

MATHEMATICS

The Mathematics Program at Oxnard College offers courses to meet the needs of a variety of students. Whether you wish to transfer to a four-year institution, complete the requirements for your Associate degree, or refresh your math skills, we have the right course for you.

Our standard courses range from Algebra through Calculus, Differential Equations, and Linear Algebra. Furthermore, courses such as Statistics, Business Calculus, and Math for Elementary School Teachers give the student special tools for competing in specific careers or programs. Please see a counselor (<https://www.oxnardcollege.edu/departments/student-services/counseling/>) and Program Maps and Career Info (<https://oxnard.programmapper.com/academics/>) to help you decide the right math course for you.

Classes are offered in traditional classroom, partially online, fully online, online with in-person proctored assessment, or HyFlex formats.

All students can enroll directly in a transfer-level math course. Some class sections have additional support for students who would like or need extra help. To determine which class or classes that have co-requisite support is the right class for you, see a counselor. Math also offers MATH R105H (<https://catalog.vcccd.edu/search/?P=MATH%20R105H>) Introductory Statistics Honors.

Math Flowchart (http://catalog.vcccd.edu/oxnard/programs-courses/mathematics/OC23_WebAccessibleFlowchart_MathDeptFINAL.pdf)

See the UC Transfer Course Agreement (<https://catalog.vcccd.edu/oxnard/transfer-information/transfer-uc/#uctcatext>) page or www.assist.org (<http://www.assist.org/>) for current limitations.

University of California Limitation on Transfer of Statistics Courses

The UC will give credit for a maximum of one Statistics course:

Course ID	Title	Units/Hours
MATH R105	Introductory Statistics	4
MATH R105H	Honors: Introductory Statistics	4
PSY R103	Beginning Statistics for Behavioral Science	3
SOC R125	Statistics for the Behavioral and Social Sciences	3

NOTE: The UC limits enrollment in some courses. See the UC Transfer Course Agreement (<http://catalog.vcccd.edu/oxnard/transfer-information/transfer-uc/#uctcatext>) page for details.

MATH R051S Algebra Support for MATH R101 1 Unit

In-Class Hours: 17.5 lecture

Corequisites: MATH R101

This corequisite support course is to be taken concurrently with MATH R101, Mathematics for the Liberal Arts Major. Emphasis is placed on foundational skills which are necessary for a student to successfully complete MATH R101. This course offers support for College Algebra topics along with study skills development.

Grade Modes: Pass/No Pass Grading

Degree Applicability: Not applicable for degree credit

AA/AS GE: None

Transfer Credit: None

MATH R055S Algebra Support for MATH R105 2 Units

In-Class Hours: 35 lecture

Corequisites: MATH R105

This corequisite support course is to be taken concurrently with MATH R105, Introductory Statistics. Emphasis is placed on foundational skills which are necessary for a student to successfully complete MATH R105. This course offers support for Introductory Statistics topics along with study skills development.

Grade Modes: Pass/No Pass Grading

Degree Applicability: Not applicable for degree credit

AA/AS GE: None

Transfer Credit: None

MATH R065S Algebra Support for MATH R115 2 Units

In-Class Hours: 35 lecture

Corequisites: MATH R115

This corequisite support course is to be taken concurrently with MATH R115, College Algebra. Emphasis is placed on foundational skills which are necessary for a student to successfully complete MATH R115. This course offers support for College Algebra topics along with study skills development.

Grade Modes: Pass/No Pass Grading

Degree Applicability: Not applicable for degree credit

AA/AS GE: None

Transfer Credit: None

MATH R066S Algebra Support for MATH R106 2 Units

Formerly: MATH R098T

In-Class Hours: 35 lecture

Corequisites: MATH R106

This corequisite support course is to be taken concurrently with MATH R106, Business Calculus. Emphasis is placed on foundational skills which are necessary for a student to successfully complete MATH R106. This course offers support for Business Calculus topics along with study skills development.

Grade Modes: Pass/No Pass Grading

Degree Applicability: Not applicable for degree credit

AA/AS GE: None

Transfer Credit: None

MATH R101 Mathematics for the Liberal Arts Major 3 Units

In-Class Hours: 52.5 lecture

Prerequisites: Course taught at the level of intermediate algebra or placement as determined by the college's multiple measures assessment process

C-ID: MATH 150

This is an advanced course in algebra for majors in the liberal arts (English, Art, History, Philosophy, Foreign Languages, Music, Theatre, Dance, Film). This course focuses on how to solve and apply equations that include rational, linear, absolute value, polynomial, exponential, and logarithmic equations; solve linear and nonlinear systems of equations and inequalities; apply functions and other algebraic techniques to model real world applications. This course includes applications to many areas within liberal arts fields.

