CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

COURSE MODIFICATION PROPOSAL

PROGRAM AREA_____

1. **Catalog Description of the Course.** *[Include the course prefix , number, full title, and units. Provide a course narrative using <u>underline</u> for deletions and CAPITALS for additions including prerequisites/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 452 COMPUTATIONAL BIOINFORMATICS (4)
FOUR HOURS OF LECTURE IN THE LAB PER WEEK.

PREREQUISITE: PROGRAMMING SKILLS, STATISTICS, OR CONSENT OF THE INSTRUCTOR. BASIC COMPUTATIONAL MODELS USED IN MOLECULAR BIOLOGY AND CHEMISTRY WILL BE INTRODUCED. TOPICS INCLUDE ALGORITHMS FOR STRING ALIGNMENTS, DYNAMIC PROGRAMMING, STRUCTURAL SUPERPOSITION ALGORITHMS, COMPUTING WITH DIFFERENTIAL INFORMATION, 3D MOTIFS, HIDDEN MARKOV MODELS, PHYLOGENETIC TREES, STATISTICAL/ INFORMATION TECHNIQUES FOR PATTERN RECOGNITION, GENETIC ALGORITHMS.
SAME AS COMP 452

COMP 452 Computational Bioinformatics (4)
Four hours of lecture in the lab per week.

Prerequisite: Programming skills, Statistics, Biol 201 recommended, or consent of the instructor.
Basic computational models used in molecular biology and chemistry will be introduced. Topics include algorithms for string alignments, dynamic programming, structural superposition algorithms, computing with differential information, 3D motifs, Hidden Markov Models, phylogenetic trees, statistical/ information techniques for pattern recognition, genetic algorithms.
SAME AS MATH 452
.

2. **Mode of instruction**

	Existing				Proposed		
	Units	**Hours Per Unit**	**Benchmark Enrollment**		**Units**	**Hours per Unit**	**Benchmark Enrollment**
Lecture	4	1	24	Lecture	_____	_____	_____
Seminar	_____	_____	_____	Seminar	_____	_____	_____
Laboratory	_____	_____	_____	Laboratory	_____	_____	_____
Activity	_____	_____	_____	Activity	_____	_____	_____

3. **Course Content in Outline Form if Being Changed.** *[Be as brief as possible, but use as much space as necessary]*

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

5. **Indicate Changes and Justification for Each.** *[Check all that apply and follow with justification. Be as brief as possible but, use as much space as necessary.]*
    _____Course title
    _____Prefix/suffix
    _____Course number
    _____Units
    _____Staffing formula and enrollment limits
    _____Prerequisites/corequisites

_____Catalog description
_____Course content
_____References
_____ GE
___X__Other Add Cross-listing of MATH 452

Justification: Make course available as an elective for Mathematic Majors

6. **If this modification results in a GE-related change indicate GE category affected:**

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

7. **Consultation**
Attach consultation sheets from all program areas, Library, and others (if necessary)

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

_____Ivona Grzegorczyk_____2/15/04_____
Proposer of Course Modification   Date

Approvals

_____
Program Chair   Date

_____
Curriculum Committee Chair   Date

_____
Dean   Date

1. Course Title: _____

_____

2. Program Area: _____

Recommend Approval

Program Area/Unit	Program/Unit Chair	YES	NO (attach objections)	Date
Art				
Biology				
Business & Economics				
Education				
English				
History				
Liberal Studies				
Mathematics & CS				
Multiple Programs				
Psychology				
Library				
Information Technology				