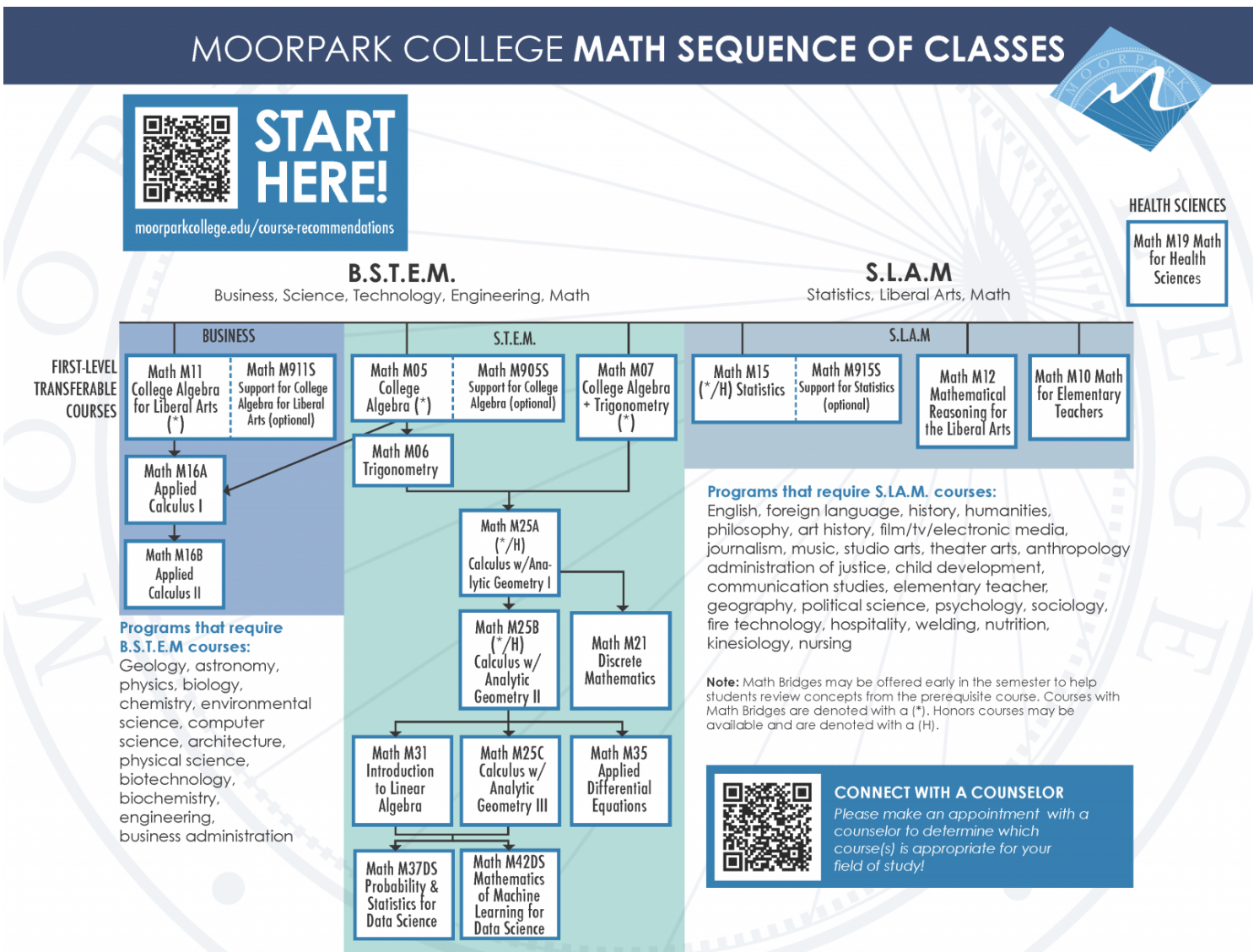


# Mathematics

*Program Purpose: Students who complete Mathematics courses will demonstrate critical thinking skills, analyze abstract concepts, and transition from the concrete to the abstract in mathematical thinking.*

The Mathematics program offers training in both pure and applied mathematics, leading to careers in research, education, business, industry, and government, including such professions as educators, statisticians, actuaries, and operations research analysts. Many areas, such as the physical and social sciences, engineering, economic, and business, are dependent upon the use of applied mathematics in developing solutions to practical problems.