Grade Modes: Letter Graded

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 R102 Mathematics for Elementary School Teachers 4 Units*In-Class Hours:* 52.5 lecture, 52.5 laboratory*Prerequisites:* Course taught at the level of intermediate algebra or placement as determined by the college's multiple measures assessment process*C-ID:* MATH 120

This course is designed for candidates pursuing an elementary teaching credential. It focuses on the development of quantitative reasoning skills through in-depth, integrated explorations of topics in mathematics, including: the real number system and subsystems, patterns and sequences, basic set theory, logic, and mathematical induction. Emphasis is on comprehension and analysis of mathematical concepts and applications of logical reasoning.

Grade Modes: Letter Graded**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 R105 Introductory Statistics 4 Units***In-Class Hours:* 70 lecture*Prerequisites:* Course taught at the level of intermediate algebra or placement as determined by the college's multiple measures assessment process*C-ID:* MATH 110

This course covers descriptive and inferential statistics for students of social sciences, science, education, business, and engineering. Included are discussions of graphing and interpreting graphs, measures of the center and variation, probability, normal curves, binomial tests, hypothesis testing, correlation and regression, chi-square tests, t-tests, and analysis of variance. This course uses technology to analyze data sets. 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".

Grade Modes: Letter Graded**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 R105H Honors: Introductory Statistics 4 Units***In-Class Hours:* 70 lecture*Prerequisites:* Course taught at the level of intermediate algebra or placement as determined by the college's multiple measures assessment process*C-ID:* MATH 110

This course covers descriptive and inferential statistics for students of social sciences, science, education, business, and engineering. Included are discussions of graphing and interpreting graphs, measures of the center and variation, probability, normal curves, binomial tests, hypothesis testing, correlation and regression, chi-square tests, t-tests, and analysis of variance. This course uses technology to analyze data sets. Honors work challenges students to be more analytical and creative through expanded assignments, real-world applications, and enrichment opportunities. 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".

Grade Modes: Letter Graded**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 R106 Business Calculus 4 Units***In-Class Hours:* 70 lecture*Prerequisites:* Course taught at the level of intermediate algebra or placement as determined by the college's multiple measures assessment process*Advisories/Rec Prep:* MATH R115 or equivalent*C-ID:* MATH 140

This course presents a study of the calculus techniques with an emphasis on the application of concepts to business and management related problems. Further, the course addresses the application of derivatives and integrals of functions including polynomials, rational, exponential and logarithmic functions.

Grade Modes: Letter Graded**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 R115 College Algebra 4 Units*In-Class Hours:* 70 lecture*Prerequisites:* Course taught at the level of intermediate algebra or placement as determined by the college's multiple measures assessment process*C-ID:* MATH 151

An advanced course in algebra, this course focuses on the study of functions and their graphs. Students will analyze and graph functions (absolute value, radical, polynomial, rational, exponential, and logarithmic). Topics also include inequalities, conic sections, systems of equations and inequalities, matrices, sequences, and series. This course includes applications to many areas including business and sciences.

Grade Modes: Letter Graded**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 R116 College Trigonometry 3 Units***In-Class Hours:* 52.5 lecture*Prerequisites:* Course taught at the level of intermediate algebra or placement as determined by the college's multiple measures assessment process*Advisories/Rec Prep:* MATH R115 or concurrent enrollment*C-ID:* MATH 851

This course is designed to give Calculus-bound students a solid foundation in trigonometric functions. Emphasis will be placed on trigonometric functions, their inverses and their graphs, identities and proofs related to trigonometric expressions, trigonometric equations, solving right triangles, solving triangles using the Law of Cosines and the Law of Sines, polar coordinates, and introduction to vectors.

