



El Camino College
COURSE OUTLINE OF RECORD – Approved

I. GENERAL COURSE INFORMATION

Subject and Number: Mathematics 130S
Descriptive Title: College Algebra Support
Course Disciplines: Mathematics
Division: Mathematical Sciences

Catalog Description:

This course is designed to support students concurrently enrolled in College Algebra (Math 130). As needed, students review core skills and topics necessary to meet the College algebra student learning outcomes and objectives. Students explore strategies and habits used by successful independent learners. Topics reviewed in this support course may include: a review of the computational skills developed in intermediate algebra; operations on polynomial, rational, radical, exponential, and logarithmic expressions; functions and transformations of their graphs; solving equations and inequalities; and setting up and solving application problems.

Conditions of Enrollment:

Co-requisite Mathematics 130

Course Length: Full Term Other (Specify number of weeks):

Hours Lecture: 1.00 hours per week

Hours Laboratory: 0.00 hours per week

Course Units: 1.00

Grading Method: Pass/No Pass

Credit Status: Non-Degree Credit

Transfer CSU: **No**

Transfer UC: **No**

General Education:

El Camino College:

CSU GE:

IGETC:

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. *Solve Nonlinear Inequalities:* Solve nonlinear inequalities and a variety of equations such as: polynomial, rational, radical, exponential, and logarithmic.

2. *Solve Problems using Graphical Methods:* Solve problems using graphical methods involving a variety of functions, such as: polynomial, rational, radical, exponential, and logarithmic.

3. *Solve Problems Using Sequences and series:* Solve problems using sequences and series.

4. *Solve Application Problems:* Solve college algebra level application problems and use technology.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at <http://www.elcamino.edu/academics/slo/>.

B. COURSE OBJECTIVES (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each).

1. Carry out numerical operations and manipulate algebraic expressions, including polynomial, rational, radical, exponential, and logarithmic expressions.
(Objective Exams)
2. Recognize functional relations in the form of graphs, data, or symbolic equations.
(Written Homework)
3. Solve equations using algebraic and graphical methods, including polynomial, radical, rational, exponential, and logarithmic equations.
(Quizzes)
4. Graph functions using transformations.
(Objective Exams)
5. Solve linear, quadratic, and nonlinear inequalities
(Quizzes)
6. Use numerical, symbolic, and graphical methods to model and solve application problems.
(Written Homework)

III. OUTLINE OF SUBJECT MATTER (Topics should be detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topics
Lecture	6	I	<p>OPERATIONS AND MANIPULATIONS</p> <p>Concepts and skills as needed through just-in-time work to support:</p> <p>A. Operations on expressions including polynomial, rational, radical, exponential and logarithmic.</p> <p>B. Factoring polynomial expressions</p> <p>C. Operations on complex numbers</p> <p>D. Rational exponents</p>
Lecture	6	II	<p>FUNCTIONS AND GRAPHING</p> <p>Concepts and skills as needed through just-in-time work to support:</p> <p>A. Definition of function, domain, and range</p> <p>B. Functions represented as rules, sets of ordered pairs, algebraic equations, and graphs</p> <p>C. Composite, one-to-one, and inverse functions</p> <p>D. Determining a function based on a graph or sufficient data</p> <p>E. Graphing functions using transformations including translations and reflections</p>
Lecture	6	III	<p>EQUATIONS AND INEQUALITIES</p> <p>Concepts and skills as needed through just-in-time work to support:</p> <p>A. Algebraic and graphical methods for solving equations</p> <p>B. Solving quadratic, rational, radical, exponential, and logarithmic equations</p> <p>C. Finding domains by setting up and solving appropriate equations and inequalities</p> <p>D. Using interval notation</p> <p>E. Solving linear, quadratic, and nonlinear inequalities</p> <p>F. Systems of linear equations (2x2 and 3x3 systems)</p> <p>G. Applications of equations and inequalities</p>
Total Lecture Hours			18
Total Laboratory Hours			
Total Hours			18

IV. PRIMARY METHODS OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION

Problem solving demonstrations (computational or non-computational)

B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION

Find the domain of the function $f(x) = \frac{\sqrt{x-2}}{2x-8}$

C. COLLEGE LEVEL CRITICAL THINKING ASSIGNMENTS

1. Consider the function: $f(x) = 4 - \sqrt{x - 2}$

- (a) What transformations of $y = \sqrt{x}$ lead to the graph of $f(x)$?
- (b) What are the y-intercepts, if any?
- (c) What are the x-intercepts, if any?
- (d) What are the domain and range?
- (e) Sketch the graph

2. Suppose that a person puts \$1000 into a bank account that pays 5% interest per year compounded continuously.

- (a) Write down a model, $A(t)$, that gives the amount of money in this account t years after the \$1000 has been deposited.
- (b) Determine to two decimal places how much money will be in the account after 3 years.
- (c) Determine to two decimal places how long in years the person must wait for the account to reach \$2000.

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:

Objective Exam
Other Exams
Quizzes
Homework Problems
Written Homework

V. INSTRUCTIONAL METHODS:

Lecture
Group Activities
Discussion
Demonstration

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instructional delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS:

Study
Answer questions
Skill practice
Required reading
Problem solving activity
Written work (such as essay/composition/report/analysis/research)

Estimated Study Hours Per Week: 2.0

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

Intermediate Algebra, Tussy/Gustafson, 5th edition, Cengage Learning, 2013.
Intermediate Algebra: functions & authentic applications, Jay Lehmann, 5th edition, Pearson, 2015.

B. REQUIRED TEXTS (title, author, publisher, year)

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
------------	----------------------------

MATH 130	Corequisite
----------	-------------

B. Requisite Skills

Requisite Skills

Solve polynomial, rational, radical, exponential, and logarithmic equations, and solve formulas for a variable. MATH 80 - Solve problems involving a variety of function types, including linear, quadratic, polynomial, rational, radical, exponential, and logarithmic functions.

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
-------------------------	----------------------------

D. Recommended Skills

Recommended Skills

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact
-------------------------------------	-------------------------------

Course created by **Benjamin Mitchell**

BOARD APPROVAL DATE: 1/22/2019

LAST BOARD APPROVAL DATE:

Last Reviewed and/or Revised by: 11/17/2018