Students who complete [Mathematics courses](#) will demonstrate critical thinking skills, analyze abstract concepts, and transition from the concrete to the abstract in mathematical thinking.



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- NONCREDIT courses

### **MATH M01 Elementary Algebra 5 Units**

*In-Class Hours:* 87.5 lecture

*Prerequisites:* 1 year of high school pre-algebra or equivalent with grade of C or better or [MATH M09](#) or placement as determined by college's multiple measures assessment process

Reviews briefly arithmetic including integers, fractions, and decimals. Covers algebraic expressions, linear equations and inequalities, graphing lines, systems of linear equations, integer exponents, polynomials, factoring of polynomials, solving quadratic equations by the factoring method, and rational expressions. OTHER: [MATH M01](#) is equivalent to MATH M01A and MATH M01B. Unit credit may be received for either [MATH M01](#) or (MATH M01A and MATH M01B, or MATH M04A), but not both.

**Grade Modes:** Letter Graded, Credit by exam, license etc., Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

### **MATH M03 Intermediate Algebra 5 Units**

*In-Class Hours:* 87.5 lecture

*Prerequisites:* [MATH M01](#) or MATH M01B or 1 year of high school beginning algebra with a grade of C or better or placement as determined by college's multiple measures assessment process

Reviews briefly linear equations and inequalities, graphing, factoring, and rational expressions. Covers systems of linear equations, rational functions, complex fractions, rational exponents and radicals, complex numbers, quadratic equations, graphs of parabolas, functions, composition and inverse functions, exponential and logarithmic functions.

**Grade Modes:** Letter Graded, Credit by exam, license etc., Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** [MATH M03](#) is equivalent to MATH M03A and MATH M03B. Unit credit may be received for either [MATH M03](#) or (MATH M03A and MATH M03B), but not both. Students receiving credit in [MATH M03](#) will not receive credit for MATH M04B.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** None

### **MATH M05 College Algebra for STEM Studies 4 Units**

*In-Class Hours:* 70 lecture

**Prerequisites:** [MATH M03](#) or MATH M03B or High School Algebra II or placement as determined by the college's multiple measures assessment process

Covers quadratic equations, linear and non-linear inequalities, absolute value equations and inequalities, complex numbers, functions, polynomial functions, rational functions, exponential functions, logarithmic functions, and systems of equations. Includes the theory of polynomial equations and analytic geometry, conic sections, sequences and series.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** 1) MC and CSU - completing [MATH M05](#) and [MATH M06](#) is equivalent to completing [MATH M07](#). Students completing [MATH M05](#), [M06](#) and [M07](#) receive a maximum credit of 7 units for MC and CSU. 2) [MATH M05](#) and [MATH M11](#): maximum credit of 4 units. 3).

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** [MATH M05](#), [MATH M07](#), and [MATH M11](#) combined: maximum credit one course, no more than 5 semester or 7.5 quarter units

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M06 Trigonometry 3 Units**

*In-Class Hours:* 52.5 lecture

**Prerequisites:** [MATH M03](#) or MATH M03B or High School Algebra II or placement as determined by college's multiple measures assessment process

**C-ID:** MATH 851

Studies the trigonometric functions, their inverses and their graphs. Covers identities and proofs related to trigonometric expressions and solving trigonometric equations, right triangles, and general triangles using the law of cosines and the law of sines. Provides an introduction to polar coordinates, vectors, and vector operations.

**Grade Modes:** Letter Graded, Credit by exam, license etc., Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** 1) MC, CSU - completing [MATH M05](#) and [MATH M06](#) is the same as completing [MATH M07](#). 2) MC, CSU - students completing [MATH M05](#), [M06](#), and M07 receive a maximum credit of 6 units.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** None

## **MATH M07 Precalculus and Trigonometry 6 Units**

*In-Class Hours:* 105 lecture

*Prerequisites:* [MATH M03](#) or MATH M03B or High School Algebra II or placement as determined by college's multiple assessment process

*C-ID:* MATH 955

Integrates college algebra and trigonometry. Includes basic algebraic concepts, equations and inequalities of the first and second degree, systems of equations and inequalities, functions and graphs, linear and quadratic functions, polynomial functions of higher degree, rational functions, exponential and logarithmic functions, trigonometric functions, analytical trigonometry, and polar coordinates.

