

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

 X Transfer course X A.A. degree applicable course

COURSE NUMBER AND TITLE: Math 200 - Introduction to Linear Algebra

UNIT VALUE: 3

MINIMUM NUMBER OF SEMESTER HOURS: 48

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS:

PREREQUISITE: A minimum grade of "C" in Math 141.

COREQUISITE: None

RECOMMENDED PREPARATION: None

SCOPE OF COURSE: Matrices, determinants, vectors, linear dependence and independence, basis and change of basis, linear transformations, and eigen values.

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

1. Perform addition and multiplication with vectors and matrices.
2. Calculate the value of a determinant.
3. Determine linear dependence or independence of a set of vectors. Also, determine whether these vectors form a basis for a subspace.
4. Identify and use the properties of linear transformations including kernel, image, and change of basis.
5. Find eigenvalues from characteristic equations.

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

1. Geometry in R^m : vectors, lines and planes in R^m ; dot and cross products.
2. Matrices: Algebra of matrices, row reduction, row operations, rank and inverses.
3. Determinants: calculations and properties.
4. Solving systems of Linear Equations by: matrices; Gauss-Jordan and Gaussian elimination, Cramer's Rule, inverse matrices.
5. Vector spaces: definition, properties, subspaces, linear

- independence, spanning sets, basis.
6. Linear transformations: properties, kernel, image, matrix of a linear transformation. Change of bases.
 7. Eigenvalues and Eigenvectors: definitions, similarity, diagonalization.
 8. Additional topics may be included at instructor's discretion.

REQUIRED READING:

Venit, Stewart and Wayne Bishop. Elementary Linear Algebra. 4th Edition. Boston: Wadsworth Publishing Co., 1996.

SUGGESTED READING:

1. Anton, Howard and Rorres, Chris Elementary Linear Algebra, Applications Version. 8th Edition. New York, NY: John Wiley & Sons, Inc. Publishing Company, 2000.
2. Grossman, Stanley. Elementary Linear Algebra. 5th Edition. Orlando, FL: Saunders College Publishing, 1994.

REQUIRED WRITING:

Problem-solving exercises on homework assignments and written tests are more 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 X 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: Cynthia Anfinson **EXTENSION:** 2963

SIGNATURES:

SIGNATURES ON FILE
