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 400. MOLECULAR BIOLOGY AND MOLECULAR GENETICS (4)
Three hours of lecture and three hours of laboratory per week.
Prerequisite: CHEM 314 & 315, 318 or 400; BIOL 300 or 302 with a grade of C or better.
Study of informational macromolecules and how they direct molecular processes in both eukaryotic and prokaryotic cells. Topics include structure, function and regulation of the genetic material at the molecular level, gene organization, structures and functions of DNA, RNA and proteins, gene transcription and expression, RNA processing, genomics and proteomics. A lab fee is required.

2. **Mode of Instruction.**

	Units	Hours per Unit	Benchmark Enrollment
Lecture	_____3___	_____1___	_____24___
Seminar	_____	_____	_____
Laboratory	_____1___	_____3__	_____24__
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]*

This is an elective course for Biology majors designed to introduce students to the latest advances in molecular biology and genetics. In the accompanying laboratory students will gain experience with current experimental technology in molecular biology.

Students who successfully complete this course should be able to:
1. Apply problem-solving skills to biological problems and issues.
2. Write up the results of an experimental study in a lab report.
3. Demonstrate their ability to reason both inductively and deductively with experimental information and data.
4. Explain the function, replication and evolution of genomes.
5. Select and apply experimental procedures to solve biological problems.

4. **Is this a General Education Course** **YES** **NO**
If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Life 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]*
DNA
gene and genome structure and function

replication
evolution and the methodology for genome mapping, analysis and comparison
Genome expression at the chromatin, gene, RNA and protein levels.

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

Genomes, T.A. Brown, Wiley-Liss, ISBN 0-471-25046-5
Molecular Biology, R.F. Weaver, McGraw Hill, ISBN 0-07-234517-9
Molecular Cell Biology, Lodish, Berk, Zipursky, Matsudaira, Baltimore and Darnell, Freeman, ISBN 0-7167-3706-X
Molecular and Cellular Biology, S. L. Wolfe, Brooks/Cole, ISBN 0534124089

7. List Faculty Qualified to Teach This Course.
Biology faculty

8. Frequency.
a. Projected semesters to be offered: Fall _____ Spring ___X__ Summer _____

9. New Resources Required.
a. Computer (data processing), audio visual, broadcasting needs, other equipment
b. Library needs
c. 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.

Ching-Hua Wang 6 January 2003
Proposer of Course Date