Recommended for students planning to enter the [MATH M25A](#)/B/C sequence.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** MC and CSU - completing [MATH M05](#) and [MATH M06](#) is equivalent to completing [MATH M07](#). Students completing [MATH M05](#), [M06](#) and [M07](#) receive a maximum credit of 7 units for MC and CSU.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** [MATH M05](#), [MATH M07](#), and [MATH M11](#) combined: maximum credit one course, no more than 5 semester or 7.5 quarter units

**CSU GE-Breadth:** B4

**IGETC:** 2A

## **MATH M08 Pathway to Statistics 6 Units**

*In-Class Hours:* 105 lecture

Prepares students for transfer-level statistics by covering core concepts from elementary algebra, intermediate algebra, and descriptive statistics. Provides algebraic and statistical problem solving techniques. Uses technology to analyze data sets. OTHER: This course is not intended for students who plan to take courses in science, computer science, engineering, math as well as business and other non-STEM majors. Does NOT meet the Math competency for the Associate Degree.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## **MATH M09 Pre-Algebra 3 Units**

*In-Class Hours:* 52.5 lecture

*Advisories/Rec Prep:* Competence with whole number arithmetic (addition, subtraction, multiplication, and division of whole numbers)

Prepares students for algebra. Emphasizes basic arithmetic operations on whole numbers, signed numbers, fractions, and decimals. Provides drills to reinforce operations. Focuses on problem solving and practical application such as percent, proportion, and measurement. Includes an introduction to basic algebra. Completing [MATH M09](#) is the same as completing MATH M09A, M09B, and M09C. Taking [MATH M09](#) and MATH M09A, M09B, M09C receives a maximum credit of 3 units.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Not applicable for degree credit

**AA/AS GE:** None

**Transfer Credit:** None

### **MATH M10 Mathematics for Elementary Teachers 3 Units**

*In-Class Hours:* 52.5 lecture

*Prerequisites:* [MATH M03](#) or MATH M03B or placement as determined by college's multiple measures assessment process

*C-ID:* MATH 120

Focuses on the development of quantitative reasoning skills through in-depth, integrated explorations of topics in mathematics, including real numbers systems and subsystems. Emphasizes the comprehension and analysis of mathematical concepts and applications of logical reasoning. Designed for students intending to teach in K-8. Not recommended for majors in physical sciences or mathematics.

**Grade Modes:** Letter Graded, Credit by exam, license etc., Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** None

### **MATH M11 College Algebra for the Liberal Arts 3 Units**

*In-Class Hours:* 52.5 lecture

*Prerequisites:* [MATH M03](#) or MATH M03B or High School Algebra II or placement as determined by college's multiple measures assessment process

*C-ID:* MATH 150

Covers theory of functions including operations on functions, graphs, domain and range, and evaluation. Includes types of functions such as linear, quadratic, polynomial, rational, exponential and logarithmic functions. Analyzes graphs including curve sketching, intercepts, transformations, vertices and asymptotes. Covers linear and non-linear inequalities, solving exponential and logarithmic equations and

complex numbers. Course is intended primarily as a prerequisite for students taking Business Calculus, and for students requiring college algebra content for non-STEM majors.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** MC, CSU: [MATH M05](#) and [MATH M11](#) combined: maximum 4 units.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** [MATH M05](#), [MATH M07](#), and [MATH M11](#) combined: maximum credit one course, no more than 5 semester or 7.5 quarter units

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M12 Mathematical Reasoning for Liberal Arts 3 Units**

*In-Class Hours:* 52.5 lecture

*Prerequisites:* [MATH M03](#) or MATH M03B or High School Algebra II or placement as determined by the college's multiple measures assessment process

Introduces liberal arts students to mathematical ideas necessary for their careers and daily lives.

