

MATHEMATICS

BEFORE ENROLLING IN DEGREE APPLICABLE COURSES, IT IS RECOMMENDED THAT YOU COMPLETE ENGL 001A AND READ 053.

MATHEMATICS (MATH)

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Mathematics is a multifaceted subject of great beauty and application. The study of math explores some of the deepest puzzles that have ever been encountered and equips the student with a universal language used to study quantities and relationships in all fields. Through the study of mathematics, the student develops the ability to think logically and abstractly, as well as developing the problem-solving and computational skills necessary for success in any field of study.

Student Learning Outcomes:

The Mathematics Department at Mission College offers courses at three levels: basic skills, associate's degree, and transfer. Students completing mathematics courses will be able to:

Solve problems using mathematical terminology, symbols, operations, and techniques according to the course content and level of study;

Apply technology including calculators and computers to mathematical problems;

Improve computational and problem-solving skills;

Construct mathematical models of "real life" problems and draw conclusions from these models;

Formulate and test mathematical conjectures;

Adapt general mathematical techniques to course-specific problems;

Display logical thought process; and value mathematical ways of thinking.

Students will be assessed through written homework, quizzes, tests, and/or oral and written projects.

Career Options:

- Actuary
- Auditor
- Casualty Rater
- Demographer
- Epidemiologist
- Management Scientist
- Operations Researcher
- Surveyor
- Appraiser
- Biometrician
- Contoller
- Econometrician
- Financial Analyst
- Statistician
- Public Opinion Analyst
- Systems Analyst
- Assessor
- Budget Analyst
- Computer Programmer
- Engineering Analyst
- Investment Analyst
- Mathematician
- Urban Planner
- Teacher

Highlights:

- A professional and innovative staff committed to providing the best possible mathematics education, including the use of computers and videos in the teaching of mathematics.
- A comprehensive mathematics curriculum addressing the needs of both the transfer student and the non-transfer student.
- A math learning center providing free tutoring and alternative modes of instruction and support for students.
- A technology-mediated alternative for students in arithmetic and algebra.
- Comprehensive department site on the college webpage with updated schedule information and details of courses and faculty.

Math Achievement Pathway to Success

Join an existing learning community for success. Enroll in Math 903M/903MX in Fall and CM/CMX in Spring on Monday through Thursday from 9:20 am–11:25 am.

The MAPS program offers students a team approach to success in elementary and intermediate algebra. This program is designed for students who had difficulty in their math course in the past.

What are the benefits?

- 3 additional hours per week,
- course textbook/supplementary texts included,
- dedicated MAPS tutors and instructors provide a cooperative approach to learning which is coordinated with the Math Learning Center,
- working in groups and being part of a class with a clear goal of being successful in mathematics,
- gain confidence in you math ability.

For information and application, contact 408.855.5090 or maps@wvm.edu

Mathematics - Associate in Science

Mission College offers an Associate in Science degree in Mathematics to students who successfully complete 28 or more units of course work as outlined below.

Core Curriculum Courses (Required)	Units
MATH 003AAnalytic Geometry and Calculus I	5.0
MATH 003BAnalytic Geometry and Calculus II	5.0
MATH 004AIntermediate Calculus	4.0
MATH 004BDifferential Equations	4.0
.....Or	
MATH 004CLinear Algebra	4.0
MATH 010Elementary Statistics	4.0
Select one course from the following:	Units
BIOSC 010 *Introduction to Biology	4.0
PHYS 002A *General Physics - Mechanics and	
.....Thermodynamics	5.0
ASTRO 001 *Astronomy	3.0
CHEM 001A *General Chemistry I	5.0
Plus one of the following:	Units
MATH 019Discrete Mathematics	4.0
CIS 037A *Introduction to C Programming	4.0
CIS 002 *Visual Basic.NET	4.0
CIS 043 *Software Development With Java	4.0
Total Units	28.0 -31.0

* Or a more advanced course in that department

Note: Many math courses will require internet access as well as purchase and use of math computer software.

