

MATHEMATICS

MATH 1A Single-Variable Calculus and Analytic Geometry

Units: 4.0 Hours: 4.0 Lecture

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4; CAN:MATH18, MATH SEQ BC

Limits and continuity, analyzing the behavior and graphs of functions, derivatives, implicit differentiation, higher order derivatives, related rates and optimization word problems, Newton's Method, Fundamental Theorem of Calculus, and definite and indefinite integrals. PREREQUISITE: Mathematics 10 or Mathematics 8B with a grade of 'C' or better.

MATH 1B Single-Variable Calculus and Analytic Geometry

Units: 4.0 Hours: 4.0 Lecture

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4; CAN:MATH20, MATH SEQ BC

This course is a standard second semester Calculus course covering methods of integration, applications of the integral, differential equations, parametric and polar equations, and sequences and series. PREREQUISITE: Mathematics 1A with a grade of 'C' or better.

MATH 1C Multivariable Calculus

Units: 4.0 Hours: 4.0 Lecture

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4; CAN:MATH22, MATH SEQ BC

A standard third semester Calculus course covering functions of several variables, vectors, surfaces, vector-valued functions, partial derivatives, multiple and line integrals, Green's Theorem, Stokes' Theorem, and the Divergence Theorem. PREREQUISITE: Mathematics 1B with a grade of 'C' or better.

MATH 2 Linear Algebra

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4; CAN:MATH26

A standard one semester Linear Algebra course covering systems of linear equations, vectors and matrices, determinants, vector spaces, linear transformations, eigenvalues, and eigenvectors. Graphing calculators and computers will be used. PREREQUISITE: Mathematics 1C with a grade of 'C' or better.

MATH 2C Differential Equations

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4; CAN:MATH24

Introduction to ordinary differential equations, first-order differential equations, linear differential equations of higher order, vibration models, power-series solutions, the Laplace transform, and systems of linear differential equations. PREREQUISITE: Mathematics 1C with a grade of 'C' or better.

MATH 5 Introduction to Statistics

Units: 3.0 Hours: 3.0 Lecture 1.0 Laboratory

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4; CAN:STAT2

Descriptive analysis and presentation of either single-variable data or bivariate data, probability, probability distributions, normal probability distributions, sample variability, statistical inferences involving one and two populations, analysis of variance, linear correlation and regression analysis. Statistical computer software will be extensively integrated as a tool in the description and analysis of data. PREREQUISITE: Mathematics 233 with a grade of 'C' or better. The instructor will be using and supporting a TI-83 Plus graphing calculator in all classroom demonstrations.

MATH 6 Calculus for Business/Social Science

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4; CAN:MATH34

This course applies the fundamental principles and techniques of calculus to problems in business, economics, the life sciences and the social sciences. Topics will include limits, and differentiation and integration of linear, quadratic, polynomial, exponential and logarithmic functions. This course is not intended for students majoring in engineering, the physical sciences or math. Using a calculator is required. Graphing calculator is recommended. PREREQUISITE: Mathematics 233 with a grade of 'C' or better.

MATH 7 Finite Mathematics

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4; CAN:MATH12

Systems of linear equations and matrices, introduction to linear programming, finance, counting techniques and probability, properties of probability and applications of probability. PREREQUISITE: Mathematics 233 with a grade of 'C' or better.

MATH 8A First Half of Precalculus

Units: 4.0 Hours: 4.0 Lecture

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4

Math 8A prepares the student for the study of calculus by providing important skills in algebraic manipulation, interpretation, and problem solving at the college level. Topics will include basic algebraic concepts, complex numbers, equations and inequalities of the first and second degree, functions, and graphs, linear and quadratic equations, polynomial functions, exponential and logarithmic functions, systems of equations, matrices and determinants, right triangle trigonometry, and the Law of Sines and Cosines. PREREQUISITE: Mathematics 233 with a grade of 'C' or better. The instructor will be using and supporting TI-83 Plus graphing calculator in all classroom demonstrations.

MATH 8B Second Half of Precalculus

Units: 4.0 Hours: 4.0 Lecture

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4

Math 8B prepares students for the study of calculus by providing important skills in algebraic manipulation, interpretation, and problem solving at the college level. Topics will include trigonometric functions, identities, inverse trigonometric functions, and equations; applications of trigonometry, vectors, complex numbers, polar and parametric equations; conic sections; sequences, series, counting principles, permutations, mathematical induction; analytic geometry, and an introduction to limits. PREREQUISITE: Mathematics 8A with a grade of 'C' or better. ADVISORY: Math 208 Survey of Practical Geometry.

