

MATHEMATICS (MATH)

MATH-020

Foundations for Quantitative Reasoning 1 UNITS

Corequisite: MATH 120

1.0 hours lecture

Foundations for Quantitative Reasoning (QR) will focus on the skills and concepts needed for success in QR. This course is for students concurrently enrolled in QR (Math 120) at Grossmont College. Students will receive extra support in Arithmetic, Algebra, Geometry, problem solving, and study skills. This course is offered on a Pass/No Pass basis only. (Non-degree credit course)

MATH-060

Foundations for Elementary Statistics 2 UNITS

Prerequisite: Appropriate Placement.

2.0 hours lecture

Foundations for Elementary Statistics focuses on the skills and concepts needed for success in Elementary Statistics. This course is for students concurrently enrolled in MATH 160 at Grossmont College. Students will receive support in arithmetic, problem solving, technology, and study skills. This course is offered on a Pass/No Pass basis only. (Non-degree credit course)

MATH-075

Foundations for College Algebra 2 UNITS

Corequisite: MATH 175

2.0 hours lecture

Support for this course focuses on the skills and concepts needed for success in College Algebra. This course is for students concurrently enrolled in College Algebra (MATH 175) at Grossmont College. Students will receive extra support in algebra, geometry, problem solving, technology, and study skills. This course is offered on a Pass/No Pass basis only. (Non-degree credit course)

MATH-076

Foundations for Precalculus 2 UNITS

Corequisite: MATH 176

2.0 hours lecture

This support course focuses on the skills and concepts needed for success in Precalculus. This course is for students concurrently enrolled in Precalculus (MATH 176) at Grossmont College. Students will receive extra support in algebra, geometry, problem solving, technology, and study skills. This course is offered on a Pass/No Pass basis only.

MATH-078

Foundations for Calculus for Business, Social, & Behavioral Sciences 2 UNITS

Corequisite: MATH 178

2.0 hours lecture

This support course focuses on the skills and concepts needed for success in Calculus for Business, Social & Behavioral Science (MATH 178). This course is for students concurrently enrolled in MATH 178 at Grossmont College. Students will receive extra support in algebra, geometry, problem solving, technology, and study skills. This course is offered on a Pass/No Pass basis only. (Non-degree credit course)

MATH-080

Foundations for Calculus & Analytic Geometry I 2 UNITS

Prerequisite: Appropriate Placement.

Corequisite: MATH 180.

2.0 hours lecture

Support for this course focuses on the skills and concepts needed for success in Calculus and Analytic Geometry I. This course is for students concurrently enrolled in Calculus I (Math 180) at Grossmont College. Students will receive extra support in algebra, analytic geometry, trigonometry, technology, and study skills. Pass/No Pass only. Non-degree applicable.

MATH-095

Math Jam for BSTEM Preparation 0 UNITS

1.0 hours laboratory

Math Jam For BSTEM Preparation is a non-credit course for students wanting a jump-start in College Algebra, Precalculus or Business Calculus. In an activity-based setting, students will practice key pre-transfer level math concepts, as well as develop essential study-skills needed to be successful in their upcoming BSTEM class. Students will also be connected to college support services to increase the likelihood of reaching their academic and career goals. This course emphasizes the community aspect of learning mathematics. This course is offered on a pass/no pass basis only.

MATH-120

Quantitative Reasoning 3 UNITS

Prerequisite: Appropriate placement beyond intermediate algebra or equivalent.

3.0 hours lecture

This course is designed for students in majors that do not require any further mathematics courses in their curricula. Emphasis will be on the communication of mathematical ideas and problem solving pertinent to daily life. Specific topics for this course may include: Mathematics of Personal Finance and investments, Statistics, Probability, Voting Strategies, Estimations, and Measurements. (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-125

Structure and Concepts of Elementary Mathematics I 3 UNITS

Prerequisite: Appropriate Placement or Intermediate Algebra.

