

# MATH

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- Mathematics I Certificate (<https://catalog.ccri.edu/programs-study/math/mathematics-i-certificate/>)

## **MATH 0095 - Developmental Mathematics Emporium (4 Credits)**

MATH 0095 is the course students enroll in if they wish to complete their developmental mathematics requirements in the emporium. Students will progress through course modules under the supervision of a faculty member. Students will be awarded credit for MATH 0099, MATH 0100 or MATH 0101 depending on how much progress the student makes in the emporium.

**Prerequisite(s):** ( and ENGL 0850 (may be taken concurrently) or ENGL 0312 or ENGL 0950 (may be taken concurrently)) or ( and Reading Course Placement) or ( and Reading Course Placement)

## **MATH 0099 - Early Foundations of College Mathematics (4 Credits)**

This course provides a thorough foundation in the topics of whole numbers, fractions, decimals, ratios and proportions, percentages, and measurement. This course also introduces the real number system, and the properties for solving linear equations and inequalities. Emporium students who complete the modules for Math 0099 may complete additional modules to earn credit for MATH 0100 or MATH 0101. Students who complete MATH 0099 are eligible to take Math 0100, Math 1005, 1025, 1139C/0239C and 1175C/0275C.

Lecture: 4 hours

**Prerequisite(s):** MATH 0095 (may be taken concurrently)

## **MATH 0100 - Foundations of College Mathematics (4 Credits)**

This course provides a thorough foundation in the topics of whole numbers, fractions, decimals, ratios and proportions, percentages, and measurement. This course also introduces the real number system, the properties for solving linear equations and inequalities, the rearrangement of formulas, the rectangular coordinate system, and the graphs of linear equations in two variables as well as an introduction to basic probability and statistics. Non-STEM students who master this course are encouraged to enroll in MATH 1139 or MATH 1175. STEM students who master this course are encouraged to enroll in MATH 1200C with the corequisite, 0200C.

Lecture: 4 hours

**Prerequisite(s):** MATH 0095 (may be taken concurrently)

## **MATH 0101 - Foundations of College Algebra (4 Credits)**

This modular emporium course contains additional modules beyond those required for MATH 0099 and MATH 0100. This course serves as a remedial prerequisite to MATH 1200 and MATH 1179. Topics include the properties of exponents, and an introduction to polynomials, factoring, quadratic equations, rational expressions, rational equations, and application problems.

Lab: 4 hours

**Prerequisite(s):** MATH 0095 (may be taken concurrently)

## **MATH 0200C - Support for College Algebra (2 Credits)**

This course provides active support for students taking Math 1200C through the use of a just in time remediation approach. Students in this class will also be taking Math 1200C with the same instructor concurrently. The additional two hours per week allows for time to practice what has been learned in Math 1200C and it allows for more question and answer sessions. Instructors may use the class time for supplementary instruction, group work or one on one support. (Note: Grades in MATH 0200C will be assigned on a Pass/Fail basis.)

Lecture: 2 hours

**Corequisite(s):**MATH 1200C

## **MATH 0239C - Support for Liberal Arts Math (2 Credits)**

This course provides active support for students taking Math 1139C through the use of a just in time remediation approach. Students in this class will also be taking Math 1139C with the same instructor concurrently. The additional two hours per week is used to review and develop key mathematical skills necessary to fully succeed in Math 1139C. (Note: Grades in MATH 0239C will be assigned on a Pass/Fail basis.)

Lecture: 2 hours

**Prerequisite(s):** MATH 1139C (may be taken concurrently)

**Corequisite(s):**MATH 1139C

## **MATH 0275C - Support for Statistics for the Health and Social Sciences (2 Credits)**

This course provides active support for students taking Math 1175C through the use of a just in time remediation approach. Students in this class will also be taking Math 1175C with the same instructor concurrently. The additional two hours per week is used to review and develop key mathematical skills necessary to fully succeed in Math 1175C. (Note: Grades in MATH 0275C will be assigned on a Pass/Fail basis.)

