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 504. MOLECULAR CELL BIOLOGY (3).
   Three hours of lecture per week.
   Prerequisites: BIOL 300 or permission of instructor
   This course will examine molecular and mechanistic aspects of cell biology. Topics include: cell biochemistry and biosynthesis, cell signaling, regulation of the cell cycle and membrane trafficking.

2. **Mode of Instruction.**

	Units	**Hours per Unit**	**Benchmark Enrollment**
Lecture	____3____	_____1___	_____15__
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]*

   Molecular Cell Biology is a required course for graduate students in the Professional Master of Science Degree Program in Bioinformatics.
   Students who successfully complete this course will be able to:

   - Explain how extracellular signals are transduced into intracellular signals
   - Describe mechanisms involved in regulation of the eucaryotic cell cycle
   - Define the chemical components of cells and explain biosynthetic pathways
   - Explain how proteins and lipids are transported into organelles, membranes and to the extracellular surface

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]*

I. Chemical and molecular foundations

Cell structure/function
Cell chemistry and biosynthesis

Protein structure/function
Basis molecular genetic mechnanisms

II. Cell Signaling
Signaling at the cell surface
Signaling pathways that control gene activity
Integrating signals and gene control

III. Membrane trafficking
Moving proteins into membranes and organelles
Vesicular traffic, secretion and endocytosis
Metabolism and movement of lipids

IV. Cell cycle and cell growth control
Regulating the eucaryotic cell cycle
Cell birth, lineage and death
Cancer

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

Lodish, Berk, Matsudaira, Kaiser, Krieger, Scott, Zipursky and Darnell. (2003). *Molecular Cell Biology, 5th edition*. WH Freeman.

Alberts, Johnson, Lewis, Raff, Roberts and Walter. (2002). *Molecular Biology of the Cell, 4th edition*. Garland Science.

Helmreich. (2001). *The Biochemistry of Cell Signalling*. Oxford University Press.

Gomperts. (2002). *Signal Transduction*. Academic Press.

7. List Faculty Qualified to Teach This Course.

Dr. Nancy Mozingo, Biology faculty

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

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

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.

_____Nancy Mozingo_____31 October 2003_____
Proposer of Course Date