rational expressions, exponents, solving equations containing rational expressions, equations of lines, functions, and absolute value equations and inequalities.

**MATH 124 Intermediate Algebra, Part II 3 Units**

*Prerequisite: MATH 123 with a grade of "C" or better*  
*General Education: AA/AS Area II(b)*  
Hours: 54 hours LEC

This course extends the concepts of elementary algebra and MATH 123 with problem solving skills emphasized throughout. Topics include graphs and their translations and reflections, radicals and complex numbers, composite and inverse functions, exponential and logarithmic functions, graphs of quadratic and polynomial functions, nonlinear systems of equations, and an introduction to conic sections.

**MATH 125 Intermediate Algebra with Applications 4 Units**

*Prerequisite: MATH 100 or 104 with a grade of "C" or better; or placement through the assessment process.*  
*General Education: AA/AS Area II(b)*  
Hours: 72 hours LEC

This course is designed for the intermediate algebra student who plans to continue on to MATH 300, 310, 320, 325, STAT 300 or complete an associate degree. It does not fulfill the prerequisite for MATH 315, 330, or higher numbered math courses. Topics include linear functions, models, systems, and graphs, as well as polynomial, exponential, logarithmic, and quadratic functions. The course emphasizes authentic applications and mathematical models using real-world data.

**MATH 129 Elementary and Intermediate Algebra 9 Units**

*Prerequisite: MATH 32 or 39 with a grade of "C" or better; or placement through the assessment process.*  
*General Education: AA/AS Area II(b) (effective Summer 2012)*  
Hours: 162 hours LEC

This course covers the concepts of elementary and intermediate algebra with an emphasis on problem solving. Topics include linear and quadratic equations, inequalities, factoring polynomials, rational expressions, exponents, radicals, graphing, and system of equations. Additional 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.

**MATH 290 PACE: Applications of Mathematics 1 Unit**

Hours: 18 hours LEC

This course presents extended applications of mathematics not generally covered in the classroom. Topics include 2-D and 3-D geometry, measurement, proportion, and budgetary analysis. The course incorporates computer software as a learning tool. It culminates in a final project and presentation.

**MATH 294 Topics in Mathematics 5-4 Units**

*Hours: 72 hours LEC*

This course is designed to give students an opportunity to study topics in mathematics not included in current course offerings. Individualized topics are developed to foster, complement and build upon arithmetic, geometric and algebraic skills with an emphasis on critical thinking. The course may be taken four times for a maximum of 6 credits with no duplication of topics.

**MATH 300 Introduction to Mathematical Ideas 3 Units**

*Prerequisite: MATH 120, 124, 125, or 129 with a grade of "C" or better; or placement through the assessment process.*

*General Education: AA/AS Area II(b); CSU Area B4*

*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.

**MATH 310 Mathematical Discovery 3 Units**

*Prerequisite: Math 110 and either Math 120, Math 124, Math 125, or Math 129 with grades of "C" or better or placement through the assessment process.*

*General Education: AA/AS Area II(b); CSU Area B4*

*Course Transferable to UC/CSU*

*Hours: 54 hours LEC*

This course explores mathematical patterns and relations, and formulation and proof of conjectures. Topics from number theory, probability and statistics, and geometry will be investigated. Recommended for students interested in education.

**MATH 315 Exploratory Field Experience in Mathematics 3 Units**

*Prerequisite: Math 120 (Intermediate Algebra) or Math 124 (Intermediate Algebra, Part II) or Math 129 (Elementary and Intermediate Algebra) with a grade of "C" or better or placement through the assessment process.*

*Enrollment Limitation: Current TB clearance is required prior to work in schools. Fingerprinting may also be required.*

*General Education: AA/AS Area III(b)*

*Course Transferable to UC/CSU*

*Hours: 36 hours LEC; 54 hours LAB*

This course is an education-based field experience in mathematics allowing students to explore teaching as a career choice. Students are assigned to area schools to observe and/or assist in a mathematics classroom. Students have the opportunity to learn and practice essential skills to assist younger students with their progress through the mathematics sequence, and to learn about social, cultural, and educational issues related to mathematics and the school environment. Weekly seminars allow students to share experiences and compare observations. This course is recommended for those who may wish to pursue a single-subject credential in mathematics.

**MATH 320 Symbolic Logic 3 Units**

*Same As: PHIL 324*

*Prerequisite: MATH 120, 124, 125, or 129 with a grade of "C" or better; or placement through the assessment process.*

*General Education: AA/AS Area II(b)*

*Course Transferable to UC/CSU*

*Hours: 54 hours LEC*

This course is an introduction to symbolic logic. It includes a study of the logic of sentences (propositional logic) and the logic of classes and relations (predicate logic), together with an introduction to the nature of deductive systems. This course is not open to students who have completed PHIL 324.

