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 250 CALCULUS III (3)
Three hours of lecture per week.
Prerequisite: Completion of MATH 151 with a grade of C or better.
Topics include: functions of several variables, solid analytic geometry, partial differentiation, multiple integrals with applications; vector analysis, and line and surface integrals.

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 majors.

Through this course, students will be able to

- Work with several variable functions
- Compute volumes of general solids
- Analyze general curves and surfaces using vectors.
- Compute integals over general curves and surfaces.
- Compute partial derivatives and identify their main properties
- Compute maxima and minima of several variable functions using partial derivatives
- Compute multiple integrals and identify the relations between inegrals of different dimensions (Green's, Stokes' and Divergence Theorem)
- Express ideas of Calculus 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]*

Functions of several variables: definition, basic formulas, and geometric interpretation.
Solid analytic geometry: Definition of general curves and surfaces, length, parametrization.
Partial differentiation: Definition, maxima and minima of functions of several variables.
Vector analysis: Vector fields, line and surface integrals.
Multiple integrals: Definitions, Green's theorem, Stokes' Theorem and Divergence Theorem.
Applications from Physics

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

James Stewart, *Calculus: Early Transcendentals*, fourth edition, Brooks/Cole Publishing Co., 1999.

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