MATHEMATICS (MATH)

000B • PLANE GEOMETRY 4.0 units

Total Lecture 72 hours

Advisory: Eligibility for ENGL 001A and READ 053

Prerequisite: MATH 903 or MATH 903M or successful placement into the course based on the Mission College Mathematics Placement Exam.

This course introduces geometric and deductive mathematical reasoning in preparation for precalculus. The student studies and demonstrates knowledge and understanding of the basic concepts of plane geometry, emphasizing deductive reasoning and including lines, planes, angles, triangles and spheres, congruence, similarity, parallelism and perpendicularity, length, areas and volumes. This course is designed for the student who has had no previous instruction in geometry or who has had difficulty with geometry. *Pass/No Pass Option.*

000C • INTERMEDIATE ALGEBRA 5.0 units

Total Lecture 90 hours

Advisory: Eligibility for ENGL 001A and READ 053, MATH 000B

Prerequisite: MATH 903 or MATH 903M or successful placement into the course based on the Mission College Mathematics Placement Exam.

The student studies and demonstrates knowledge of complex fractions, rational equations, quadratic equations, rational exponents and radicals, complex numbers, functions and relations, exponential and logarithmic functions, conic sections, linear systems and inequalities, sequences and series, and applied problems. This course may also be offered via distance learning. *Pass/No Pass Option.*

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000CM • INTERMEDIATE ALGEBRA (MAPS)

5.0 units

Total Lecture 90 hours

Advisory: MATH 000B, Eligibility for ENGL 001A and READ 053

Prerequisite: MATH 903M or MATH 903 or successful placement into the course based on the Mission College Mathematics Placement Exam and an interview with the MAPS counselor.

Corequisite: MATH 000CMX

The students study and demonstrate knowledge of complex fractions, rational equations, quadratic equations, rational exponents and radicals, complex numbers, functions and relations, exponential and logarithmic functions, conic sections, linear systems and inequalities, sequences and series, and applied problems. MATH 000CM is the second course in the MAPS Algebra sequence that will prepare students to meet the math requirement for the associate degree. The MAPS program is designed for the student who has had difficulty in mathematics. Extended classroom hours in this sequence allow students to participate in various conceptual activities to build a stronger foundation in the fundamental concepts. Special attention is paid to presenting the material in various modalities to meet the needs of the students. Pass/No Pass Option.

000CMX • INTERMEDIATE ALGEBRA (MAPS)

3.0 units

Total Lecture 54 hours

Advisory: Eligibility for ENGL 001A and READ 053

Prerequisite: MATH 903 and/or MATH 903M or satisfactory score on an appropriate Mathematics Placement Test.

Corequisite: MATH 000CM

This is a lecture course that is a co-requisite for MATH 000CM. This course provides students with additional lecture time, and consequently additional required homework assignments, in order for them to fully engage and succeed in the enhanced and innovative learning strategies and activities used by the MAPS program. Pass/No Pass Only.

000CG • MATHEMATICS FOR THE ASSOCIATE DEGREE STUDENT

3.0 units

Total Lecture 54 hours

Advisory: Eligibility for ENGL 001A and READ 053

Prerequisite: MATH 903 or MATH 903M or successful placement into the course based on the Mission College Mathematics Placement Exam.

This course is designed to satisfy the graduation competency requirement in mathematics for the associate degree. The student studies a wide range of mathematical thinking that may include mathematical history, mathematics in different cultures and how to communicate mathematics to others. Topics may include a variety of techniques in critical thinking, problem solving and practical applications, using mathematics at the intermediate algebra level. This course does not substitute for the Math C prerequisite requirement for transfer level math courses. Pass/No Pass Option.

