CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

COURSE MODIFICATION PROPOSAL

DATE: NOVEMBER 22, 2005
PROGRAM AREA BIOLOGY

1. Catalog Description of the Course. *[Follow accepted catalog format.]*
(If Cross-listed please submit a form for each prefix being modified)

OLD

Prefix BIOL Course# 431 Title Bioinformatics Units (4)
4 hours Lectureper week
☒ Prerequisites BIOL 400 with a grade of C or better, CHEM 318 or 400
☐ Corequisites
Description The rapid expansion of data acquisition for the human genome and proteome has huge implications for our understanding of the most fundamental processes that direct human life. An understanding of the methodoligies used to acquire, store and analyse these data bases is of great value for students choosing to pursue careers in molecular biology, genetics and biotechnology. Topics include: reglating the genome, including epigenetic mechanisms, the human genome project, including the clinical genetics databases, bioinformatics tools and databases, identifying functional and structural sequence elements, analysis of gene expression: microarrays and other tools

☐ Gen Ed Categories
☒ Lab Fee Required
Graded ☐ CR/NC ☐ Repeatable for up to ☒ A - F units
☐ Optional-Student choose When enrolling

NEW

Prefix BIOL Course# 431 Title Bioinformatics Units (4)
4 hours Lecture per week
☒ Prerequisites BIOL 302 with a grade of C or better
☐ Corequisites
Description Navigation and manipulation of biological databases. Topics include: multiple sequence alignment, phylogeny estimation. gene expression profiling, protein structure prediction, and functional genomics.

☐ Gen Ed Categories
☒ Lab Fee Required
Graded ☐ CR/NC ☐ Repeatable for up to ☒ A - F units
☐ Optional-Student chooses when enrolling

2. Mode of instruction

	Existing				**Proposed**			
	Units	**Hour Per Unit**	**Benchmark Enrollment**	**CS# Units (filled out by Dean)**		**Units**	**Hour Per Unit**	**Benchmark Enrollment**	**CS# Units (filled out by Dean)**
Lecture	**4**	**1**	**24**		Lecture	**4**	**1**	**24**	
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]*

OLD **NEW**

4. 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]*

OLD **NEW**

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

OLD **NEW**

6. **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
- ☐ Other

Justification

Prerequisites: A change of prerequisites from CHEM 318 (Biological Chemistry) or 400 (Biochemistry) and BIOL 400 (Molecular Biology) to BIOL 302 (Genetics) will better prepare students for BIOL 431. Many biological databases are built upon a conceptual framework grounded in genetics. Successful navigation through, and understanding of, these databases requires a thorough understanding of classical, population and molecular genetics principles as would be obtained by completion of BIOL 302 with a C or better. Requirements for molecular biology concepts used in BIOL 431 are met by a basic exploration of the central dogma of replication, transcription, and translation as taught in BIOL 201. Similarly, knowledge of basic protein structure required for BIOL 431 would also be satisified by BIOL 201. Because BIOL 201 is a prerequisite for BIOL 302, it no longer needs to be listed for BIOL 431.

Catalog description: The course description was modified to better reflect course content.

7. **If this modification results in a GE-related change indicate GE category affected and Attach a GE Criteria Form:**

A (English Language, Communication, Critical Thinking)	
A-1 Oral Communication	☐
A-2 English Writing	☐
A-3 Critical Thinking	☐
B (Mathematics, Sciences & Technology)	
B-1 Physical Sciences	☐
B-2 Life Sciences – Biology	☐
B-3 Mathematics – Mathematics and Applications	☐
B-4 Computers and Information Technology	☐
C (Fine Arts, Literature, Languages & Cultures)	
C-1 Art	☐
C-2 Literature Courses	☐
C-3a Language	☐
C-3b Multicultural	☐
D (Social Perspectives)	☐
E (Human Psychological and Physiological Perspectives)	☐
UD Interdisciplinary	☐

8. **New Resources Required. YES ☐ NO ☒**

If YES, list the resources needed and obtain signatures from the appropriate programs/units on the consultation sheet below.

a. Computer (data processing), audio visual, broadcasting needs, other equipment)

b. Library needs

c. Facility/space needs

9. **Will this course modification alter any degree, credential, certificate, or minor in your program? YES ☐ NO ☒**

If, YES attach a program modification form for all programs affected.

Amy Denton	8 October 2005
Proposer of Course Modification	Date

Approvals

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Program Chair Date

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General Education Committee Chair Date

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Curriculum Committee Chair Date

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Dean Date