3.0 hours lecture, 1.0 hours laboratory

Blending the mathematical topics of sets, whole numbers, numeration, number theory, integers, rational and irrational numbers, measurement, relations, functions and logic. The course will investigate the interrelationships of the above topics using a problem-solving approach. The course will also investigate appropriate use of technology in the classroom. (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-126

Structure and Concepts of Elementary Mathematics II 3 UNITS

Prerequisite: "C" grade or higher or "Pass" in MATH 125 or equivalent.

3.0 hours lecture, 1.0 hours laboratory

Blending the mathematical topics of probability, statistics, relations, graphs, measurement, coordinate geometry, plane geometry, solid geometry, logic, and number sense. The course will investigate the interrelationships of the above topics using a problem-solving approach. The course will also investigate the appropriate use of technology in the classroom. (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-128**Children's Mathematical Thinking****2 UNITS**

Prerequisite: "C" grade or higher or "Pass" in Math 125 or equivalent or concurrent enrollment in Math 125.

2.0 hours lecture

An in-depth analysis of children's mathematical thinking and understanding of operations (addition, subtraction, multiplication, and division), place value and fractions. Students will observe individual children solving mathematical problems.

MATH-160**Elementary Statistics****4 UNITS**

Prerequisite: Appropriate Placement or Intermediate Algebra.

4.0 hours lecture

This course provides an introduction to descriptive statistics, probability theory and inferential statistics. Topics include data collection; summary and graphical displays of data; measures of central tendency and variability; elementary probability theory; standard procedures involving the normal, binomial, student's t, chi-square, and F distributions; confidence intervals and hypothesis testing; linear correlation and regression; and ANOVA. Students will learn technology for statistical analysis and interpret the relevance of the statistical findings. Applications come from various fields such as biology, business, economics, education, social sciences, health science, life sciences and psychology. (C-ID MATH 110) (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-170**Analytic Trigonometry****3 UNITS**

Prerequisite: Appropriate Placement or Intermediate Algebra.

3.0 hours lecture

A theoretical approach to the study of the trigonometric functions with emphasis upon circular functions, trigonometric identities, trigonometric equations, graphical methods, inverse functions, vectors and applications, complex numbers, and solving triangles with applications. Passing both MATH 170 and MATH 175 is equivalent to passing MATH 176. A student will earn a total of 7 units for passing both MATH 170 and MATH 175. A student will only earn 6 units if they pass both MATH 170 and MATH 176. (CSU) (AA/AS-A3, CSU-B4)

MATH-175**College Algebra****4 UNITS**

Prerequisite: Appropriate Placement or Intermediate Algebra.

4.0 hours lecture

Graphic, numeric, and analytic approaches to the study of precalculus concepts from college algebra. Application of appropriate technology including but not limited to graphic utilities to model, analyze, and interpret a collection of data or to solve real-world application problems from a wide variety of disciplines. Topics include the real number system; algebraic exponential, and logarithmic functions and their inverses; graphing techniques for polynomial and rational functions; complex numbers; theory of equations; partial fractions; mathematical induction; sequences and series; matrices; and the binomial theorem. Passing both MATH 170 and MATH 175 is equivalent to passing MATH 176. A student will earn a total of 7 units for MATH 170 and MATH 175. A student will only earn 6 units if the pass both MATH 175 and MATH 176. (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-176**Precalculus: Functions and Graphs****6 UNITS**

Prerequisite: Appropriate Placement or Intermediate Algebra.

6.0 hours lecture

Unification of college algebra and analytical trigonometry based on the function concept. Topics include properties of real number system, inequalities, theory of equations, the study of functions including with emphasis on circular, and inverses, trigonometric identities, trigonometric equations, graphical methods, solving triangles with applications, mathematical induction, sequences and series, matrices, and binomial theorem. Passing MATH 176 is equivalent to passing both MATH 170 and MATH 175. A student will earn 6 units for passing 176 or a total of 7 units for passing both MATH 170 and MATH 175. (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-178**Calculus for Business, Social and Behavioral Sciences****4 UNITS**

Prerequisite: Appropriate Placement or Intermediate Algebra.