MATH 12 Mathematics for Elementary Teachers

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU, UC; CSU-GE:B4; GAV-GE:B4

This course is intended for students preparing for a career in elementary school teaching. Emphasis will be on the structure of the real number system, numeration systems, elementary number theory, and problem solving techniques. Technology will be integrated throughout the course. PREREQUISITE: High School Geometry and Math 233 (Intermediate Algebra), or, Math 208 (Plane Geometry) and Math 233 (Intermediate Algebra). All courses must be completed with a grade of 'C' or better.

MATH 14 Math for the Liberal Arts

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4

Survey of selected topics from contemporary mathematics to introduce the student to mathematical thinking for the non-specialist. Topics include systems of numeration, algebraic modeling, linear programming, trigonometry, math of finance, probability and statistics, and an introduction to calculus. PREREQUISITE: Math 233 with a grade of 'C' or better.

MATH 26 Discrete Mathematics

Units: 4.0 Hours: 4.0 Lecture

Transferable: CSU, UC; CSU-GE:B4, IGETC:2A; GAV-GE:B4

Topics covered include set theory, logic, relations and functions, mathematical induction and recursion, combinatorics, discrete probability, trees and graphs, analysis of algorithms, algebraic structures. Emphasis on topics of interest to computer science majors. This course has the option of a letter grade or pass/no pass. Also listed as CSIS 26. PREREQUISITE: Mathematics 10 with a grade of 'C' or better or equivalent.

MATH 201A Math for Science and Engineering**Units:** 1.0 **Hours:** 1.0 Lecture**Transferable:** No

This course will provide a combination of math study skills, introduction to scientific equipment and technology for mathematics, analysis of data from various branches of science, one or more field trips, investigation of educational plans and program choices at the transfer level. **COREQUISITE:** Enrollment in appropriate section of Math 205 which is part of a learning community.

MATH 201B Math for Science and Engineering**Units:** 1.0 **Hours:** 1.0 Lecture**Transferable:** No

This course will provide a combination of math study skills, introduction to scientific equipment and technology for mathematics, collection and analysis of data from various branches of science, one or more field trips, investigation of science careers and program choices at the transfer level. **COREQUISITE:** Enrollment in appropriate section of Math 233 which is part of a learning community.

MATH 205 Elementary Algebra**Units:** 5.0 **Hours:** 5.0 Lecture**Transferable:** No; GAV-GE:B4

This course is a standard beginning algebra course, including algebraic expressions, linear equations and inequalities in one variable, graphing, equations and inequalities in two variables, integer exponents, polynomials, rational expressions and equations, radicals and rational exponents, and quadratic equations. Mathematics 205, 205A and 205B, and 206 have similar course content. This course may not be taken by students who have completed Mathematics 205B or 206 with a grade of "C" or better. This course may be taken for Mathematics 205B credit (2.5 units) by those students who have successfully completed Mathematics 205A with a grade of "C" or better. **PREREQUISITE:** MATH 402 with a grade of 'C' or better or assessment test recommendation.

MATH 205A First Half of Elementary Algebra**Units:** 2.5 **Hours:** 4.0 Lecture**Transferable:** No; GAV-GE:B4

This course is the first half of the Elementary Algebra course. It will cover signed numbers, evaluation of expressions, ratios and proportions, solving linear equations, and applications. Graphing of lines, the slope of a line, graphing linear equations, solving systems of equations, basic rules of exponents, and operations on polynomials will be covered. **PREREQUISITE:** Effective Fall 2005: MATH 402 with a grade of 'C' or better or assessment test recommendation. **ADVISORY:** Concurrent enrollment in Guidance 563A is advised.

MATH 205B Second Half of Elementary Algebra**Units:** 2.5 **Hours:** 4.0 Lecture**Transferable:** No; GAV-GE:B4

This course contains the material covered in the second half of the Elementary Algebra Course. It will cover factoring, polynomials, solving quadratic equations by factoring, rational expressions and equations, complex fractions, radicals and radical equations, solving quadratic equations by completing the square and the quadratic formula. Application problems are integrated throughout the topics. **PREREQUISITE:** Math 205A with a grade of 'C' or better. **ADVISORY:** Concurrent enrollment in Guidance 563B is advised.

MATH 208 Plane Geometry**Units:** 3.0 **Hours:** 3.0 Lecture**Transferable:** No

This course introduces the vocabulary and principles of Euclidean Geometry. Methods of proof including inductive and deductive reasoning will be developed. Concepts of congruence and similarity, angles, lines, polygons, and circles will be covered. Additional topics such as solid geometry, analytical geometry, transformations, and basic trigonometry may be included as time allows. **PREREQUISITE:** Math 205 or Math 205A and Math 205B with a grade of 'C' or better.

