

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

X Transfer course X A.A. degree applicable course

COURSE NUMBER AND TITLE: Math 110 - College Algebra

UNIT VALUE: 4

MINIMUM NUMBER OF SEMESTER HOURS: 64

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS:

PREREQUISITE: A minimum grade of "C" in Math 60 or Math 56 or eligibility determined through the math placement process.

COREQUISITE: None

RECOMMENDED PREPARATION: None

SCOPE OF COURSE: Study of the behavior and characteristics of functions from graphic, numeric, analytic and applied perspectives, including general polynomial functions, rational functions, exponential and logarithmic functions, and sequences. Systems of equations in several variables with an emphasis in matrix solutions.

SPECIFIC COURSE OBJECTIVES: The successful student will be able to:

1. Analyze the behavior of a function given a numeric, graphic or analytic representation.
2. Conceptualize and apply the concept of average rate of change for selected functions.
3. Identify and apply relationships between graphic, numeric, analytic, verbal, and applied representation of functions.
4. Analyze, solve and interpret solutions to problems involving systems of equations in several variables.
5. Represent problem situations algebraically, graphically, numerically, and verbally in order to analyze and solve them.
6. Identify and apply principles of algebraic manipulation necessary to solve problems that are represented algebraically.
7. Apply critical thinking and mathematical reasoning skills necessary in algebraic problem solving and related areas of endeavor.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE: At least the following topics will be covered:

1. Analyze the features of problem situations and functions from analytic, numeric and graphical perspectives, including the following:
 - a. Domain
 - b. Range
 - c. Increasing, decreasing, constant intervals
 - d. Extreme behavior - behavior when x approaches $+$ or $-$ infinity
 - e. Zeros
 - f. Asymptotes
 - g. Inverses
 - h. Discontinuities
2. Analyze and interpret the effects of transformations on functions.
3. Analyze information regarding a function or problem situation to create analytic, numeric, or graphic representations.
4. Apply concepts of average rate of change to any selected function and solve problems involving same.
5. Analyze problem situations and solve equations involving polynomial functions with real and complex numbers.
6. Analyze problem situations and solve equations involving rational functions.
7. Analyze problem situations and solve equations involving exponential and logarithmic functions.

8. Analyze sequences as discrete functions including arithmetic sequences, geometric sequences and partial sums.
9. Rewrite polynomial, rational, rational exponent, complex number, exponential and logarithmic expressions in order to analyze the functions they represent.
10. Solve and interpret solutions of linear systems of equations in several variables using matrices (augmented matrices, inverse matrices, or determinants).
11. Additional topics may be included at instructor's discretion.

REQUIRED READING:

Larson, Roland E. and Robert P. Hostetler. College Algebra. 4th Edition. Lexington, MA: D.C. Heath Publishing, 1997.

OR

Aufmann, Richard N., Vernon C. Barker, and Richard D. Nation. College Algebra. 3rd Edition. Boston, MA: Houghton-Mifflin Publishing Co., 1997.

OR

Larson, Roland E., Robert P. Hostetler, and Anne V. Hodgkins. College Algebra Concepts and Models. 2nd Edition. Lexington, MA: D.C. Heath Publishing, 1996.

OR

Aufmann, Richard N. and Richard D. Nation. College Algebra: A Graphing Approach. Boston, MA: Houghton-Mifflin Publishing Co., 1995.

SUGGESTED READING: None

REQUIRED WRITING: Algebraic problem-solving exercises on homework assignments and written tests are appropriate. In addition, students may be required to write reports from one paragraph to several pages explaining concepts or explaining and interpreting solutions to non-routine or applied problems.

OUTSIDE ASSIGNMENTS:

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short term classes.

Students are expected to read the text, study lecture notes, and complete daily homework assignments. Homework assignments may include practice solving routine problems, explaining concepts, and solving application or non-routine problems. Other outside assignments may include computer laboratory assignments, problem-solving reports or journals.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
- laboratory
- lecture-laboratory combination
- directed study

This course may be offered as a distance education course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.

Yes No

If yes, check all that apply. (See guidelines for preparation for definitions.)

- telecourse
- mediated instruction
- computer assisted instruction

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

Computation of semester grade may include the following methods of evaluation: In-class exams, take home exams, computer lab assignments, homework assignments, essays or other evaluation methods. A comprehensive final exam (in class) is required. For example, the semester grade may be computed as follows:

Written exams	40 - 80%
Comprehensive final	20 - 40%
Homework or other outside assignments	0 - 20%

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?

Yes No Number of times course may be taken for credit: 1

If yes, identify specific provision of Title 5 Division 2 section(s) 55761-55763 and 58161 which qualifies course as repeatable:

CONTACT PERSON: Wendy Metzger **EXTENSION:** 2719

Signatures on File