Lecture: 2 hours

**Corequisite(s):**MATH 1175C

**MATH 1005 - Business Mathematics  
(3 Credits)**

The application of elementary mathematics to business and retail situations is discussed. Topics include bank services, taxes, simple interest, compound interest, commercial discounts, markup and markdown.

Lecture: 3 hours

**Prerequisite(s):** (MATH 0099 or MATH 0500 or MATH 8055 or MATH 0100 or MATH 0101 or Math Accuplacer) or (Bachelor Degree or higher)

**MATH 1015 - Mathematics of Finance  
(3 Credits)**

This course studies in depth the topics of simple interest, bank discount, compound interest and annuities, including amortization and sinking funds.

Lecture: 3 hours

**Prerequisite(s):** (MATH 0095 or MATH 0100 or MATH 0600 or MATH 0101 or MATH 8055 or MATH 1005 or MATH 1600 or Math Accuplacer) or (Bachelor Degree or higher)

**Course completes the following requirements:**

Gen.Ed. Ability 3A  
Gen.Ed. Ability 3B  
Mathematics and Science

**MATH 1025 - Introduction to College Mathematics  
(3 Credits)**

Covering the development of the real number system and the fundamental concepts of algebra and geometry, this course is suitable for prospective elementary school teachers or anyone desiring an introduction to college mathematics.

Lecture: 3 hours

**Prerequisite(s):** (MATH 0099 or MATH 0500 or MATH 8055 or MATH 0100 or MATH 0101 or Math Accuplacer) or (Bachelor Degree or higher)

**Course completes the following requirements:**

Health Science Math 1

**MATH 1080 - Teacher Program Preparation and Career Development-  
Math  
(1 Credit)**

This one-credit course provides an overview and review of required mathematics content and skills for admission into teacher certification programs and builds basic skills necessary for success in the field of teaching. This course provides an approach to career concerns, portfolio building, skill identification, self-awareness, and current trends in education today and is aligned with the Common Core State Standards for Mathematics. Topics include numbers and quantity, algebra and functions, geometry and measurement, and probability and statistics.

Lecture: 1 hour

**Prerequisite(s):** (MATH 0099 or Math Accuplacer) and (ENGL 0850 or Reading Course Placement or Reading Course Placement)

**MATH 1139 - Mathematics for Liberal Arts Students  
(3 Credits)**

This course deals with the fundamentals of logic, set theory, probability and statistics.

Lecture: 3 hours

**Prerequisite(s):** (MATH 0095 or MATH 0100 or MATH 0600 or MATH 0101 or MATH 8055 or MATH 1025 or MATH 1420 or Math Accuplacer)

**Course completes the following requirements:**

Gen.Ed. Ability 3A  
Gen.Ed. Ability 3B  
Mathematics and Science  
Health Science Math 1  
*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 1139C - Mathematics for Liberal Arts Students  
(3 Credits)**

This course deals with the fundamentals of logic, set theory, probability and statistics.

Lecture: 3 hours

**Prerequisite(s):** (MATH 0099 or MATH 0100 or MATH 0500 or MATH 0101 or MATH 8055 or Math Accuplacer)

**Corequisite(s):**MATH 0239C

**Course completes the following requirements:**

Gen.Ed. Ability 3A  
Gen.Ed. Ability 3B  
Mathematics and Science  
Health Science Math 1  
*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 1143 - Mathematics for Elementary School Teachers I  
(4 Credits)**

MATH 1143 is designed for students who plan to major in elementary education and ultimately become teachers in the PK-8 system. Topics will include sets, numbers and numeration, whole number computation, basic number theory, integers, fractions and rational numbers, decimals, and proportions. The focus in this class is on developing a deeper understanding as to why the operations in arithmetic work as they do, and using these operations to develop algorithms and models for use in problem solving. This class should not be seen as a simple review of foundational mathematics. Students will be expected to make reasoned and rigorous mathematical arguments with a strong emphasis on communicating mathematical ideas in written and verbal form.

