CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREAS _____BIOLOGICAL AND PHYSICAL SCIENCES, MATH AND COMPUTER SCIENCE

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 105. PRE-CALCULUS (4)
   Four hours of lecture in the lab per week.
   Prerequisite: A passing score on the Entry Level Mathematics Examination.
   Topics include: number systems and their algebraic properties; systems of equations and inequalities; basic analytic geometry of lines and conic sections; elementary functions including polynomial, rational, exponential, and logarithmic, with emphasis on trigonometric functions, fundamental theorem of algebra and theory of equations; polar equations and curves.

2. **Mode of Instruction.**

	Units	Hours per Unit	Benchmark Enrollment
Lecture	___4_____	___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 required for science majors planning on taking calculus and is open to all other students. May be used to satisfy Mathematics Concentration requirements for Liberal Studies students.

   Through this course, students will be able to

   - Improve their advanced algebraic and mathematical thinking skills
   - Apply methods of analytic geometry and trigonometry
   - Apply algebraic skills and computer software to problem solving
   - Apply various functions and their graphs to problem solving
   - Organize and express ideas clearly and convincingly in oral and written forms.

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

4. **Is this a General Education Course**   **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 and Graphs.
Graphing software.
NEWCRSFR 9/30/02

Families of Functions, Transformations, and Symmetry.
Operations with Functions.
Inverse Functions.
Quadratic Functions and Inequalities.
Complex Numbers.
Polar coordinates.
Exponential and Logarithmic Functions.
Systems of Equations and Inequalities.
Fundamental Theorem of Algebra
Partial Fractions.
Matrices and Determinants.
The Conic Sections.
Sequences, Series, and Probability.
Mathematical Induction.

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

* Interactive Pre-Calculus with Limits: A Graphing Approach with CD-ROM, Ron E. Larson, Robert P. Hostetler, Bruce H. Edwards, 1997, ISBN: 0669417580

* Pre-Calculus, Robert Sadler, 1999, ISBN: 1580370934

7.   List Faculty Qualified to Teach This Course.

  All math 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

      Use of a computer lab.

   b.   Library needs

      Existing resources

   c.   Facility/space needs

      Existing resources

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 Grzgorczyk _____1/8/03_____
Proposer of Course   Date

NEWCRSFR 9/30/02