MATHEMATICS

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

Our standard courses range from Basic Mathematics through Algebra and Trigonometry, leading into Calculus and Differential Equations. Furthermore, courses such as Statistics, Business Calculus, and Math for Elementary Teachers give the student special tools for competing in specific careers or programs.

The Mathematics faculty at Oxnard College are committed to finding the right course for you, and for making your math experience the best possible!

For more information, contact:
Mark Bates, mbates@vcccd.edu
(805) 986-5800, ext. 2044

Career Opportunities

(Most careers require bachelors or advanced degrees)

Mathematician	Systems Analyst
Programmer	Operations Research Analyst
Statistician	Applied Science Programmer
Actuary	

Faculty

Full-Time

John Andrich	Mark Bates
Bret Black	Marlene Dean
Hussein Fahs	Alan Hayashi
David Magallanes	Maria Parker
Catalina Yang	Lilia Zambrano

Part-Time

William Greason	John Grenfell
Roland Handy	Maricruz Hernandez
Jared Hersh	Mattie Jones
John Norbutas	Pauline Pham
Gary Rigsby	Mamerta Santiago
Hugo Viveros	Juan Zuniga

◆ Mathematics

Associate in Arts Degree

Required Courses:		**Units**
MATH R120	Calculus with Analytic Geometry I	5
MATH R121	Calculus with Analytic Geometry II	5
MATH R122	Calculus with Analytic Geometry III	5
MATH R125	Differential Equations with Linear Algebra	5
MATH R105	Introductory Statistics	4
		24

Additional Requirement:

Complete a minimum of one (1) course from the following:

		Units
PHYS R131	Physics for Scientists and Engineers 1	5
PHYS R132	Physics for Scientists and Engineers 2	5
PHYS R133	Physics for Scientists and Engineers 3	5
CHEM R120	General Chemistry I	5
	Total Required Units	**29**

Mathematics Courses

MATH R009—Basic Mathematics **3 units**
3 hours lecture weekly
This course reviews basic mathematical skills and fundamental operations as applied to integers, common and decimal fractions, and percentages. Emphasis is placed on understanding of arithmetic and mathematical processes. Not applicable for degree credit. Course may be taken two times. (2)

MATH R010—Pre-Algebra **4 units**
Prerequisites: MATH R009.
4 hours lecture weekly
This course bridges the gap between arithmetic and elementary algebra. It reviews whole numbers, fractions, mixed numbers, decimals and integers, and examines proportions, unit analysis, and percent. It also introduces algebraic expressions, solving equations, graphing straight lines and interpreting other graphs. Proper notation, word problems, and study skills will be emphasized. Not applicable for degree credit. Course may be taken two times. (2)

MATH R011—Elementary Algebra **5 units**
Prerequisites: MATH R010.
5 hours lecture weekly
This is a first course in algebra. The topics will include: operations with counting numbers, integers, rational, and real numbers; linear equations and inequalities; graphing in one and two dimensions; ratio, proportion; laws of exponents; operations with polynomials; rational expressions; factoring; systems of linear equations; and quadratic equations. (2)

MATH R014—Intermediate Algebra **5 units**
Prerequisites: MATH R011.
5 hours lecture weekly
This is a second course in algebra emphasizing applications of mathematics to scientific and logical problems. Students learn to analyze and interpret problems, develop inductive and deductive logic abilities and apply these skills to solutions of verbal and quantitative problems. The topics include solutions of systems of linear equations; functions; graphing of linear and non-linear functions; complex numbers; radical expressions and equations; solutions of equations of higher degree; rational expressions and equations; exponential and logarithmic functions; conic sections; sequences and series. (2)

MATH R023—Geometry **3 units**
Prerequisites: MATH R011.
3 hours lecture weekly
This course covers selected topics in Euclidean plane and solid geometry, including lines and planes, triangles, congruence, deductive reasoning, proof, geometric inequalities, parallel and perpendicular lines, polygons, similarity, circles, constructions, and measuring areas and volumes related to solids. This course may be used to satisfy the geometry course requirement of some teaching credential programs. (2)