Includes topics in logic, quantitative information in the real world, managing finances, statistical reasoning, probability, modeling linear and exponential functions, and mathematics in music, art, and politics.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M15 Introductory Statistics 4 Units**

*In-Class Hours:* 70 lecture

*Prerequisites:* [MATH M03](#) or MATH M03B or [MATH M08](#) or High School Algebra II or placement as determined by the college's multiple measures assessment process

*C-ID:* MATH 110

Explores the nature of statistical methods, including description of sample data, probability, theoretical frequency distributions, sampling, estimation, testing hypotheses and special topics. Provides problem solving techniques.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** Credit will not be awarded for both the honors and regular versions of a course. Credit will be awarded only for the first course completed with a grade of "C" or better or "P". Moorpark College Honors Program requires a letter grade.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M15H Honors: Introductory Statistics 4 Units**

*In-Class Hours:* 70 lecture

*Prerequisites:* [MATH M03](#) or MATH M03B or [MATH M08](#) or High School Algebra II with a grade of B or higher or placement as determined by college's multiple measures assessment process

*C-ID:* MATH 110

Explores the nature of statistical methods, including description of sample data, probability, theoretical frequency distributions, sampling, estimation, testing hypotheses and special topics. Provides problem solving techniques. Uses technology to analyze large data sets. Honors work challenges students to be more analytical and creative through expanded assignments and enrichment opportunities.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** Credit will not be awarded for both the honors and regular versions of a course. Credit will be awarded only for the first course completed with a grade of "C" or better or "P". Moorpark College Honors Program requires a letter grade.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M16A Applied Calculus I 3 Units**

*In-Class Hours:* 52.5 lecture

*Prerequisites:* [MATH M05](#) or [MATH M07](#) or [MATH M11](#) or placement as determined by college's multiple measures assessment process

*C-ID:* MATH 140

Covers limits, continuity, and differentiation. Applies differential calculus to problems in business, economics, social and biological sciences. Introduces anti-differentiation and its applications in business

and economics. Course Credit Limitation: MC, CSU and UC - [MATH M16A](#), [MATH M25A](#) and [M25AH](#) combined: maximum credit, one course.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M16B Applied Calculus II 3 Units**

*In-Class Hours:* 52.5 lecture

*Prerequisites:* [MATH M16A](#) or [MATH M25A](#) or [MATH M25AH](#) or placement as determined by college's multiple measures assessment process

Includes integration, elementary and separable differential equations, functions of several variables, partial derivatives, relative maxima and minima, Lagrange multipliers, method of least squares, double integrals, infinite series, Taylor approximation, and Newton's method. Applies calculus to problems in business, economics, and social and biological sciences.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** MC, CSU, UC - [MATH M16B](#) and [MATH M25B](#) combined: maximum credit, one course.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M19 Math for Health Sciences 1 Unit**

*In-Class Hours:* 17.5 lecture

*Prerequisites:* [MATH M03](#) or two years of high school algebra or placement as determined by the college's multiple measures assessment process

Covers ratios, fractions, decimals and percents. Includes unit conversions, metric and household abbreviations, use of formulas, proportion and unit simplification. Coaches how to perform mental estimations and mental calculations. May be taken before entrance to the Nursing Program or after acceptance to the Nursing Program. This is an optional course.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree



**AA/AS GE:** D2

**Transfer Credit:** None

### **MATH M21 Discrete Mathematics 3 Units**

*In-Class Hours:* 52.5 lecture

*Prerequisites:* [MATH M25A](#) or [MATH M25AH](#)

*Advisories/Rec Prep:* CS M10A or [CS M125](#)

*C-ID:* MATH M160

Covers elements of discrete mathematics which have application to computer science. Includes the following topics: logic, sets, functions, relations, proof techniques, mathematical induction, recurrence relations, graphs, trees, discrete probability, Boolean algebra and a brief introduction to programming.

Credit Limitations: MC, CSU and UC: [MATH M21](#) and [CS M155](#) combined: Maximum credit, 1 course.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M25A Calculus with Analytic Geometry I 5 Units**

*In-Class Hours:* 87.5 lecture

*Prerequisites:* [MATH M05](#) and [MATH M06](#) or [MATH M07](#) or placement as determined by college's multiple measures assessment process

*C-ID:* MATH 210, MATH 900S (with [MATH M25A/H](#) and [MATH M25B/H](#))

Covers limits, continuity, differentiation and integration of algebraic functions. Also teaches differentiation and integration of transcendental functions with applications.

