

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREA BIOLOGY

- 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.]*

BIOL 401 BIOTECHNOLOGY AND RECOMBINANT DNA TECHNIQUES (5)

Three hours of lecture and and six hours of laboratory per week.

Prerequisite: CHEM 318 or 400; BIOL 300 and 302 with grades of C or better.

Theory and practice of various biotechnologies and recombinant DNA techniques applicable to research and development, drug discovery, clinical therapies, preventive medicine, agriculture, the criminal justice system and a variety of other fields. Modern techniques in genomics and proteomics will be introduced in the laboratories. A lab fee is required.

2. Mode of Instruction.

	Units	Hours per Unit	Benchmark Enrollment
Lecture	<u>3</u>	<u>1</u>	<u>24</u>
Seminar	<u> </u>	<u> </u>	<u> </u>
Laboratory	<u>2</u>	<u>3</u>	<u>24</u>
Activity	<u> </u>	<u> </u>	<u> </u>

- 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]*

This is an elective course designed for Biology majors

Students that successfully complete this course should be able to:

1. Describe biocatalysis, pathway engineering, bioprocess control and downstream processing..
2. Demonstrate their ability to reason both inductively and deductively with experimental information and data.
3. Explain the theory and practice of recombinant DNA technology.
4. Select and apply experimental procedures to the spectrum of fields making use of biotechnology.

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]*

- Introduction
- Recombinant DNA Tehnology
- Bioprocessing
- Expression Systems
- Bioinstrumentation
- Immunoassays
- Enzymology

- Biocatalysis and Biotransformation
- Protein Assays

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

Biotechnology An Introduction, S. R. Barnum, Brooks/Cole, ISBN 0534234410

Biotechnology: DNA to Protein—A Laboratory Project in Molecular Biology, Thiel, Bissen, and Lyons, McGraw-Hill, ISBN 0-07-241664-5

Biotechnology: Demystifying the Concepts, Bourgaize, Jewell and Buiser, Addison Wesley & Cummings, ISBN 0-8053-4602-3

7. List Faculty Qualified to Teach This Course.

Louise Lutze-Mann

8. Frequency.

a. Projected semesters to be offered: Fall X Spring Summer

9. New Resources Required.

- Computer (data processing), audio visual, broadcasting needs, other equipment
 - Library needs
 - Facility/space needs
- Biology teaching laboratory with laboratory equipment and supplies.

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.

<u>Ching-Hua Wang</u> Proposer of Course	<u>1-3-03</u> Date
---	-----------------------