Recommended Preparation: "C" grade or higher or "Pass" in MATH 175 or equivalent.

4.0 hours lecture

An introduction to differential and integral calculus with applications specifically designed for business, social and behavioral sciences. Functions studied include polynomials, rationals, exponentials and logarithms. (C-ID MATH 140) (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-180**Analytic Geometry and Calculus I****5 UNITS**

Prerequisite: "C" grade or higher or "Pass" in MATH 170 and MATH 175 or MATH 176 or equivalent.

5.0 hours lecture

A first course in differential and integral calculus of a single variable; functions; limits and continuity; techniques and applications of differentiation and integration; Fundamental Theorem of Calculus. Primarily for science, technology, engineering and mathematics majors. (C-ID MATH 210) (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-180L**Concurrent Support for Calculus I****1 UNITS**

Corequisite: MATH 180

3.0 hours laboratory

This course offers structured support to students who are concurrently enrolled in Analytic Geometry and Calculus I (Math 180). This support course includes just-in-time review of relevant prerequisite algebraic, geometric and trigonometric concepts, a more in-depth investigation of core concepts in their concurrent calculus course, as well as study and life skills necessary to succeed in rigorous college courses. This course emphasizes the community aspect of learning mathematics. This course is offered on a Pass/No Pass basis only. (Nondegree credit course)

MATH-245**Discrete Mathematics****3 UNITS**

Prerequisite: "C" grade or higher or "Pass" in MATH 280 or equivalent.

3.0 hours lecture

Introduction to discrete mathematics. Topics to include sets, relations, summations, elementary counting techniques, recurrence relations, logic and proofs. This course is appropriate for mathematics and computer science majors. (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-280**Analytic Geometry and Calculus II** **4 UNITS**

Prerequisite: "C" grade or higher or "Pass" in MATH 180 or equivalent.

4.0 hours lecture

A second course in differential and integral calculus of a single variable: integration; techniques of integration; infinite sequences and series; polar and parametric equation; conics. Primarily for Science, Technology, Engineering and Math majors. (C-ID MATH 900S with MATH 180) (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-280L**Concurrent Support in Calculus II** **1 UNITS**

Corequisite: MATH 280

3.0 hours laboratory

This course offers structured support to students who are concurrently enrolled in Analytic Geometry and Calculus II (Math 280). This support course includes just-in-time review of relevant prerequisite algebraic, geometric and trigonometric concepts, a more in-depth investigation of core concepts in their concurrent calculus course, as well as study and life skills necessary to succeed in rigorous college courses. This course emphasizes the community aspect of learning mathematics. This course is offered on a Pass/No Pass basis only. (Nondegree credit course)

MATH-281**Multivariable Calculus** **4 UNITS**

Prerequisite: "C" grade or higher or "Pass" in MATH 280 or equivalent.

4.0 hours lecture

Math 281 is the third of a three-course sequence in calculus. Topics include vector valued functions, calculus of functions of more than one variable, partial derivatives, multiple integration, Green's Theorem, Stokes' Theorem, and divergence Theorem. (C-ID MATH 230) (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-284**Linear Algebra** **3 UNITS**

Prerequisite: "C" grade or higher or "Pass" in MATH 280 or equivalent.

3.0 hours lecture

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. Investigates 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. (C-ID MATH 250) (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)

MATH-285**Differential Equations** **3 UNITS**

Prerequisite: "C" grade or higher or "Pass" in MATH 280 or equivalent.

3.0 hours lecture

The course is an introduction to ordinary differential equations including both quantitative and qualitative methods as well as applications from a variety of disciplines. Introduces the theoretical aspects of differential equations and systems of equations, including establishing when solutions exist and various techniques for obtaining solutions (series solutions, Laplace transforms, separation of variables, variation of parameters. etc.) (C-ID MATH 250) (CSU/UC) (AA/AS-A3, CSU-B4, IGETC-2A)