



Mathematics

ASSOCIATE IN ARTS DEGREE

Required Courses: 18 units

Course Number	Title	Units
MATH B6a	Analytic Geometry and Calculus I	4.0
MATH B6b	Analytic Geometry and Calculus II	4.0
MATH B6c	Calculus III	4.0
MATH B6d	Ordinary Differential Equations	3.0
MATH B6e	Elementary Linear Algebra	3.0

Recommended Courses

Course Number	Title	Units
PHIL B7	Introduction to Logic	3.0
PHYS B	Approved Course	4.0
COMS B12	Introduction to Programming with BASIC	3.0
COMS B13	Introduction to Programming in FORTRAN	3.0
MATH B22	Elementary Probability and Statistics	5.0

COURSE DESCRIPTIONS

The following abbreviations are commonly used in the course descriptions: **lect** lecture; **lab** laboratory; **demo** demonstration; **Repeat** repeatability (see policy on course repetition); **CCS** Course Classification System. Hours given in parentheses are total hours for the course. Hours lecture, lab, etc., are hours required per week usually. **Offered:** F=course is offered fall semester; S=course is offered spring semester; SS=course is offered summer session. If there is no designation, the course is offered irregularly. Check with the department for information. Many classes are offered occasionally during the summer. Check the summer class schedule for additional course listings. Prerequisites are expressed as minimum requirements. See page 40 for a complete explanation. (CSU) indicates transferable to California State Universities; (UC) indicates transferable to University of California.

MATHEMATICS

Credit limitations may apply. For specific information see a counselor.

MATH BA Elementary Algebra (3 units)

Fundamental concepts and mathematical processes, first degree equations, special products and factoring, fractions and fractional equations, ratios, proportions, radicals, exponents, graphs, simultaneous linear equations, quadratic equations. **Prerequisites:** MATH B50 or equivalent pre-algebra course or qualifying score on entrance examination. **Recommended:** Reading Level 5 or 6. **Hours:** (90) 5 lect. **Offered:** F, S, SS. **CCS:** Liberal Arts & Sciences. **Not Transferable:** Associate Degree only.

MATH BB Geometry (3 units)

Includes congruence and similarity of triangles, parallel and perpendicular lines, quadrilaterals, polygons, circles, the

Pythagorean Theorem, ratio and proportion, and area. Deductive reasoning with various methods of proof are used extensively. **Prerequisites:** MATH BA or MATH B200a or one year of high school algebra or equivalent with a grade of "C." **Recommended:** Reading Level 5 or 6. **Hours:** (90) 5 lect. **Offered:** S. **CCS:** Liberal Arts & Sciences. **Not Transferable:** Associate Degree only.

MATH BC Plane Trigonometry (3 units)

Definitions of trigonometric functions, graphs of trigonometric functions, use of trigonometric functions in problem solving, derivation of trigonometric identities, verification of trigonometric identities, solutions of conditional trigonometric equations, study of inverse trigonometric functions, complex numbers, trigonometric form of complex numbers and DeMoivre's Theorem. **Prerequisites:** Plane Geometry and MATH BD or MATH B200d or two years of high school algebra or equivalent with a grade of "C." **Recommended:** Reading Level 5 or 6. **Hours:** (54) 3 lect. **Offered:** F, S, SS. **CCS:** Liberal Arts & Sciences. **Transferable:** CSU and private colleges.

MATH BD Intermediate Algebra (4 units)

Sets and operations, signed numbers, factoring, linear equations, simple and complex fractions, functional notation, simple graphs, exponents and radicals, quadratic equations, the conics, variation, determinants, logarithms, exponential equations, sequences and series and the binomial expansion. **Prerequisite:** MATH BA or MATH B200a or one year of high school algebra or equivalent with a grade of "C." **Recommended:** Reading Level 5 or 6. **Hours:** (90) 5 lect. **Offered:** F, S, SS. **CCS:** Liberal Arts & Sciences. **Not Transferable:** Associate Degree only.