000CP • PREP TRIG/BUS MATH

2.0 units

Total Lecture 36 hours

Advisory: Eligibility for ENGL 001A and READ 053

Prerequisite: MATH 000C or successful placement into the course based on the Mission College Mathematics Placement Exam or MATH 000CM

This course prepares the student for the mathematics required to succeed in Trigonometry (MATH 000D), Finite Math (MATH 008), Statistics (MATH 010), or Business Calculus (MATH 012). There is an accelerated review of all the material from Intermediate Algebra, concentrating on areas of common difficulty. The course is suitable for students who have passed an Intermediate Algebra course. This course may also be offered via distance learning. Pass/No Pass Option.

000D • TRIGONOMETRY

3.0 units

Total Lecture 54 hours

Advisory: MATH 000B

Prerequisite: MATH 000C or MATH 000CM or successful placement into the course based on the Mission College Mathematics Placement Exam.

Acceptable for credit: California State University

Students will study and demonstrate knowledge and understanding of trigonometric functions including applications to triangles, circular functions, radian measure, graphs, polar coordinates, trigonometric identities, inverse trigonometric functions, vectors, and complex numbers. Pass/No Pass Option.

000G • MATHEMATICS FOR THE LIBERAL ARTS STUDENT

4.0 units

Total Lecture 72 hours

Advisory: MATH 000B, Eligibility for ENGL 001A and READ 053

Prerequisite: MATH 000CM or MATH 000C

Acceptable for credit: University of California, California State University

This course fulfills the graduation competency requirement for Associate degree and the general education requirement in mathematics for CSU system. It introduces the student to creative mathematical thinking using fascinating examples, topics and problem solving. Range of topics may include applications of set theory, functions and graphs, linear programming, infinity, different geometries and topology, symmetry, calculus, logic, probability and statistics, history of math and math in other cultures. There is an emphasis on general problem solving techniques and how to communicate mathematics. It is intended to provide a sample of current mathematical techniques for the non-specialist. Pass/No Pass Option.

001 • PRE-CALCULUS ALGEBRA

3.0 units

Total Lecture 54 hours

Advisory: MATH 000B

Prerequisite: MATH 000C or satisfactory score on an appropriate Mathematics Placement Exam or MATH 000CM.

Acceptable for credit: University of California, California State University

NOTE: UC credit may be limited. See a counselor.

This course is part of the preparation for the MATH 003A Calculus sequence. Its contents include real and complex number systems, polynomials, algebraic fractions, exponents and radicals, linear and quadratic equations, simultaneous equations, inequalities, functions, theory of equations, exponential and logarithmic equations, sequence and series, induction and the binomial theorem. This course may be offered via distance learning. Pass/No Pass Option.

002 • PRE-CALCULUS ALGEBRA AND TRIGONOMETRY

5.0 units

Total Lecture 90 hours

Advisory: MATH 000B

Prerequisite: MATH 000C or satisfactory score on an appropriate Mathematics Placement Test or MATH CM.

Acceptable for credit: University of California (4 units only), California State University.

NOTE: UC credit may be limited. See a counselor.

This is an intensive course covering those topics traditionally found in the separate courses of pre-calculus algebra (MATH 001) and trigonometry (MATH 000D). This course is designed for the honor student in mathematics who desires to fulfill the requirements of MATH 000D and MATH 001 in one semester. It prepares the student for the Calculus 003A sequence. Pass/No Pass Option.

003A • ANALYTIC GEOMETRY AND CALCULUS I

5.0 units

Total Lecture 90 hours

Advisory: MATH 000B

Prerequisite: Math 002, or Math 000D and Math 001

Acceptable for credit: University of California, California State University

NOTE: UC credit is limited if MATH 12 also taken.

NOTE: Completion of MATH 3A, 3B and 4A is equivalent to San Jose State University sequence of MATH 29, 30, 31 and 32, although the order of topics presented is different. Students who are planning to complete the sequence are advised to take all courses in the sequence at one college.