MATH 209 Introduction to Graphing Calculators and Computers**Units:** .5 **Hours:** .3 Lecture .7 Laboratory**Transferable:** No

An introduction to the use of the graphing calculator in mathematical applications such as functions, graphing, matrices, statistics, and applications to other mathematics courses, business, and natural sciences. Students will also use a personal computer for basic operations such as drawing and text editing. The focus will be on application programs for statistics, science, and technical courses. This is a 9 week course. **ADVISORY:** Mathematics 205

MATH 233 Intermediate Algebra**Units:** 5.0 **Hours:** 5.0 Lecture**Transferable:** No; GAV-GE:B4

Review of basic concepts, linear equations and inequalities, graphs and functions, systems of linear equations, polynomials and polynomial functions, factoring, rational expressions and equations, roots, radicals, and complex numbers, solving quadratic equations, exponential and logarithmic functions, and problem solving strategies. Mathematics 233, 233A, and 233B have similar course content. This course may not be taken by students who have completed Mathematics 233B with a grade of 'C' or better. This course may be taken for Mathematics 233B credit (2.5) units by those students who have successfully completed Mathematics 233A with a grade of 'C' or better. **PREREQUISITE:** Mathematics 205 or Mathematics 205A and 205B or Mathematics 206 with a grade of 'C' or better. The instructor will be using and supporting TI-83 Plus graphing calculator in all classroom demonstrations.

MATH 233A First Half of Intermediate Algebra**Units:** 2.5 **Hours:** 4.0 Lecture**Transferable:** No

The course will start with a review of basic concepts and then cover the following topics with an emphasis on applications and problem solving strategies: solving linear equations; solving linear, compound, and absolute value inequalities; equations and graphs of lines; functions and function notation including composition of functions; solving systems of linear equations and inequalities; an introduction to matrices and Cramer's rule; operations with polynomials; factoring polynomials; and solving polynomial equations. **PREREQUISITE:** Completion of Mathematics 205 or the equivalent with a grade of 'C' or better.

MATH 233B Second Half of Intermediate Algebra**Units:** 2.5 **Hours:** 4.0 Lecture**Transferable:** No

This course will start with a review factoring polynomials, and then cover the following topics with an emphasis on applications and problem solving strategies: solving polynomial equations by factoring; adding, subtracting, multiplying, dividing and simplifying rational expressions and solving rational equations; adding, subtracting, multiplying, dividing and simplifying roots, radicals and complex numbers and solving radical equations; the various methods of solving quadratic equations and inequalities; graphing quadratic functions; and working with exponential and logarithmic functions, equations and expressions. **PREREQUISITE:** Completion of MATH 233A with a grade of 'C' or better.

MATH 400 Elements of Arithmetic**Units:** 3.0 **Hours:** 3.0 Lecture 1.0 Laboratory**Transferable:** No

Essential arithmetic operations, whole numbers, integers, fractions, decimals, ratio, proportion, percent, applications of arithmetic, and critical thinking, as well as math-specific study skills. Units earned in this course do not count toward the associate degree and/or other certain certificate requirements.

MATH 402 Pre-Algebra**Units:** 3.0 **Hours:** 3.0 Lecture 1.0 Laboratory**Transferable:** No

This course covers operations with integers, fractions and decimals and associated applications, percentages, ratio, and geometry and measurement, critical thinking and applications. Elementary algebra topics such as variables, expressions, and solving equations are introduced. **PREREQUISITE:** Completion of Math 400 with a 'C' or better, or assessment test recommendation.

General Education Requirements, pages 47-57



MATH 404A-G Self-Paced Basic Math

These courses are remedial, modular, self-paced courses. Application and critical thinking skills are developed in each module. Module A covers operations with whole numbers, equivalent fractions, multiplying and dividing fractions. Module B covers adding and subtracting fractions, and operations with decimals. Module C covers ratio and proportion, percent, and units of measurement. Module D reviews fractions, decimals, percentages, and covers operations with integers, and working with variables. Module E covers real numbers, fractions, exponents, scientific notation, and order of operations. Module F covers expressions, polynomials, and equations. Module G covers geometric figures, perimeter and area, surface area and volume, triangles and parallelograms, and similar figures. This course has the option of a letter grade or pass/no pass. These courses involve both lecture and hands-on computer assisted software. All sections are open for late registration. Math 404 A-C is the equivalent of Math 400. Math 404 D-F is the equivalent Math 402.