MATH R093—Overcoming Math Anxiety **1 unit**
1 hour lecture weekly
This course is intended to help students overcome anxieties and fears of mathematics so they can achieve their personal goals in areas that require mathematics. Topics include discussion of common myths, self-awareness, setting realistic expectations, strategies to deal with and decrease anxieties, and applying reading and study skills unique to mathematics. Field trips may be required. Not applicable for degree credit. (2)

MATH R098—Short Courses in Mathematics **½-10 units**
Lecture and/or lab hours as required by unit formula
Short Courses in Mathematics provides courses in selected areas of mathematics to meet specific needs of the college or the community when those needs are not met by regular course offerings. The length of the course will determine the unit credit. Field trips may be required. (2)

MATH R101—Mathematics for the Liberal Arts Major **3 units**

Prerequisites: MATH R014.
3 hours lecture weekly

This course gives the Liberal Arts major a better understanding of the deductive process and the nature of mathematics. Topics include sequences and series, counting theory, an introduction to probability, statistics and mathematical inference, graphing functions and analyzing graphs of functions. The instructor may choose to include additional topics such as network theory, exponential growth and decay, voting and apportionment, or linear programming. Character and origin of various mathematics subject fields will be explored. Field trips may be required. (2)

Transfer credit: UC credit limitations — see counselor, CSU

MATH R102—Math for Elementary Teachers **4 units**

Prerequisites: MATH R014.
3 hours lecture, 3 hours lab weekly

This course is designed for candidates pursuing an elementary teaching credential. Topics include problem solving, language of sets, number systems, and numerical operations. Emphasis is on explanations for elementary school students. Field trips may be required.

Transfer credit: UC, CSU

MATH R103—Finite Mathematics **3 units**

Prerequisites: MATH R014.
3 hours lecture weekly

Finite mathematics is for students of Business, Social Science, Behavioral Science, and/or for those who wish to complete a general education mathematics course to transfer to a four-year university. Topics include sets, problems in counting and probability, linear programming, game theory, and their applications in Business, Social and Behavioral Science. (2)

Transfer credit: UC, CSU

MATH R105—Introductory Statistics **4 units**

Prerequisites: MATH R014.
4 hours lecture weekly

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. (2)

Transfer credit: UC, CSU (CAN: STAT 2)

MATH R105P—Introductory Statistics Problem Solving **1 unit**

Prerequisites: MATH R014.
Corequisites: MATH R105.
1 hour lecture weekly

This course is a problem-solving session to accompany MATH R105, Introductory Statistics. It gives students a chance to gain greater mastery of the topics covered in MATH R105 by providing additional discussion and problem-solving activities. This course may also introduce the student to using computers' statistical programs. (2)

Transfer credit: CSU

MATH R106—Mathematics for Business Applications **5 units**

Prerequisites: MATH R014.
5 hours lecture weekly

Designed for students in business, economics, social and life sciences, this course includes the study of functions, limits, differentiation and curve sketching, related rates, maxima and minima, integration, and differential equations. It is not recommended for mathematics and physical science majors. (2)

Transfer credit: UC, CSU (CAN: MATH 30)

MATH R115—College Algebra **3 units**

Prerequisites: MATH R014.
3 hours lecture weekly

An advanced course in algebra, this course focuses on the study of functions and their graphs, techniques of solving equations and the recognition and creation of patterns. Students will analyze and graph functions (constant, linear, quadratic, absolute value, square root, cubic, polynomial, rational, exponential, and logarithmic). Topics also include inequalities, absolute values, analytic geometry of conic sections, systems of linear and nonlinear equations and inequalities, matrices, determinants, the binomial theorem, sequences, series, and mathematical induction. This course includes problem-solving strategies with applications to many areas including business and the social, biological, and physical sciences. (2)

Transfer credit: UC, CSU

MATH R116—College Trigonometry **3 units**

Prerequisites: MATH R014.
3 hours lecture weekly

This course is designed to give Calculus-bound students a solid foundation in trigonometric functions. Emphasis will be placed on the trigonometric functions and their graphs, radian measure, trigonometric identities and equations, inverse trigonometric functions, complex numbers, and DeMoivre's Theorem. Special topics in trigonometry, such as solving right-triangle applications, law of sines, law of cosines, parametric equations, vectors, polar coordinates, and curves in polar coordinates are also included. (2)

Transfer credit: CSU

MATH R118—Precalculus Mathematics **5 units**

Prerequisites: MATH R014.

