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.

<table>
<thead>
<tr>
<th>Hours per Benchmark</th>
<th>Units</th>
<th>Hours per Unit</th>
<th>Benchmark Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>3</td>
<td>1</td>
<td>24</td>
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<tr>
<td>Seminar</td>
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<td>Laboratory</td>
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<td>Activity</td>
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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 integrals 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 integrals 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

<table>
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<th>YES</th>
<th>NO</th>
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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.]


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