

MATH 225 Course Outline as of Fall 2024**CATALOG INFORMATION**

Dept and Nbr: MATH 225 Title: PRECALC ALG SUPPORT
 Full Title: Precalculus Algebra Concurrent Support
 Last Reviewed: 12/4/2023

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	14.5	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: P/NP Only

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

Also Listed As:

Formerly:

Catalog Description:

In this course, students will review the core mathematical skills, competencies, and concepts needed to succeed in precalculus algebra. Intended for students who are concurrently enrolled in Precalculus Algebra (MATH 25).

Prerequisites/Corequisites:

Concurrent Enrollment in MATH 25

Recommended Preparation:

Course Completion of CSKL 372 and CSKL 373

Limits on Enrollment:**Schedule of Classes Information:**

Description: In this course, students will review the core mathematical skills, competencies, and concepts needed to succeed in precalculus algebra. Intended for students who are concurrently enrolled in Precalculus Algebra (MATH 25). (P/NP Only)

Prerequisites/Corequisites: Concurrent Enrollment in MATH 25

Recommended: Course Completion of CSKL 372 and CSKL 373

Limits on Enrollment:

Transfer Credit:

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

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area	Effective:	Inactive:
CSU GE:	Transfer Area	Effective:	Inactive:

IGETC:	Transfer Area	Effective:	Inactive:
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CSU Transfer:	Effective:	Inactive:
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UC Transfer:	Effective:	Inactive:
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CID:

Certificate/Major Applicable:

Both Certificate and Major Applicable

COURSE CONTENT

Student Learning Outcomes:

At the conclusion of this course, the student should be able to:

1. Apply effective learning strategies for success in college-level mathematics.
2. Utilize algebra concepts and skills necessary for success in precalculus algebra.

Objectives:

At the conclusion of this course, the student should be able to:

1. Apply effective learning strategies for transfer level mathematics.
2. Solve and graph linear equations in one and two variables, and inequalities in one variable.
3. Evaluate and solve literal equations.
4. Find an equation for a line given information about the line.
6. Perform the operations of addition, subtraction, multiplication, division, and factoring of polynomials.
7. Use the laws of exponents to simplify expressions.
8. Solve application and modeling problems that use a system of equations.
9. Define function, domain, and range, and use function notation.
10. Identify basic features of the graphs of linear, polynomial, radical, rational, exponential, logarithmic, and absolute value functions.
11. Use graphing technology to construct graphs and use to solve nonlinear equations and inequalities in one variable, as well as to locate roots, intersection points, and extrema.
12. Use algebraic methods to solve equations that involve polynomial and radical expressions.
13. Apply algebraic and graphical methods to solve application problems.
14. Simplify and operate on radical, rational, exponential, logarithmic, and absolute value expressions in preparation to succeed in precalculus algebra.
15. Solve equations involving rational, exponential, logarithmic, and absolute value functions in preparation to succeed in precalculus algebra.

Topics and Scope:

- I. Effective Learning Skills

- A. Study skills
 - 1. Organization and time management
 - 2. Test preparation
 - 3. Test-taking skills
- B. Self-assessment: using performance criteria to judge and improve work, analyzing and correcting test errors
- C. Use of resources: strategies identifying, utilizing, and evaluating the effectiveness of resources in improving learning such as peer study groups, computer resources, lab resources, and tutoring resources
- II. Linear Equations and Inequalities in One Variable
 - A. Linear equations
 - B. Applications of linear equations
 - C. Linear inequalities
 - D. Formulas
- III. Linear Equations in Two Variables
 - A. Cartesian coordinate system
 - B. Graphing linear equations, including the slope-intercept method
 - C. Finding the equation of a line
 - D. Systems of equations in two variables
- IV. Integer Exponents and Laws of Exponents
- V. Polynomials
 - A. Definition
 - B. Operations
 - C. Factoring
 - D. Solving polynomial equations by factoring
- VI. Radicals
 - A. Square roots
 - B. Simplification
 - C. Sums and products of radicals
 - D. Rationalizing denominators of square roots
 - E. Higher-index radicals
 - F. Pythagorean Theorem
 - G. Radical equations
 - H. Rational exponents
- VII. Use of Technology
 - A. Evaluate and graph functions
 - B. Solve equations and inequalities graphically
- VIII. Functions
 - A. Definition of relation, function, domain, and range
 - B. Function notation and evaluation
 - C. Interval notation, intersection, and union
 - D. Analyze graphs of linear, polynomial, and radical functions with and without graphing technology
- IX. Equations and Inequalities
 - A. Equations
 - 1. Solutions of literal equations
 - 2. Algebraic and graphical solutions of linear, quadratic, and radical equations
 - B. Inequalities
 - 1. Algebraic solutions to linear inequalities
 - 2. Graphical solutions of linear and nonlinear inequalities using graphing technology
- X. Quadratic Functions
 - A. Vertex and general forms

B. Discriminant

C. Solutions to quadratic equations using factoring, quadratic formula, and completing the square

XI. Rational Functions

A. Domain and range

B. Introduction to graphs, including asymptotes

C. Operations

D. Equations

XII. Absolute Value Functions

A. Domain and range

B. Introduction to graphs

C. Equations

XIII. Exponential Functions

A. Domain and range

B. Graphs

C. Properties

D. Equations

XIV. Logarithmic Functions

A. Domain and range

B. Graphs

C. Properties

D. Expand and condense

E. Equations

XV. Introduction to Applications and Modeling

Assignment:

1. Reading outside of class (0-60 pages per week)
2. Problem set(s) (1-8 per week)
3. Quiz(zes) (0-4 per week)
4. Project(s) (0-10)
5. Exam(s) (1-8)
6. Final exam

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.

Problem set(s)

Problem solving
10 - 80%

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.

Quiz(zes); exam(s); final exam

Exams
20 - 90%

Other: Includes any assessment tools that do not logically fit into the above categories.

Project(s)

Other Category
0 - 10%

Representative Textbooks and Materials:

College Algebra with Corequisite Support. 2nd ed. Abramson, Jay and North, Sharon, Openstax. 2021.

Instructor prepared materials