**Grade Modes:** Letter Graded, Credit by exam, license etc., Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** 1) MC, CSU, UC: Credit will not be awarded for both the honors and regular versions of a course. Credit will be awarded only for the first course completed with a grade of "C" or better or "P". Moorpark College Honors Program requires a letter grade. 2) [MATH M16A](#), [M25A](#), and [M25AH](#) combined: maximum one course.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC: 2A**

### **MATH M25AH Honors: Calculus With Analytic Geometry I 5 Units**

*In-Class Hours:* 87.5 lecture

*Prerequisites:* [MATH M05](#) and [MATH M06](#) or [MATH M07](#) or placement as determined by college's multiple measures assessment process

*C-ID:* MATH 210, MATH 900S (with [MATH M25A/H](#) and [MATH M25B](#))

Covers limits, continuity, differentiation and integration of algebraic functions, and differentiation and integration of transcendental functions with applications. Honors work challenges students to be more analytical and creative through expanded assignments and enrichment opportunities.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** 1) Credit will not be awarded for both the honors and regular versions of a course. Credit will be awarded only for the first course completed with a grade of "C" or better or "P". Moorpark College Honors Program requires a letter grade. 2) [MATH M16A](#), [M25A](#), and M25AH combined: maximum one course.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC: 2A**

### **MATH M25B Calculus with Analytic Geometry II 5 Units**

*In-Class Hours:* 87.5 lecture

*Prerequisites:* [MATH M25A](#) or [MATH M25AH](#) or [MATH M16B](#) or placement as determined by college's multiple measures assessment process

*C-ID:* MATH 220, MATH 900S (with [MATH M25A/H](#) and M25B)

Reviews integration. Covers area, volume, arc length, surface area, centers of mass, physics applications, techniques of integration, improper integrals, sequences, series, Taylor's Theorem, parametric equations, polar coordinates, and conic sections with translations.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** 1) Students cannot complete both [MATH M25B](#) and [MATH M25BH](#). Credit will be awarded only for the first course completed with a grade of "C" or better or "P". MC Honors Program requires a letter grade. 2. [MATH M16B](#) and [MATH M25B](#) or [MATH M25BH](#) combined: maximum one course.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M25BH Honors: Calculus with Analytic Geometry II 5 Units**

*In-Class Hours:* 87.5 lecture

*Prerequisites:* [MATH M25A](#) or [MATH M25AH](#) or [MATH M16B](#) or placement as determined by college's multiple measures assessment process

Reviews integration. Covers area, volume, arc length, surface area, centers of mass, physics applications, techniques of integration, improper integrals, sequences, series, Taylor's Theorem, parametric equations, polar coordinates, and conic sections with translations. Honors work challenges students to be more analytical and creative through expanded assignments and enrichment opportunities.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Credit Limitations:** 1. Students cannot complete both [MATH M25B](#) and [MATH M25BH](#). Credit will be awarded only for the first course completed with a grade of "C" or better or "P". Honors Program requires a letter grade. 2. [MATH M16B](#) and [MATH M25B](#) or [MATH M25BH](#) combined: maximum one course.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M25C Calculus with Analytic Geometry III 5 Units**

*In-Class Hours:* 87.5 lecture

*Prerequisites:* [MATH M25B](#) or placement as determined by the college's multiple measures assessment process

*C-ID:* MATH 230

Covers vectors in plane and in three-dimensional space, dot and cross products, spherical and cylindrical coordinates, vector-valued functions, functions of several variables, partial derivatives, gradients, and Lagrange multipliers. Presents multiple integrals and their applications, vector calculus with line and surface integrals, Green's, Stokes', and Divergence Theorems and applications.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M31 Introduction To Linear Algebra 3 Units**

*In-Class Hours:* 52.5 lecture

*Prerequisites:* [MATH M25B](#) or equivalent course

*C-ID:* MATH 250, MATH 910S with [MATH M35](#)

Develops the techniques and theory needed to solve and classify systems of linear equations. Covers solution techniques including row operations, Gaussian elimination, and matrix algebra. Investigates the properties of vectors in two and three dimensions, leading to the notion of an abstract vector space. Presents vector space and matrix theory including topics such as inner products, norms, orthogonality, eigenvalues, eigenspaces, and linear transformations. Involves selected applications of linear algebra.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M35 Applied Differential Equations 3 Units**

*In-Class Hours:* 52.5 lecture

*Prerequisites:* [MATH M25B](#) or equivalent course

*C-ID:* MATH 240, MATH 910S with [MATH M31](#)

Covers ordinary differential equations, equations with constant coefficients, variation of parameters, Laplace transforms, systems of linear equations, first order differential equations, series solutions, and existence and uniqueness of solutions. Emphasizes applications to physics and engineering and provides an introduction to numerical solutions.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M37DS Probability & Statistics for Data Science 3 Units**