This is the first part of the three-semester calculus sequence for math, physics and engineering majors. The student will study and demonstrate knowledge and understanding of functions, limits, continuity, differentiation and integration, maxima, minima, and other applications, and the relationship between calculus and analytic geometry for polynomial and transcendental functions. This course may also be offered via distance learning. Pass/No Pass Option.

003B • ANALYTIC GEOMETRY AND CALCULUS II

5.0 units

Total Lecture 90 hours

Prerequisite: MATH 003A

Acceptable for credit: University of California, California State University

This course is the second part of the three semester calculus sequence for math, physics and engineering majors. Students study and demonstrate knowledge and understanding of infinite series, vectors in the plane, parametric equations, conic sections, polar coordinates, integration techniques including inverse trigonometric and hyperbolic functions, and applications to area, volume and work. This course may also be offered via distance learning. Pass/No Pass Option.

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004A • INTERMEDIATE CALCULUS

4.0 units

Total Lecture 72 hours

Prerequisite: MATH 003B

Acceptable for credit: University of California, California State University

This course is the third part of the three semester calculus sequence for math, physics and engineering majors. Students study and demonstrate knowledge and understanding of vectors in two and three dimensional space, vector-valued functions, calculus of functions for several variables, differentials, gradients, Lagrange Multipliers, multiple integrals, line integrals, and an introduction to Green's Theorem, Divergence Theorem, and Stokes' Theorem. *Pass/No Pass Option.*

004B • DIFFERENTIAL EQUATIONS

4.0 units

Total Lecture 72 hours

Advisory: MATH 003B

Acceptable for credit: University of California, California State University

The student will study and demonstrate knowledge and understanding of ordinary differential equations with emphasis on linear equations. Many standard methods are examined including Laplace Transforms, Fourier Series, power series and numerical solutions. Emphasis will be placed on applications. *Pass/No Pass Option.*

004C • LINEAR ALGEBRA

4.0 units

Total Lecture 72 hours

Advisory: MATH 004A, Eligibility for ENGL 001A and READ 053 Acceptable for credit: University of California, California State University

The student studies and demonstrates knowledge and understanding of basic linear algebra and its applications. Topics include systems of linear equations and Gaussian elimination, determinants, matrices, vector spaces, transformations, eigenvalues and eigenvectors. *Pass/No Pass Option.*

008 • FINITE MATHEMATICS

3.0 units

Total Lecture 54 hours

Advisory: Eligibility for ENGL 001A and READ 053

Prerequisite: MATH 000C or higher or satisfactory score on an appropriate Mathematics Placement Test. or MATH 000CM

Acceptable for credit: University of California, California State University

The students study and demonstrate knowledge and understanding of linear equations, matrix systems of equations and inequalities, linear programming, set theory and mathematics of finance. Probability and statistics are introduced. Particular emphasis is placed on applications. This course may also be offered via distance learning. *Pass/No Pass Option.*

010 • ELEMENTARY STATISTICS

4.0 units

Total Lecture 72 hours

Advisory: MATH 008, Eligibility for ENGL 001A and READ 053

Prerequisite: MATH 000C or MATH 000CM or successful placement into the course based on the Mission College Mathematics Placement Exam.

Acceptable for credit: University of California, California State University

Students study and demonstrate knowledge and understanding of descriptive and inferential statistics including data analysis, correlation and linear regression, probability, probability distributions and assorted hypothesis testing. Particular emphasis is placed on applications. Current statistical computer packages are used. *This course may also be offered via distance learning. Pass/No Pass Option.*

012 • CALCULUS FOR BUSINESS AND SOCIAL SCIENCES

4.0 units

Total Lecture 72 hours

Advisory: MATH 008, Eligibility for ENGL 001A and READ 053

Prerequisite: MATH 000C or MATH 000CM or successful placement into the course based on the Mission College Mathematics Placement Exam.