Lecture: 4 hours

**Prerequisite(s):** MATH 0100 or MATH 0101 or Math Accuplacer

**Course completes the following requirements:**

Gen.Ed. Ability 3A

Gen.Ed. Ability 3B

Mathematics and Science

Health Science Math 1

*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 1144 - Mathematics for Elementary School Teachers II  
(4 Credits)**

A continuation of MATH 1143, this course includes geometry and measurement, counting problems, probability and statistics.

Lecture: 4 hours

**Prerequisite(s):** (MATH 1143 or MATH 8143)

**Course completes the following requirements:**

Health Science Math 1

**MATH 1145 - Development of the Number System  
(3 Credits)**

Topics covered in this course include ancient numeration systems; bases; modulo arithmetic; set theoretical and historical development of our number system including natural numbers; integers; rational, irrational, imaginary and complex numbers (with operations and computation within each system); groups and fields; and elementary number theory (basic proofs, divisibility rules, Pythagorean studies, Fermat and Mersenne numbers). Note: Recommended for future teachers.

Lecture: 3 hours

**Prerequisite(s):** MATH 1139 or MATH 1430 or Math Accuplacer

**Course completes the following requirements:**

Mathematics and Science

**MATH 1155 - History of Mathematics  
(3 Credits)**

This course traces the development of mathematical thought through history. Topics include mathematicians, primitive number systems and algorithms, early formulas for area and volume, proofs of theorems, pi, the golden ratio, the development of advanced mathematics, the computer, calculus, network theory and non-Euclidean geometries. Note: Recommended for future teachers.

Lecture: 3 hours

**Prerequisite(s):** MATH 1139 or MATH 1430 or Math Accuplacer

**Course completes the following requirements:**

Gen.Ed. Ability 3B

Gen.Ed. Ability 4A

Mathematics and Science

Health Science Math 1

*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 1175 - Statistics for the Health and Social Sciences  
(3 Credits)**

Statistical procedures required for the analysis of data are explored using data acquired from a variety of sources including fields in the health and social sciences. Statistical packages may be employed as a tool.

Lecture: 3 hours

**Prerequisite(s):** (MATH 0600 or MATH 0095 or MATH 8055 or MATH 1025 or MATH 1420 or MATH 0100 or MATH 0101 or Math Accuplacer) or (Bachelor Degree or higher)

**Course completes the following requirements:**

Gen.Ed. Ability 3A

Gen.Ed. Ability 3B

Mathematics and Science

Health Science Math 1

*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 1175C - Statistics for the Health and Social Sciences  
(3 Credits)**

Statistical procedures required for the analysis of data are explored using data acquired from a variety of sources including fields in the health and social sciences. Statistical packages may be employed as a tool. Note: This course is only intended for students that have completed MATH 0099 and need co-requisite support.

Lecture: 3 hours

**Prerequisite(s):** (Math Accuplacer or MATH 0100 or MATH 0099 or MATH 0101 or MATH 0600 or MATH 8055) or (Bachelor Degree or higher)

**Corequisite(s):** MATH 0275C

**Course completes the following requirements:**

Gen.Ed. Ability 3A

Gen.Ed. Ability 3B

Mathematics and Science

Health Science Math 1

*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 1179 - Applied Technical Mathematics I  
(3 Credits)**

This course is the first semester of a two-semester sequence covering the essentials of applied technical mathematics. Topics include the basics of working with numerical data, plane, and solid geometric shapes, introduction to functions and their graphs, factoring, operations with algebraic functions, introduction to the trigonometric functions of acute angles, solving problems involving right triangles, and expressions involving rational exponents.

Lecture: 3 hours

**Prerequisite(s):** (MATH 0101 or MATH 0600 or Math Accuplacer) or (Bachelor Degree or higher)

**MATH 1181 - Applied Technical Mathematics II  
(3 Credits)**

This course is the second semester of a two-semester sequence covering the essentials of applied technical mathematics. Topics include graphing linear equations, solving systems of linear equations, using trigonometry to solve problems involving vectors, graphical analysis of waveforms, the complex numbers and their applications to AC circuits, an introduction to statistics, and some miscellaneous topics involving non-linear equations.