*In-Class Hours:* 52.5 lecture

*Prerequisites:* [CS M10DS](#) and [MATH M25C](#) and [MATH M31](#) and [MATH M15](#) or [MATH M15H](#)

*Advisories/Rec Prep:* [MATH M21](#) or [MATH M35](#)

Introduces probability and statistics with linear algebra for data science. Emphasizes probability distributions, inferential statistics, and linear models as well as the ethical use of data. Covers applications of statistical programming for data science.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M42DS Mathematics of Machine Learning for Data Science 3 Units**

*In-Class Hours:* 52.5 lecture

*Prerequisites:* [CS M10DS](#) and [MATH M25C](#) and [MATH M31](#) and [MATH M15](#) OR [MATH M15H](#)

*Advisories/Rec Prep:* [MATH M21](#) or [MATH M35](#)

Introduces machine learning algorithms with linear algebra for data science. Emphasizes the mathematical foundations of ensemble methods, discriminant analysis, deep learning, and neural networks as well as the ethical use of data. Covers applications of algebraic programming for data science.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** D2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B4

**IGETC:** 2A

### **MATH M122 Independent Study - Mathematics 0.5-3 Units**

*Formerly:* MATH M22A

*In-Class Hours:* 26.25-157.5 laboratory

*Prerequisites:* Completion of one course in mathematics and instructor approval

Allows independent study for students who wish to extend their knowledge of a particular area of mathematics through research and study. Utilizes an approved independent project. Includes one-on-one work with instructor. Interested students should contact a Mathematics instructor for assistance in developing a contract for learning about a specific topic.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

### **MATH M725A Bridge to [MATH M25A](#) 0.5 Units**

*In-Class Hours:* 8.75 lecture

Prepares student for the prerequisite materials necessary to be successful in Math M25A. Includes rationalizing denominators, factoring, logarithms, piecewise functions, and trigonometric functions.

**Grade Modes:** Pass/No Pass Grading, Student Option- Letter/Credit

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

### **MATH M725B Bridge to [MATH M25B](#) 0.5 Units**

*In-Class Hours:* 8.75 lecture

Prepares student for the prerequisite materials necessary to be successful in [MATH M25B](#). Includes differentiation of algebraic and transcendental functions, integration, u-substitution, and the chain rule for differentiation.

**Grade Modes:** Pass/No Pass Grading, Student Option- Letter/Credit

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## **NONCREDIT courses**

### **MATH M901 Bridge to [MATH M01](#) 0 Units**

*In-Class Hours:* 8.05 noncredit

Prepares student for the prerequisite materials necessary to be successful in Math M01. Includes fractions, decimals, exponents, and solving linear equations. Offered Pass/No Pass only (no letter grade possible).

**Grade Modes:** Pass/No Pass Grading

**Repeatable for Credit:** Unlimited.

**Degree Applicability:** Noncredit course; not applicable for degree credit

**AA/AS GE:** None

**Transfer Credit:** None

**MATH M903 Bridge to Intermediate Algebra ([MATH M03](#)) 0 Units**

*In-Class Hours:* 8.75 noncredit

Prepares student for the prerequisite materials necessary to be successful in [MATH M03](#). Includes linear equations, quadratic equations, factoring polynomials, quadratic, rational, exponential and logarithmic functions, and graphing. Offered Pass/No Pass only (no letter grade possible).

**Grade Modes:** Pass/No Pass Grading

**Repeatable for Credit:** Unlimited.

**Degree Applicability:** Noncredit course; not applicable for degree credit

**AA/AS GE:** None

**Transfer Credit:** None

**MATH M905 Bridge to College Algebra ([MATH M05](#), [MATH M07](#) or [MATH M11](#)) 0 Units**

*In-Class Hours:* 8.0 noncredit

Prepares students with prerequisite material necessary to be successful in either [MATH M05](#), [MATH M07](#) or [MATH M11](#). Includes factoring expressions; equations of lines; rational, radical and quadratic expressions and equations; and logarithms.