**MATH 325 Problem-Solving 3 Units**

*Prerequisite: MATH 120, 124, 125, or 129 with a grade of "C" or better; or placement through the assessment process.*

*General Education: AA/AS Area II(b); CSU Area B4*

*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**

*Prerequisite: MATH 110 with a grade of "C" or better; or placement through the assessment process.; MATH 120, MATH 124 or MATH 129 with a grade of "C" or better or placement through the assessment process.*

*General Education: AA/AS Area II(b); CSU Area B4*

*Course Transferable to CSU*

*Hours: 54 hours LEC*

This course presents the fundamentals of trigonometry. Topics include definitions of trigonometric and circular functions, graphs, identities and applications. Other material covered includes solving trigonometric equations, solving triangles using the Laws of Sines and Cosines, vectors, polar coordinates and polar representations of complex numbers.

**MATH 340 Calculus for Business and Economics 3 Units**

*Prerequisite: MATH 120, 124, or 129 with a grade of "C" or better; or placement through the assessment process.*

*General Education: AA/AS Area II(b); CSU Area B4; IGETC Area 2*

*Course Transferable to UC/CSU*

*Hours: 54 hours LEC*

This course is an introduction to differential and integral calculus with applications in the fields of business, economics, social science and biological science. It is not recommended for mathematics and physical science majors.

**MATH 342 Modern Business Mathematics 3 Units**

*Prerequisite: MATH 120, 124, or 129 with a grade of "C" or better; or placement through the assessment process.*

*General Education: AA/AS Area II(b); CSU Area B4*

*Course Transferable to CSU*

*Hours: 54 hours LEC*

This course is designed around applications of mathematics in economic and business contexts. Specific topics 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.

**MATH 344 Finite Mathematics 3 Units**

*Prerequisite: MATH 120, 124, or 129 with a grade of "C" or better; or placement through the assessment process.*

*General Education: AA/AS Area II(b); CSU Area B4; IGETC Area 2*

*Course Transferable to UC/CSU*

*Hours: 54 hours LEC; 18 hours LAB*

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.

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

*Prerequisite: MATH 330 with a grade of "C" or better*

*General Education: AA/AS Area II(b); CSU Area B4; IGETC Area 2*

*Course Transferable to UC/CSU*

*Hours: 54 hours LEC*

This course covers functions, limits, and derivatives, and introduces antiderivatives. Algebraic and computational techniques are emphasized in applications from business, and social and biological sciences. It is not recommended for math or engineering majors.

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

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

*General Education: CSU Area B4; IGETC Area 2*

*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.

**MATH 360 Introduction to Scientific Graphing Calculators 1 Unit**

*Prerequisite: MATH 330 with a grade of "C" or better*

*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**

*Prerequisite: MATH 330 with a grade of "C" or better*

*General Education: AA/AS Area II(b); CSU Area B4; IGETC Area 2*

*Course Transferable to UC/CSU*

*Hours: 90 hours LEC*

This course includes application and graphing of polynomial, logarithmic, exponential and trigonometric functions, as well as systems of linear and non-linear equations and inequalities. It also covers analytic geometry including straight lines, conic sections, graphing and curve sketching.

**MATH 400 Calculus I 5 Units**

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

*Advisory: Students who took Precalculus in a non-college setting should confirm adequate preparation for MATH 400 using ARC's Math Self-Assessment System*

*General Education: AA/AS Area II(b); CSU Area B4; IGETC Area 2*

*Course Transferable to UC/CSU*

*Hours: 90 hours LEC*

This course is an introduction to differential and integral calculus. It includes limits, continuity, differentiation and integration of algebraic, trigonometric, logarithmic, exponential, and other transcendental functions. Some applications are also covered.

**MATH 401 Calculus II 5 Units**

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

*General Education: CSU Area B4; IGETC Area 2*

*Course Transferable to UC/CSU*

*Hours: 90 hours LEC*

This course is a continuation of MATH 400. It builds on the methods of integration learned in MATH 400, and also covers improper integrals, sequences, infinite series, power series, polar coordinates, and parametric and polar equations. Many calculus applications are also included.

**MATH 402 Calculus III 5 Units**

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

*General Education: CSU Area B4; IGETC Area 2*

*Course Transferable to UC/CSU*

*Hours: 90 hours LEC*

This course is a continuation of MATH 401. It extends the concepts of limits, derivatives, and integrals to vector-valued functions and multi-variable functions. The topics include: multi-variable functions, partial derivatives, extrema of multi-variable functions, iterated integrals, development of vector calculus, line integrals, three dimensional analytic geometry, and Green's, Gauss' (Divergence), and Stokes' Theorems. Many applications of calculus are also covered.

**MATH 410 Introduction to Linear Algebra 3 Units**

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

*Advisory: MATH 402*

*General Education: CSU Area B4; IGETC Area 2*

*Course Transferable to UC/CSU*

*Hours: 54 hours LEC*

This course provides an introduction to linear algebra including matrices, determinants, vector spaces, linear transformations, and eigenvectors. It is intended for majors in mathematics, engineering, economics, science, and related fields.