Lecture: 3 hours

**Prerequisite(s):** MATH 1179 or MATH 1750 or Math Accuplacer

**MATH 1200 - College Algebra  
(4 Credits)**

Designed for students who eventually plan to study quantitative business analysis or calculus, this course covers functions and graphs, systems of equations and inequalities, quadratic equations, polynomial and rational expressions, radical, exponential and logarithmic forms.

Lecture: 4 hours

**Prerequisite(s):** (MATH 0095 or MATH 0101 or MATH 0600 or MATH 8055 or Math Accuplacer) or (Bachelor Degree or higher)

**Course completes the following requirements:**

Health Science Math 1

**MATH 1200C - College Algebra  
(4 Credits)**

Designed for students who eventually plan to study quantitative business analysis or calculus, this course covers functions and graphs, systems of equations and inequalities, quadratic equations, polynomial and rational expressions, radical, exponential and logarithmic forms.

Lecture: 4 hours

**Prerequisite(s):** (Math Accuplacer or MATH 0095 or MATH 0100 or MATH 0101 or MATH 0600 or MATH 8055) or (Bachelor Degree or higher)

**Corequisite(s):** MATH 0200C

**Course completes the following requirements:**

Health Science Math 1

**MATH 1220 - Scientific Programming  
(3 Credits)**

This course offers instruction in scientific programming using a current programming language. Problems, both numerical and non-numerical, are programmed and solved by use of a mainframe and/or personal computers.

Lecture: 3 hours

**Prerequisite(s):** MATH 1200 or MATH 1200C or MATH 1179 or MATH 1750 or Math Accuplacer

**MATH 1240 - Statistical Analysis I  
(4 Credits)**

An introduction to elementary statistics, this course covers methods used in the collection, presentation, analysis and interpretation of data. Topics include frequency distributions, measures of central tendency and dispersion and sampling, with emphasis on estimation and hypothesis testing.

Lecture: 4 hours

**Prerequisite(s):** MATH 1200 or MATH 1179 or MATH 1200C or MATH 1750 or Math Accuplacer

**Course completes the following requirements:**

Gen.Ed. Ability 3A

Gen.Ed. Ability 3B

Mathematics and Science

Health Science Math 1

*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 2077 - Quantitative Business Analysis I  
(3 Credits)**

The purpose of this course is to develop the quantitative methods needed to solve various problems in business and economics. Topics include functions and graphs, systems of linear equations, linear programming, matrices, logarithmic and exponential functions and the mathematics of finance.

Lecture: 3 hours

**Prerequisite(s):** MATH 1200 or MATH 1200C or Math Accuplacer

**Course completes the following requirements:**

Gen.Ed. Ability 3A

Gen.Ed. Ability 3B

Mathematics and Science

Health Science Math 1

*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 2103 - Applied Precalculus  
(4 Credits)**

MATH 2103 is intended for students in the life and social sciences, and any other areas where the application of mathematics is important. Students in this course will develop an understanding of functions and how they are used to model real world phenomena, including but not limited to change, motion and growth. The linear, quadratic, power, polynomial, rational, exponential, logarithmic, and periodic functions are studied in this course. Students will become familiar with algebraic, numerical and graphical properties of these functions. This course is not intended for students planning to study mathematics, statistics, computer science, physical sciences, engineering or any other discipline requiring the complete calculus sequence. MATH 2103 is not an alternative to MATH 2111 (Precalculus) and does not satisfy the requirement for MATH 2141 (Calculus I).

Lecture: 4 hours

**Prerequisite(s):** MATH 1200 or MATH 1200C or Math Accuplacer

**Course completes the following requirements:**

Gen.Ed. Ability 3A  
Gen.Ed. Ability 3B  
Mathematics and Science  
Health Science Math 1  
*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 2110 - College Trigonometry  
(4 Credits)**

Designed for students who plan to study calculus eventually, this course deals with trigonometry from an analytical approach. Topics include relations and functions in general, the trigonometric functions and their inverses, graphs, solutions of triangles, vectors, trigonometric identities and equations, and applied problems.