**Grade Modes:** Pass/No Pass Grading

**Repeatable for Credit:** Unlimited.

**Degree Applicability:** Noncredit course; not applicable for degree credit

**AA/AS GE:** None

**Transfer Credit:** None

**MATH M905S Support for College Algebra 0 Units**

*In-Class Hours:* 35 noncredit

Provides review for topics necessary for success in College Algebra, including linear equations and inequalities, graphing, factoring, and rational expressions. Covers systems of linear equations, rational functions, rational exponents and radicals, complex numbers, quadratic equations, graphs of parabolas, functions, composition and inverse functions, exponential and logarithmic functions. This course requires concurrent enrollment in [MATH M05](#).

**Grade Modes:** Pass/No Pass Grading

**Repeatable for Credit:** Unlimited.

**Degree Applicability:** Noncredit course; not applicable for degree credit

**AA/AS GE:** None

**Transfer Credit:** None

**MATH M911S Support for College Algebra for Liberal Arts 0 Units**

*In-Class Hours:* 35 noncredit

*Corequisites:* [MATH M11](#) - College Algebra for Liberal Arts

Provides review for topics necessary for success in College Algebra for Liberal Arts, including linear equations and inequalities, graphing, factoring, and rational expressions. Covers systems of linear equations, rational functions, rational exponents and radicals, complex numbers, quadratic equations, graphs of parabolas, functions, composition and inverse functions, exponential and logarithmic functions. This course requires concurrent enrollment in [MATH M11](#). Students may elect to enroll in either [MATH M905](#), which reviews key Algebra topics for any student enrolled in either [MATH M05](#), [MATH M07](#) or [MATH M11](#), at the beginning of the semester, and/or [MATH M911S](#), which provides instruction in these Algebra topics while concurrently enrolled in [MATH M11](#).

**Grade Modes:** Pass/No Pass Grading

**Repeatable for Credit:** Unlimited.

**Degree Applicability:** Noncredit course; not applicable for degree credit

**AA/AS GE:** None

**Transfer Credit:** None

### **MATH M915 Bridge to Statistics ([MATH M15](#)) 0 Units**

*In-Class Hours:* 8 noncredit

Prepares students for successful completion of [MATH M15](#), Introductory Statistics, with a review of prerequisite material from Intermediate Algebra. Reviews numbers and the number line, operations on numbers, sets and set notations, and equations and inequalities. Provides practice on graphing points and lines in two dimensions, reading tables and graphs, and approximating areas. Students may elect to enroll in either [MATH M915](#), which reviews key Algebra topics for [MATH M15](#) at the beginning of the semester, and/or [MATH M915S](#), which provides instruction in these Algebra topics while concurrently enrolled in [MATH M15](#).

**Grade Modes:** Pass/No Pass Grading

**Repeatable for Credit:** Unlimited.

**Degree Applicability:** Noncredit course; not applicable for degree credit

**AA/AS GE:** None

**Transfer Credit:** None

### **MATH M915S Support for Introductory Statistics 0 Units**

*In-Class Hours:* 16 noncredit

*Corequisites:* [MATH M15](#) - Introductory Statistics

Prepares student with the prerequisite material necessary to be successful in [MATH M15](#), Introductory Statistics. Covers numbers and the number line, operations on numbers, sets and set notations, equations and inequalities. Includes graphing points and lines in two dimensions, reading tables and graphs, and approximating areas. Students may elect to enroll in either [MATH M915](#), which reviews key Algebra topics for [MATH M15](#) at the beginning of the semester, and/or [MATH M915S](#), which provides instruction in these Algebra topics while concurrently enrolled in [MATH M15](#).



**Grade Modes:** Pass/No Pass Grading

**Repeatable for Credit:** Unlimited.

**Degree Applicability:** Noncredit course; not applicable for degree credit

**AA/AS GE:** None

**Transfer Credit:** None

- [Mathematics, Associate in Science for Transfer](#)

## Dean

Matt Calfin, Phone (805) 378-1448

## Faculty

Phil Abramoff, Kevin Balas, Renee Butler, Chris Copeland, Laurel Drane, Marcos Enriquez, Claudia Gutierrez, Vahe Khachadorian, Michael Nava, Diana Nguyen, Tom Ogimachi, Curtis Paul, Rena Petrello, Brendan Purdy, Cynthia Reed, Daniel Rubinstein, Tammy Terzian, Katrina Topolinski

## Counselors

Daniel Aguilar, Chuck Brinkman, Trevor Hess, Danita Redd, Samantha Zaldivar