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. (2)

Transfer credit: UC, CSU

MATH R120—Calculus with Analytic Geometry I **5 units**

Prerequisites: MATH R118, or both MATH R115 and MATH R116.
5 hours lecture weekly

The first course in the calculus sequence, this course combines elements of analytic geometry with calculus applications. It includes the study of functions, limits, the derivative, continuity, techniques and applications of differentiation, and an introduction to the antiderivatives and integration. (2)

Transfer credit: UC, CSU (CAN: MATH 18; MATH SEQ C (MATH R120 + R121 + R122)

MATH R121—Calculus with Analytic Geometry II **5 units**

Prerequisites: MATH R120.
5 hours lecture weekly

As the second course in the calculus sequence, this course emphasizes Integral Calculus, techniques of integration, and applications of definite integrals. It also includes the study of infinite series, conic sections, and parametric equations. (2)

Transfer credit: UC, CSU (CAN: MATH 20; MATH SEQ C (MATH R120 + R121 + R122)

MATH R122—Calculus with Analytic Geometry III **5 units**

Prerequisites: MATH R121.
5 hours lecture weekly

As the third course in the calculus sequence, this course reviews the calculus of several variables and solid analytic geometry. It includes the study of vectors and surfaces in space, partial derivatives, multiple integrals, vector valued functions, cylindrical and spherical coordinate systems, line and surface integrals, vector fields, Green's Theorem, parametric surfaces, Jacobians, Lagrange Multipliers, Stoke's Theorem, and the Divergence Theorem. (2)

Transfer credit: UC, CSU (CAN: MATH 22; MATH SEQ C (MATH R120 + R121 + R122)

MATH R125—Differential Equations with Linear Algebra **5 units**

Prerequisites: MATH R121.
5 hours lecture weekly

This is an introductory course in differential equations with linear algebra for mathematics, physical science, computer science, and engineering major students who have completed at least a two-course sequence in calculus. Topics include vector spaces, matrices, determinants, linear transformations, eigenvectors and canonical forms, ordinary differential equations and systems of equations, Laplace transform techniques and step and impulse functions, power series solutions and Bessel's equation, Fourier series and introduction to partial differential equations. This course may also include opportunities to use a computer to assist in solving problems and in graphing solutions.

Transfer credit: UC, CSU

MATH R134—Linear Algebra **3 units**

Prerequisites: MATH R120.
3 hours lecture weekly

This is an introductory course in linear algebra for mathematics, physical science, computer science, and engineering major students who have completed a first course in calculus. The topics in this course include solutions of systems of linear equations, matrix operations, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, and orthogonal bases. This course may also include opportunities to use a computer to assist in solving problems and in graphing solutions. (2)

Transfer credit: UC, CSU (CAN: MATH 26)

MATH R143—Applied Differential Equations **3 units**

Prerequisites: MATH R121.
3 hours lecture weekly

This is an introductory course in solving equations that involve rates of change. It includes the study of first order ordinary differential equations, higher order linear differential equations, systems of differential equations, Laplace transform techniques and power series solutions. This course may also include opportunities to use a computer to assist in solving problems and in graphing solutions.

Transfer credit: UC, CSU (CAN: MATH 24)

MATH R198A-Z—Advanced Short Courses in Mathematics **½-10 units**

Prerequisites: Minimum of MATH R014.
Lecture and/or lab hours as required by unit formula

Advanced Short Courses in Mathematics provides courses in selected areas of mathematics to meet specific needs of the college or the community when those needs are not met by regular course offerings. The length of the course will determine the unit credit. Field trips may be required. (2)

Transfer credit: CSU

MATH R199—Directed Studies in Math **1-3 units**

Prerequisites: MATH R120.
Lecture and/or lab hours as required by unit formula

Designed for students interested in furthering their knowledge on an independent study basis. Course may be taken two times. (2)

Transfer credit: CSU

NOTE: The courses listed below have been temporarily suspended. For further information, please contact the Math, Science, Health & Athletics division office.

MATH R118A Precalculus I
MATH R118B Precalculus II