Lecture: 4 hours

**Prerequisite(s):** MATH 1200 or MATH 1200C or Math Accuplacer

**Course completes the following requirements:**

Health Science Math 1

**MATH 2111 - Pre-Calculus Mathematics  
(4 Credits)**

Functions and their graphs are discussed with particular attention paid to polynomial, rational, trigonometric, exponential and logarithmic functions. Determinants, matrices, complex numbers and analytic geometry are also studied.

Lecture: 4 hours

**Prerequisite(s):** MATH 1210 or MATH 2110 or Math Accuplacer

**Course completes the following requirements:**

Gen.Ed. Ability 3A  
Gen.Ed. Ability 3B  
Mathematics and Science  
Health Science Math 1  
*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 2131 - Applied Calculus  
(4 Credits)**

This course is intended for students in the life and social sciences who have taken Math 2103. The differential and integral calculus are developed with an emphasis on solving real world problems in the sciences. Limits, derivatives and integrals of algebraic, logarithmic, exponential and trigonometric functions are studied. Applications will include analyzing graphs, finding maximum and minimum values of functions, calculating rates of change and computing areas and cumulative change. This course is not intended for students planning to study mathematics, statistics, computer science, physical sciences, engineering or any other discipline requiring the complete calculus sequence. MATH 2131 is not an alternative to MATH 2141 (Calculus I) and does not satisfy the prerequisite for MATH 2142 (Calculus II).

Lecture: 4 hours

**Prerequisite(s):** MATH 2103 or MATH 2111 or Math Accuplacer

**Course completes the following requirements:**

Gen.Ed. Ability 3A  
Gen.Ed. Ability 3B  
Mathematics and Science  
Health Science Math 1  
*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 2138 - Quantitative Business Analysis II  
(3 Credits)**

Differential and integral calculus are developed with special emphasis on practical applications to business and economics.

Lecture: 3 hours

**Prerequisite(s):** MATH 2077 or Math Accuplacer or MATH 1670

**Course completes the following requirements:**

Gen.Ed. Ability 3A  
Gen.Ed. Ability 3B  
Mathematics and Science  
Health Science Math 1  
*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 2141 - Calculus I  
(4 Credits)**

This course covers topics of differential and integral calculus including limits and continuity, higher-order derivatives, curve sketching, differentials, definite and indefinite integrals (areas and volumes), and applications of derivatives and integrals.

Lecture: 4 hours

**Prerequisite(s):** MATH 2111 or Math Accuplacer or MATH 1900

**Course completes the following requirements:**

Gen.Ed. Ability 3A  
Gen.Ed. Ability 3B  
Mathematics and Science  
Health Science Math 1  
*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 2142 - Calculus II**

**(4 Credits)**

This course covers the calculus of logarithmic, exponential, trigonometric, inverse trigonometric and hyperbolic functions. Some methods of integration are covered, including integration by parts and numerical methods. L'Hospital's rule, improper integrals, infinite series and the calculus in polar coordinates also are introduced.

Lecture: 4 hours

**Prerequisite(s):** MATH 2141 or MATH 1910 or Math Dept. Course Placement

**Course completes the following requirements:**

Gen.Ed. Ability 3A

Gen.Ed. Ability 3B

Mathematics and Science

Health Science Math 1

*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 2243 - Calculus III**

**(4 Credits)**

This course covers the calculus of three-dimensional space, including partial derivatives, multiple integrals and the calculus of vector-valued functions.

Lecture: 4 hours

**Prerequisite(s):** MATH 2142 or MATH 1920

**Course completes the following requirements:**

Gen.Ed. Ability 3A

Gen.Ed. Ability 3B

Mathematics and Science

Health Science Math 1

*URI/RIC Transfer General Education Transfer Opportunity: Yes*

**MATH 2362 - Advanced Engineering Mathematics**

**(4 Credits)**

This course covers first-order ordinary differential equations and second-order linear differential equations. Methods for solving differential equations are studied, including the use of Laplace transforms and power series solutions. In addition to differential equations, students are introduced to matrices and linear algebra, as well as functions of a complex variable. This course transfers to URI as either Math 244 or Math 362.

Lecture: 4 hours

**Prerequisite(s):** Math Dept. Course Placement or MATH 2243 or MATH 2910