Grade Modes: Letter Graded**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** D2**Transfer Credit:** CSU**UC Credit Limitations:** None**CSU GE-Breadth:** B4**IGETC:** None**MATH R117 Precalculus and Trigonometry 6 Units***In-Class Hours:* 105 lecture*Prerequisites:* Course taught at the level of intermediate algebra or placement as determined by the college's multiple measures assessment process*C-ID:* MATH 955

This course gives the calculus-bound student a solid foundation in precalculus algebra and analytic trigonometry, with emphasis on function concepts and graphing. Topics include equations and inequalities, analytic geometry of lines and conic sections, properties of functions, techniques of graphing, elementary functions (linear, quadratic, rational, exponential, logarithmic, and trigonometric) and inverse functions, trigonometric identities and equations, polar graphing, optimization applications, systems of equations, theory of equations, mathematical induction, binomial theorem, sequences, and series.

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 R120 Calculus with Analytic Geometry I 5 Units***In-Class Hours:* 87.5 lecture*Prerequisites:* MATH R115 and MATH R116 or MATH R117 or placement as determined by the college's multiple measures assessment process*C-ID:* MATH 210

This is a first course in differential and integral calculus of a single variable. Topics include functions; limits and continuity; techniques and applications of differentiation and integration; and the Fundamental Theorem of Calculus.

Grade Modes: Letter Graded**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 R121 Calculus with Analytic Geometry II 5 Units***In-Class Hours:* 87.5 lecture*Prerequisites:* MATH R120 or placement as determined by the college's multiple measures assessment process*C-ID:* MATH 220, MATH 900 S

This is the second course in the differential and integral calculus of a single variable series. Topics include integration; techniques of integration; infinite sequences and series; polar and parametric equations; and applications of integration.

Grade Modes: Letter Graded**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 R122 Calculus with Analytic Geometry III 5 Units*In-Class Hours:* 87.5 lecture*Prerequisites:* MATH R121*C-ID:* MATH 230

As the third semester course in the calculus sequence, this course introduces the calculus of several variables and solid analytic geometry. It includes vector valued functions, calculus of functions of more than one variable, partial derivatives, multiple integration, Green's Theorem, Stoke's Theorem, and the divergence theorem.

Grade Modes: Letter Graded**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 R134 Linear Algebra 3 Units***In-Class Hours:* 52.5 lecture*Prerequisites:* MATH R121*C-ID:* MATH 250

This course develops the techniques and theory needed to solve and classify systems of linear equations. Solution techniques include row operations, Gaussian elimination, and matrix algebra. Students will investigate the properties of vectors in two and three dimensions, leading to the notion of an abstract vector space. Vector space and matrix theory are presented including topics such as inner products, norms, orthogonality, eigenvalues, eigenspaces, and linear transformations. Selected applications of linear algebra are included.

Grade Modes: Letter Graded**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 R143 Differential Equations 3 Units***In-Class Hours:* 52.5 lecture*Prerequisites:* MATH R121*C-ID:* MATH 240, MATH 910 S

The course is an introduction to ordinary differential equations including both quantitative and qualitative methods as well as applications from a variety of disciplines. The course introduces the theoretical aspects of differential equations, including establishing when solution(s) exist, and techniques for obtaining solutions, including series solutions, and singular points, Laplace transforms and linear systems.

Grade Modes: Letter Graded**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 R148 Programming and Problem-Solving in MATLAB 3 Units***Same-As:* ENGR R148*In-Class Hours:* 35 lecture, 52.5 laboratory*Prerequisites:* MATH R120*C-ID:* ENGR 220

This course utilizes the MATLAB environment to provide students with a working knowledge of computer-based problem-solving methods relevant to science and engineering. It introduces the fundamentals of procedural and object-oriented programming, numerical analysis, and data structures. Examples and assignments in the course are drawn from practical applications in engineering, physics, and mathematics.

Grade Modes: Letter Graded**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** CSU, UC**UC Credit Limitations:** None**CSU GE-Breadth:** None**IGETC:** None**MATH R199 Directed Studies in Math 1-3 Units***In-Class Hours:* 17.5-52.5 lecture

Prerequisites: Course taught at the level of intermediate algebra or placement as determined by the college's multiple measures assessment process

This transfer-level course is designed for students interested in furthering their knowledge on an independent study basis. Topics will vary, depending on the individually designed plan of study and project(s), including a weekly consultation with the instructor.

Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** CSU**UC Credit Limitations:** None**CSU GE-Breadth:** None**IGETC:** None

- Mathematics, Associate in Science for Transfer (<http://catalog.vcccd.edu/oxnard/programs-courses/mathematics/mathematics-ast/>)

For more information, contact:

Lilia Ruvalcaba (805) 678-5088 LRuvalcaba@vcccd.edu
(lruvalcaba@vcccd.edu)