MATH B1 Mathematical Analysis (4 units)

Polynomial, rational, exponential, logarithmic, trigonometric and circular functions, elementary theory of equations, graphing techniques, selected topics from analytic geometry, mathematical inductions, sequences and series, geometric and algebraic vectors, symbolic logic, matrix operations and methods of proof. **Prerequisite:** MATH BC or equivalent with a grade of "C." **Hours:** (90) 5 lect. **Offered:** F, S, SS. **CCS:** Liberal Arts & Sciences. **Transferable:** UC, CSU and private colleges.

MATH B2 Basic Functions and Calculus for Business (4 units)

Modern concepts in mathematics including functions, matrix algebra and sequences; the basic concepts of differential calculus with an introduction to integral calculus involving numerous applications to business. **Prerequisite:** MATH BD or MATH B200d or two years of high school algebra or equivalent with a grade of "C." **Hours:** (72) 4 lect. **Offered:** F, S. **CCS:** Liberal Arts & Sciences. **Transferable:** UC, CSU and private colleges.

MATH B6a Analytic Geometry and Calculus I (4 units)

Elements of analytic geometry, differential calculus and introduction to integration of algebraic functions. **Prerequisite:** MATH B1 or equivalent with a grade of "C." **Hours:** (72) 4 lect. **Offered:** F, S. **CCS:** Liberal Arts & Sciences. **Transferable:** UC, CSU and private colleges. (CAN MATH 18) (MATH B6a + MATH B6b = CAN MATH SEQ B) (MATH B6a + MATH B6b + MATH B6c = CAN MATH SEQ C)

MATH B6b Analytic Geometry and Calculus II (4 units)

Transcendental functions, polar coordinates, sequences, infinite series and methods of integration. Further exposure to techniques and applications of differential and integral calculus. **Prerequisite:** MATH B6a or equivalent with a grade of "C." **Recommended:** Reading Level 5 or 6. **Hours:** (72) 4 lect. **Offered:** F, S, SS. **CCS:** Liberal Arts & Sciences. **Transferable:** UC, CSU and private colleges. (CAN MATH 20) (MATH B6a + MATH B6b = CAN MATH SEQ B) (MATH B6a + MATH B6b + MATH B6c = CAN MATH SEQ C)

MATH B6c Calculus III (4 units)

Continuation of Calculus II. Vectors and parametric equations, vector-valued functions, partial differentiation, multiple integrals, vector analysis, including theorems of Green, Gauss and Stokes. **Prerequisite:** MATH B6b or equivalent with a grade of "C." **Hours:** (72) 4 lect. **Offered:** F, S. **CCS:** Liberal Arts & Sciences. **Transferable:** UC, CSU and private colleges. (CAN MATH 22) (MATH B6a + MATH B6b + MATH B6c = CAN MATH SEQ C)

MATH B6d Ordinary Differential Equations (3 units)

Vector spaces and linear transformations; elementary differential equations; Laplace transforms; series solutions and systems of differential equations; matrices and eigenvalues. **Prerequisite:** MATH B6c or equivalent with a grade of "C." **Hours:** (54) 3 lect. **Offered:** F, S. **CCS:** Liberal Arts & Sciences. **Transferable:** UC, CSU and private colleges. (CAN MATH 24)

MATH B6e Elementary Linear Algebra (3 units)

Real and complex number fields, vector spaces, linear transformation, matrices, systems of equations and matrix inversion, determinants, eigenvalues and eigenvectors. **Prerequisite:** MATH B6c or equivalent with a grade of "C." **Hours:** (54) 3 lect. **Offered:** S. **CCS:** Liberal Arts & Sciences. **Transferable:** UC, CSU and private colleges. (CAN MATH 26)

MATH B16 Liberal Arts Mathematics (4 units)

Major mathematical concepts in the areas of management, science, statistics, social choice, the geometry of size and shape, and mathematics for computer science. Emphasis is on real-world applications. Students will learn to think logically and read technical information critically. Historical vignettes. For liberal arts students. **Prerequisite:** MATH BD or equivalent

with a grade of "C." **Recommended:** Reading Level 5 or 6.. **Hours:** (90) 5 lect. **Offered:** F, S, SS. **CCS:** Liberal Arts & Sciences. **Transferable:** CSU and private colleges. (CAN MATH 2)

MATH B22 Elementary Probability and Statistics (5 units)