### MATH 420 Differential Equations

4 Units

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

*Advisory:* MATH 402

*General Education:* CSU Area B4; IGETC Area 2

*Course Transferable to UC/CSU*

*Hours:* 72 hours LEC

This course is a study of ordinary differential equations, including linear equations, systems of equations, equations with variable coefficients, existence and uniqueness of solutions, series solutions, singular points, transform methods, boundary value problems, and applications.

### MATH 480 Honors Seminar in Mathematics

1 Unit

*Prerequisite:* MATH 370 with a grade of "C" or better

*Course Transferable to CSU*

*Hours:* 18 hours LEC

Honors Seminar in Mathematics is a one-unit intensive course. The course is taught in a seminar format where work is done independently in pursuit of solutions to challenging problems in mathematics in consultation with the instructor. Seminar participants will explore strategies and techniques for solving problems and present their solutions to the class.

### MATH 481 Honors Applications of Calculus

1 Unit

*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 1000 Individualized Mathematics

2-3 Units

*Prerequisite:* To enroll in a "Part I" course, confirm placement by one of the following

*Advisory:* CISC 100, CISC 300, CISC 305, ENGRD 116, or ESLR 320

*Hours:* 54 hours LEC

Math 1000 is ARC's individualized math program, which is located in the Multimedia Math Learning Center (MMLC). Students are placed into Math 23, 24, 38, 39, 103, 104, 123, or 124 during orientation (first two class meetings are mandatory!) through the use of the required prerequisite. Students must purchase a textbook & online course website student access kit. Use of a computer with Internet access is required. Students work through the material on an independent study basis and take exams after each unit in the MMLC. Assistance such as instructors, instructional assistants, student tutors, video lectures, and one-on-one tutoring appointments are available to enrolled students only. Enrollment occurs only during first two weeks of the Fall/Spring semester and only during first week of Summer session. For the most updated info, please visit our website: [http://www.arc.losrios.edu/Programs\\_of\\_study/Mathematics/mmlc.htm](http://www.arc.losrios.edu/Programs_of_study/Mathematics/mmlc.htm)

## Statistics

### STAT 105 Statway, Part I

6 Units

*Prerequisite:* MATH 32 or 39 with a grade of "C" or better; or placement through both the COMPASS assessment test and the math self-assessment test.

*Advisory:* ENGRD 116 or ESLR 320

*Hours:* 108 hours LEC

This is the first semester of a two-semester course that introduces the concepts of probability and statistics with requisite arithmetic and algebraic topics integrated throughout. It is structured to serve students planning to transfer and continue studies in humanities or social sciences. Statistics topics emphasize data analysis and include methods for collecting data, graphical and numerical descriptive statistics, correlation, and simple linear regression. Algebra topics include proportional relationships (including variation) with applications, expressions, linear equations and systems with applications, functions, quadratic and exponential equations, and linear and exponential/logarithmic models. Learning strategies for success with an emphasis on study skills, resource acquisition, and maintaining a positive perspective towards learning are also discussed and applied.

### STAT 300 Introduction to Probability and Statistics

4 Units

*Prerequisite:* MATH 120, 124, 125, or 129 with a grade of "C" or better; or placement through the assessment process.

*General Education:* AA/AS Area II(b); CSU Area B4; IGETC Area 2

*Course Transferable to UC/CSU*

*Hours:* 72 hours LEC

This course is an introduction to probability and statistics. Topics include elementary principles and applications of descriptive statistics, counting principles, elementary probability principles, probability distributions, estimation of parameters, hypothesis testing, linear regression and correlation, and Analysis of Variance (ANOVA). A calculator with two-variable statistics capabilities is required.

### STAT 305 Statway, Part II

6 Units

*Prerequisite:* STAT 105 with a grade of "C" or better

*Advisory:* ENGRD 116 or ESLR 320

*General Education:* AA/AS Area II(b); CSU Area B4

*Course Transferable to CSU*

*Hours:* 108 hours LEC

This is the second semester of a two-semester course that introduces the concepts of probability and statistics with requisite arithmetic and algebraic topics integrated throughout. It is structured to serve students planning to transfer and continue studies in humanities or social sciences. Statistics topics emphasize data analysis and include basic concepts of probability; confidence intervals; hypothesis tests for means, proportions, and variance; chi-squared tests; and ANOVA (Analysis of Variance). Algebra topics include proportional relationships (including variation) with applications, expressions, linear equations and systems with applications, functions, quadratic and exponential equations, and linear and exponential/logarithmic models. Learning strategies for success with an emphasis on study skills, resource acquisition, and maintaining a positive perspective towards learning are also discussed and applied. Both parts of Statway must be completed with a grade of "C" or better to receive credit for three units of transfer-level statistics.