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 151 CALCULUS II (4)**

   Four hours of lecture per week.

   Prerequisite: MATH 150

   Topics include: differentiation, integration, sequences, infinite series, and power series.

2. **Mode of Instruction.**

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<th>Hours per Benchmark</th>
<th>Units</th>
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<td>Lecture</td>
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<td>Seminar</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
   
   - Design mathematical models and work with functions
   - Compute integrals, areas, volumes, surface areas
   - Analyze various representations of functions and use them to solve problems
   - Apply modern software to solve problems
   - Apply integral optimization techniques
   - Apply sequences, series and power series to solve problems
   - Explain, using proper terminology, ideas of calculus and solve computational problems using good technique.
   - 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**

   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]

The Definite Integral  
Fundamental Theorem of  
Indefinite Integrals  
Substitution Rule  
Logarithm as an Integral  
Areas between Curves  
Volumes  
Average Value of a Function  
Integration by Parts  
Trigonometric Integrals  
Trigonometric Substitution  
Partial Fractions  
Improper Integrals  
Arc Length  
Surface of Revolution  
Sequences  
Series  
Convergence Tests  
Power Series  
Application of Taylor Series

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  
Existing computer labs

b. Library needs  
Existing library resources.

c. Facility/space needs  
Classrooms.

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.

_______ Ivona Grzegorczyk ________________________________
Proposer of Course  
Date