Graphical methods of description of data, finite probability; discrete and continuous random variables; sampling distributions; hypothesis testing for large and small samples, analysis of variance, nonparametric statistics; linear regression and correlation. **Prerequisite:** MATH BD or MATH B200d or equivalent with a grade of "C." **Recommended:** Reading Level 5 or 6. **Hours:** (90) 5 lect. **Offered:** F, S, SS. **CCS:** Liberal Arts & Sciences. **Transferable:** UC, CSU and private colleges. (CAN STAT 2)

MATH B23 Finite Mathematics (3 units)

Includes sets and Venn diagrams, solving equations and inequalities in one variable, relations and functions, matrices, linear inequalities in two variables, linear programming, mathematics of finance including simple and compound interest, annuities, and probability. **Prerequisite:** Math D with a grade of "C". **Hours:** (54) 3 lect. **CCS:** Liberal Arts and Sciences. **Transferable:** UC, CSU and private colleges.

MATH B50 Modern College Arithmetic and Pre-Algebra (3 units)

A general review of basic arithmetic including the fundamental operations of addition, subtraction, multiplication and division of whole numbers, fractions and decimals. Emphasis is placed on real life applications, including percents, ratios, proportions, exponents, averages, estimation, graphs and measurement. The introduction to algebra includes operations with signed numbers and solving simple equations. **Recommended:** Qualifying score on placement assessment and/or evaluation by counselor. Reading Level 4. **Hours:** (72) 4 lect. **Offered:** F, S, SS. **CCS:** Precollegiate - basic skills. **Not Transferable:** Not degree applicable. **Note:** Not open to students who have taken MATH B251 and B252.

MATH B56 Advanced Algebra Topics for Business Calculus (1 unit)

Advanced algebra applied to business. Algebra topics include rational exponents, factoring, complex fractions, linear, quadratics, and rational functions. Emphasis is on business applications. **Prerequisite:** MATH BD or equivalent with a grade of "C." **Hours:** (18) 6 lect for 3 weeks. **CCS:** Liberal Arts and Sciences. **Not Transferable:** Associate Degree only.

MATH B66 Precalculus Skill Development (0.5 unit)

Real numbers and the real line, coordinates, lines and increments, functions, shifting graphs, and trigonometric functions. **Prerequisite:** MATH B1. **Hours:** (18) 9 lect for 2 weeks. **CCS:** Liberal Arts and Sciences. **Not Transferable:** Associate Degree only.

MATH B200a Elementary Algebra (3 units)

Self-paced, open entry/open exit. For description, see MATH BA.

MATH 200d Intermediate Algebra (4 units)

Self-paced, open entry/open exit. For description, see MATH BD.

MATH B250 Modern College Arithmetic and Pre-Algebra (3 units)

Self-paced, open entry/open exit. For description, see MATH B50.

MATH B251 Modern College Arithmetic (2 units)

A general review of arithmetic, including the fundamental operations of addition, subtraction, multiplication and division of whole numbers, fractions, decimals, ratio, proportions and percents. **Hours:** (64) 4 lab for 16 weeks. Open entry/open exit. **Offered:** F, S, SS. **CCS:** Precollegiate - basic skills. **Not Transferable:** Not degree applicable. **Note:** MATH B251 and B252 are equivalent to MATH B50/B250. Not open to students who have taken MATH B50/B250.

MATH B252 Sign Numbers and Equations (1 unit)

A general review of signed numbers, exponents and simple algebraic equations. **Hours:** (24) 4 lab for 6 weeks. Open entry/open exit. **Offered:** F, S, SS. **CCS:** Precollegiate - basic skills. **Not Transferable:** Not degree applicable. **Note:** MATH B251 and B252 are equivalent to MATH B50/B250. Not open to students who have taken MATH B50/B250.

MATH B255 Math Problem Solving Lab (0.5 unit)

Designed for Math students desiring additional assistance in specific problem solving areas. Students will work on problems from math courses in which they are concurrently enrolled. **Hours:** (9) 9 hours arranged. Open entry/open exit. Repeat: 3. **CCS:** Liberal Arts and Sciences. **Not Transferable:** Not degree applicable.