MATH 404A Self-Paced Basic Math

Units: 1.0 Hours: 1.0 Lecture .3 Laboratory
Transferable: No

MATH 404B Self-Paced Basic Math

Units: 1.0 Hours: 1.0 Lecture .3 Laboratory
Transferable: No

MATH 404C Self-Paced Basic Math

Units: 1.0 Hours: 1.0 Lecture .3 Laboratory
Transferable: No

MATH 404D Self-Paced Basic Math

Units: 1.0 Hours: 1.0 Lecture .3 Laboratory
Transferable: No

MATH 404E Self-Paced Basic Math

Units: 1.0 Hours: 1.0 Lecture .3 Laboratory
Transferable: No

MATH 404F Self-Paced Basic Math

Units: 1.0 Hours: 1.0 Lecture .3 Laboratory
Transferable: No

MATH 404G Self-Paced Basic Math

Units: 1.0 Hours: 1.0 Lecture .3 Laboratory
Transferable: No

MATH 414 Basic Math Skills

Units: .5 TO 3.0 Hours: 1.5 TO 3.0 Laboratory
Transferable: No

A remedial mathematics course designed for those students who need to learn, or re-learn, the basic concepts of math. The primary emphasis is on whole numbers, fractions, decimals, percents, and measurements. This course may be repeated three times for credit. This is a pass/no pass course. Units earned in this course do not count toward the associate degree and/or certain certificate requirements.

Medical Terminology: see Business Office Technology (BOT)

All courses listed here are part of Gavilan College's approved curriculum. All courses are not offered every semester. Check the Class Schedule for current offerings.

MUSIC**MUS 1A Music History and Literature**

Units: 3.0 Hours: 3.0 Lecture
Transferable: CSU, UC; CSU-GE:C1, IGETC:3A; GAV-GE:C1; CAN:MUS8

A survey of the development of music in western civilization including representative composers from the Medieval to the present. Music 1A will study the music and styles from the Medieval to the Romantic period. ADVISORY: Eligible for English 250 and English 260.

MUS 1B Music History and Literature

Units: 3.0 Hours: 3.0 Lecture
Transferable: CSU, UC; CSU-GE:C1, IGETC:3A; GAV-GE:C1

A survey of the development of music in western civilization including representative composers from the Medieval period to the present. Music 1B will study the music and styles from late Romanticism to the present. ADVISORY: Eligible for English 250 and English 260.

MUS 2 History of Jazz and Rock Music

Units: 3.0 Hours: 3.0 Lecture
Transferable: CSU

This course covers the introduction and history of jazz and rock music from traditional, ragtime, boogie-woogie, swing, bebop, and cool, to various contemporary jazz, rock and fusion art forms. It includes a study of the forces that have shaped the art from European, African, Latin, and African-American influences. The class explores the contributions and conflicts of African-American influences throughout the history and development of this American music.

MUS 3A Harmony - Theory - Musicianship

Units: 4.0 Hours: 4.0 Lecture 2.0 Laboratory
Transferable: CSU, UC; CSU-GE:C1; GAV-GE:C1

Fundamentals of music, beginning harmony. ADVISORY: Must be taken in sequence.

MUS 3B Harmony - Theory - Musicianship

Units: 4.0 Hours: 4.0 Lecture 2.0 Laboratory
Transferable: CSU, UC; GAV-GE:C1

Fundamentals of music, beginning harmony. ADVISORY: Must be taken in sequence.

MUS 3C Intermediate Harmony - Theory

Units: 4.0 Hours: 4.0 Lecture 2.0 Laboratory
Transferable: CSU, UC; GAV-GE:C1

Continuation of Music 3AB. Chromatic harmony, analysis and composition. ADVISORY: Music 3B

MUS 3D Intermediate Harmony - Theory

Units: 4.0 Hours: 4.0 Lecture 2.0 Laboratory
Transferable: CSU, UC; GAV-GE:C1

Continuation of Music 3C. Analysis and composition. ADVISORY: Music 3C

MUS 4A Beginning Piano

Units: 3.0 Hours: 2.0 Lecture 2.0 Laboratory
Transferable: CSU, UC; CSU-GE:C1; GAV-GE:C1

Introduction to music fundamentals and keyboard technique. Development of beginning keyboard skills including note reading in bass and treble clef, fingering, rhythm, key signatures, primary chords and inversions. ADVISORY: Must be taken in sequence.

MUS 4B Beginning Piano

Units: 2.0 Hours: 1.0 Lecture 2.0 Laboratory
Transferable: CSU, UC; GAV-GE:C1

Continuation of Music 4A. ADVISORY: Music 4A