Acceptable for credit: University of California, California State University

The student studies and demonstrates knowledge and understanding of simple techniques of differential and integral calculus and their most common applications. This course handles the limit concept intuitively and is suitable for business, biology or social science majors. This course is not equivalent to Math 3A. *Pass/No Pass Option.*

014 • MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS

3.0 units

Total Lecture 54 hours

Advisory: Math 000B, Eligibility for ENGL 001A and READ 053

Prerequisite: MATH 000C or MATH 000CM or successful placement into the course based on the Mission College Mathematics Placement Exam.

Acceptable for credit: University of California, California State University

This course provides a foundation in numeration systems and number theory, particularly with respect to counting numbers, whole numbers, integers, rational numbers, and real numbers. It emphasizes the study and discovery of pattern; develop and extend relationships among number patterns; present mathematical models and real-world applications of them; and provide different algorithms for estimating and finding exact answers when adding, subtracting, multiplying, and dividing. Where appropriate, there is an emphasis on problem solving, critical thinking, and communication. This course is designed for students who intend to become elementary school teachers. *Pass/No Pass Option.*

019 • DISCRETE MATHEMATICS

4.0 units

Total Lecture 72 hours

Advisory: MATH 001 or successful placement into the course based on the Mission College Mathematics Placement Exam, Eligibility for ENGL 001A and READ 053.

Acceptable for credit: University of California, California State University

The student studies and demonstrates knowledge and understanding of the discrete mathematics appropriate for computer applications. Topics may include graphs, sets, logic, mathematical induction, functions and relations, sequences and series, matrices, combinatorics, Boolean algebra and algebraic structures such as groups, rings and fields. Computer implementations of these mathematical techniques are incorporated throughout the course. *Pass/No Pass Option.*

900 • ARITHMETIC FUNCTIONS (NON-ASSOCIATE DEGREE COURSE)

3.0 units

Total Lecture 54 hours

This is a course in basic computational skills and is a prerequisite for all other math courses. The course includes review and practice in fundamental arithmetic skills including whole numbers, fractions and decimals, ratio, proportion and percent, simple equations, problem analysis, and practical applications. This course provides a good background for students who wish to take pre-algebra. This course may be offered via distance learning. *Pass/No Pass Option.*

901 • ARITHMETIC REVIEW (NON-ASSOCIATE DEGREE COURSE)

1.5 unit

Total Lecture 27 hours

The student reviews and practices fundamental arithmetic skills, including computations with signed numbers, fractions and decimals, and applications of ratio, proportion and percent to practical problems. This course is a fast paced review and is not a substitute for Math 900. This course may be offered via distance learning. *Pass/No Pass Option.*

901A • ARITHMETIC REVIEW (SIGN NUMBERS) (NON-ASSOCIATE DEGREE COURSE)

0.5 unit

Total Lecture 9 hours

The student studies signed numbers and practices addition, subtraction, multiplication, and division. *Pass/No Pass Option.*

901B • ARITHMETIC REVIEW (FRACTIONS) (NON-ASSOCIATE DEGREE COURSE)

0.5 unit

Total Lecture 9 hours

The student studies fractions and practices addition, subtraction, multiplication, and division with them. *Pass/No Pass Option.*

901C • ARITHMETIC REVIEW (DECIMALS) (NON-ASSOCIATE DEGREE COURSE)

