

CATALOG INFORMATION

Dept and Nbr: MATH 25

Title: COLLEGE ALGEBRA

Full Title: College Algebra

Last Reviewed: 2/8/2021

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	6	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

Catalog Description:
Topics from college algebra, including analytic geometry, functions and their graphs, complex numbers, sequences and series.

Prerequisites/Corequisites:
Completion of MATH 155 or higher (V1)

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: (Grade Only)
Prerequisites/Corequisites: Completion of MATH 155 or higher (V1)
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;UC.
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area		Effective:	Inactive:
	B	Communication and Analytical Thinking	Fall 2006	
CSU GE:	MC	Math Competency	Fall 1981	
	Transfer Area		Effective:	Inactive:
	B4	Math/Quantitative Reasoning	Fall 2006	
IGETC:	Transfer Area		Effective:	Inactive:
	2A	Mathematical Concepts & Quantitative Reasoning	Fall 2006	
CSU Transfer:	Transferable	Effective:	Fall 2006	Inactive:
UC Transfer:	Transferable	Effective:	Fall 2006	Inactive:

CID:

Certificate/Major Applicable:

Not Certificate/Major Applicable

COURSE CONTENT

Outcomes and Objectives:

Upon successful completion of the course, students will be able to:

1. Perform advanced operations with functions (using symbolic, graphical, and numerical representations) and apply knowledge to modeling problems.
2. Define and graph inverse functions.
3. Solve algebraic equations over the complex numbers.
4. Define and apply characteristics of functions (including intercepts, turning points, intervals of positive/negative, increasing/decreasing value) in graphing polynomial, rational, algebraic, exponential, and logarithmic functions.
5. Solve algebraic equations graphically and symbolically, including absolute value, polynomial, radical, rational, logarithmic, and exponential.
6. Graph circles, functions, and parametric equations.
7. Graph asymptotes and recognize a hole in the graph.
8. Perform operations with complex numbers.

Topics and Scope:

Instructional methodology may include, but is not limited to: lecture, demonstrations, oral recitation, discussion, supervised practice, independent study, outside project or other assignments.

I. Equations and Inequalities

- A. Graphical and algebraic solutions to radical and absolute value equations and inequalities
- B. Solutions to systems of equations and inequalities

II. Complex Numbers

- A. Definition
- B. Operations with complex numbers
- III. Analysis of Graphs of Functions
 - A. Definition
 - B. Notation
 - C. Domain
 - D. Range
 - E. Operations and composition of functions
 - F. Catalog of functions
 - G. Symmetry
 - H. Even and odd functions
 - I. Shifts
 - J. Scaling
 - K. Reflections of graphs, along with modeling
- IV. Polynomial and Rational Functions
 - A. Linear, quadratic, polynomial functions of higher degree and their graphs
 - B. Graphs of rational functions
 - C. Asymptotes
 - D. Introduction to limit concepts and notation
 - E. Solutions of polynomial and rational equations and inequalities
- V. Inverse, Exponential and Logarithmic Functions
 - A. Definitions
 - B. Properties
 - C. Graphs
 - D. Equations
 - E. Applications
- VI. Sequences and Series
 - A. Finite and infinite geometric sequences and series
 - B. Summation of powers of integers
- VII. Topics from Analytic Geometry
 - A. Midpoint and distance formulas
 - B. Circles
 - C. Parabolas
 - D. Parametric equations

Assignment:

1. Daily reading outside of class (approximately 0-50 pages per week),
2. Problem set assignments from required text(s),
3. Exams and quizzes,
4. Complete supplementary materials chosen by the instructor, OR
5. Projects.

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.	Writing 0 - 0%
Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.	
Homework problems	Problem solving 5 - 20%
Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.	
None	Skill Demonstrations 0 - 0%
Exams: All forms of formal testing, other than skill performance exams.	
Multiple choice, Free response exams, quizzes	Exams 70 - 95%
Other: Includes any assessment tools that do not logically fit into the above categories.	
Projects	Other Category 0 - 10%

Representative Textbooks and Materials:

College Algebra: A Graphing Approach (4th ed.). Larson, Ron; Hostetler, Robert; Edwards, Bruce. Houghton-Mifflin: 2005.
College Algebra (7th ed). Sullivan, Michael. Prentice Hall: 2005.
College Algebra: A Graphing Approach (2nd ed.). Williams, Gareth. Brooks/Cole: 2005.