CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREAS _____MATH

1. **Catalog Description of the Course.** *[Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]*

   MATH 240 LINEAR ALGEBRA (3)
   Three hours of lecture per week.
   Prerequisite: Completion of MATH 151
   Topics include: matrices, linear systems of equations, determinants, vectors in 2 and 3 dimensions, eigenvalues, the vector space $\mathbf{R}^n$, linear transformations, introduction to general vector spaces and applications.

2. **Mode of Instruction.**

	Units	Hours per Unit	Benchmark Enrollment
Lecture	___3_____	___1_____	__24_____
Seminar	_____	_____	_____
Laboratory	_____	_____	_____
Activity	_____	_____	_____

3. **Justification and Learning Objectives for the Course.** (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*

   The course is a required course for Mathematics and Computer Science majors.

   Through this course, students will be able to

   - Solve general linear systems
   - Compute determinants
   - Analyze invertibility of matrices and compute inverses
   - Use vector techniques in geometric problems
   - Compute eigenvalues and eigenvectors and use them in a variey of problems
   - Use linear transformations in 2 or 3 dimensions
   - Discuss the general concept of vector spaces, linear independence and spanning sets.
   - Apply Linear Algebra to a variety of mathematical and non-mathematical disciplines.
   - Express ideas of Linear Algebra in oral and written form.

   This course is not designed to satisfy the University Writing or Language requirements.

4. **Is this a General Education Course** **YES** **NO**
   If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Mathematics & Sciences)	
C (Fine Arts, Literature, Languages & Cultures)	
D (Social Perspectives)	
E (Human Psychological and Physiological Perspectives)	

5. Course Content in Outline Form. *[Be as brief as possible, but use as much space as necessary]*

Matrices
Linear systems of equations
Determinants
Vectors in 2 and 3 dimensions
Eigenvalues
$\mathbf{R}^n$
Linear transformations
Introduction to general vector spaces
Applications

6. References. *[Provide 3 - 5 references on which this course is based and/or support it.]*

Elementary Linear Algebra-Applications Version 8th Edition by Anton and Rorres, Wiley, 2000.

7. List Faculty Qualified to Teach This Course.

All Mathematics Faculty

8. Frequency.

a. Projected semesters to be offered: Fall ___X__ Spring _X____ Summer ___X__

9. New Resources Required.

a. Computer (data processing), audio visual, broadcasting needs, other equipment

None

b. Library needs

None

c. Facility/space needs

None

10. Consultation.

Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

_____

Proposer of Course Date