0.5 unit

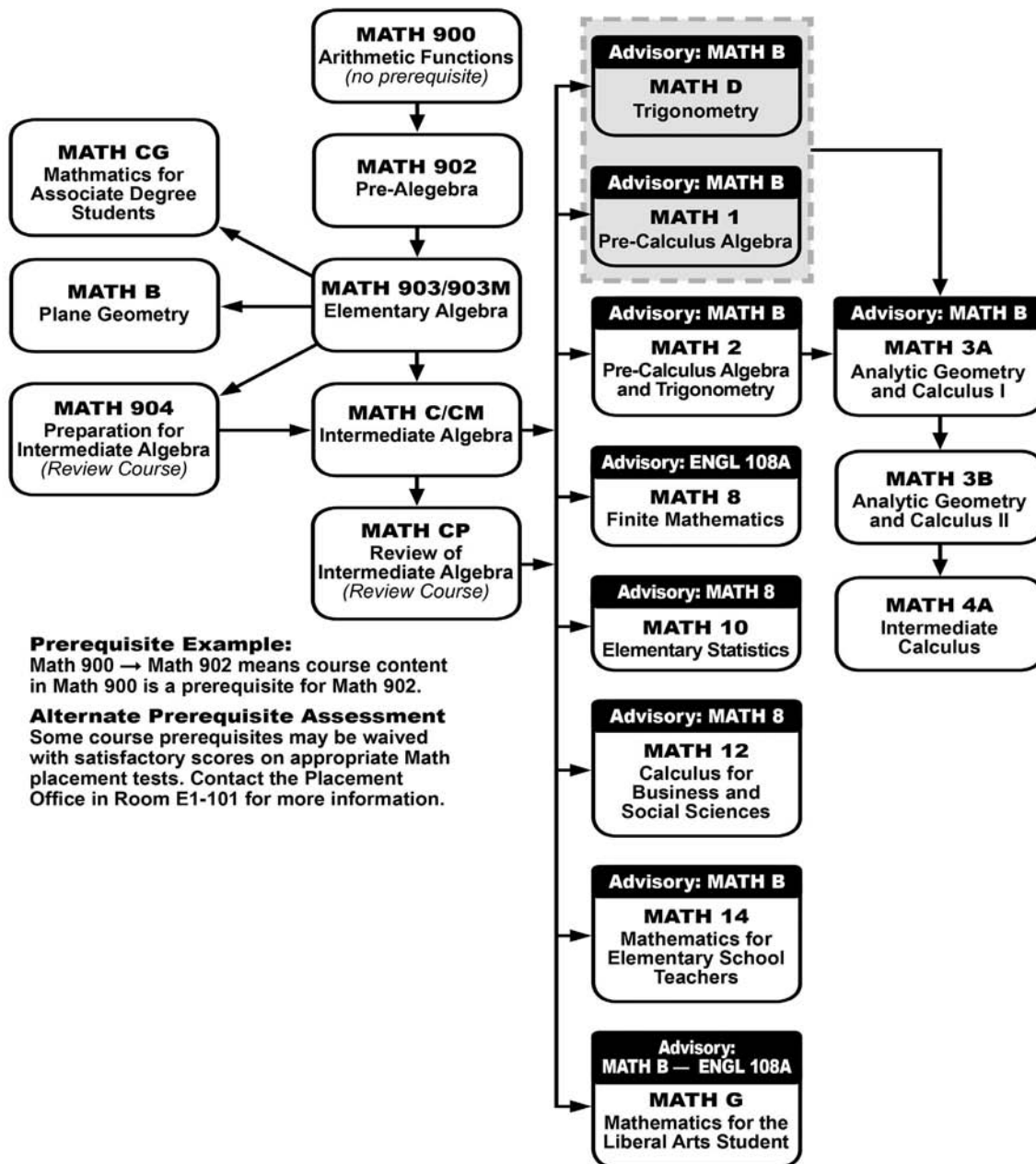
Total Lecture 9 hours

The student studies decimals and practices addition, subtraction, multiplication, and division with them. *Pass/No Pass Option.*

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Mathematics Map

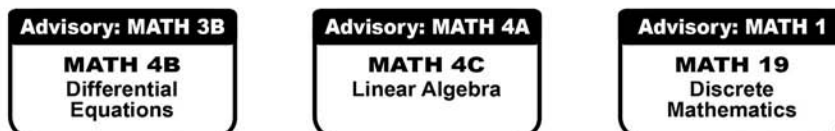
Courses with Prerequisites



Prerequisite Example:
Math 900 → Math 902 means course content in Math 900 is a prerequisite for Math 902.

Alternate Prerequisite Assessment
Some course prerequisites may be waived with satisfactory scores on appropriate Math placement tests. Contact the Placement Office in Room E1-101 for more information.

Courses with Advisories



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902 • PRE-ALGEBRA (NON-ASSOCIATE DEGREE COURSE) 3.0 units

Total Lecture 54 hours

Advisory: MATH 901

Prerequisite: MATH 900 or successful placement into the course based on the Mission College Mathematics Placement Exam.

This course is designed for students who have a solid foundation in arithmetic skills but need to develop those skills further before taking Elementary Algebra. This course is intended to serve as a bridge between arithmetic functions and elementary algebra. Topics include a quick review and practice in fundamental arithmetic skills, some basic operations involving polynomials, solving and graphing linear equations, and some practical applications. This course may also be offered via distance learning. *Pass/No Pass Option.*

903 • ELEMENTARY ALGEBRA (NON-ASSOCIATE DEGREE COURSE) 5.0 units

Total Lecture 90 hours

Prerequisite: MATH 902 or successful placement into the course based on the Mission College Mathematics Placement Exam.

The student studies and demonstrates knowledge and understanding of the basic operations and properties of real numbers, polynomials, rational and exponential expressions. Other topics include simplifying linear, rational and exponential expressions, solving linear equations and their applications, graphing linear equations, and factoring polynomials. Other topics may include additional operations with rational expressions, working with functions, solving systems of linear equations and inequalities, solving quadratic equations by factoring, and working with scientific notation. The course is designed for the student who has had no previous instruction in algebra, or for the student who needs a review of elementary algebra. *This course may also be offered via distance learning. Pass/No Pass Option.*

903M • ELEMENTARY ALGEBRA (MAPS) (NON-ASSOCIATE DEGREE COURSE) 5.0 units

Total Lecture 90 hours

Prerequisite: MATH 902 or satisfactory score on an appropriate Mathematics Placement Test and an interview with the MAPS counselor.

Corequisite: MATH 903MX The Math 903MX is a lecture course that must be taken concurrently with Math 903M.

The students study and demonstrate knowledge and understanding of the basic operations and properties of real numbers, polynomials, rational and exponential expressions. Other topics include simplifying linear, rational and exponential expressions, solving linear equations and their applications, graphing linear equations, and factoring polynomials. Other topics may include additional operations with rational expressions, working with functions, solving systems of linear equations and inequalities, solving quadratic equations by factoring, and working with scientific notation. MATH 903M is the first course in the MAPS Algebra sequence that will prepare students to meet the math requirement for the associate degree. The MAPS program is designed for the student who has had difficulty in mathematics. Extended classroom hours in this sequence allow students to participate in various conceptual activities to build a stronger foundation in the fundamental concepts. Special attention is taken to present the material in various modalities to meet the needs of the students. *Pass/No Pass Option.*

903MX • ELEMENTARY ALGEBRA MAPS EXTRA 3.0 units

Total Lecture 54 hours

Prerequisite: MATH 902 or satisfactory score on an appropriate Mathematics Placement Test and an interview with the MAPS counselor.

Corequisite: MATH 903M

This is a lecture course that is a co-requisite for MATH 903M. This course provides students with additional lecture time, and consequently additional required homework assignments, in order for them to fully engage and succeed in the enhanced and innovative learning strategies and activities employed by the MAPS program. *Pass/No Pass Only.*

904 • PREPARATION FOR INTERMEDIATE ALGEBRA (NON-ASSOCIATE DEGREE COURSE) 1.5 units

Total Lecture 27 hours

Prerequisite: MATH 903 or satisfactory score on an appropriate Mathematics Placement Exam or MATH 903M

The student prepares for Intermediate Algebra by an accelerated review of all the material from Elementary Algebra. The course concentrates on those areas of Algebra which require additional work, and is suitable for students who once passed an Elementary Algebra course. This course may be offered via distance learning. *Pass/No Pass Only.*