California State University Channel Islands

NEW COURSE PROPOSAL

Courses must be submitted by November 2, 2009, for priority catalog review.

DATE (*Change if modified and redate file with current date)*) 2 NOVEMBER 2009; REV 12.7.09
PROGRAM AREA(S) BIOLOGY

1. Course Information. *[Follow accepted catalog format.]*

Prefix(es) (Add additional prefixes if cross-listed) **and Course No. Biol 501**
Title: FUNDAMENTALS OF CELLULAR AND MOLECULAR BIOLOGY Units: 4

Prerequisites Biology 201 with a grade of C or better
Corequisites
Consent of Instructor Required for Enrollment

Catalog Description (Do not use any symbols): Study of essential topics in cellular and molecular biology. Topics include: structure and function of biological macromolecules, membranes and cellular organelles; cell signaling, synthesis of DNA, RNA and proteins; gene organization, transcription and expression; basic molecular biology laboratory techniques.

Grading Scheme:
x A-F Grades
Credit/No Credit
Optional (Student Choice)

Repeatability:
Repeatable for a maximum of units
Total Completions Allowed
Multiple Enrollment in Same Semester

Course Level Information:
Undergraduate
Post-Baccalaureate/Credential
x Graduate

Mode of Instruction/Components (*Hours per Unit are defaulted*).

	Units	Hours per Unit	Benchmark Enrollment	Graded Component	CS & HEGIS # (Filled in by the Dean)
Lecture	4	1	24	x	
Seminar		1			
Laboratory		3			
Activity		2			
Field Studies					
Indep Study					
Other Blank					

Leave the following hours per week areas blank. The hours per week will be filled out for you.
4 hours lecture per week
hours blank per week

2. Course Attributes:

General Education Categories: All courses with GE category notations (including deletions) must be submitted to the GE website: http://summit.csuci.edu/geapproval. Upon completion, the GE Committee will forward your documents to the Curriculum Committee for further processing.

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)
UDIGE/INTD Interdisciplinary
Meets University Writing Requirement
Meets University Language Requirement

American Institutions, Title V Section 40404: Government US Constitution US History
Refer to website, Exec Order 405, for more information: http://senate.csuci.edu/comm/curriculum/resources.htm
Service Learning Course (Approval from the Center for Community Engagement must be received before you can request this course attribute).

3. **Justification and Requirements for the Course.** (Make a brief statement to justify the need for the course)
A. Justification: Biology 501 will serve as a foundational, prerequisite course for students entering the MS Biotechnology program who lack adequate preparation in cellular and molecular biology. This course will combine elements of cellular and molecular biology along with 4 experimental activities to prepare students for subsequent coursework in the MS biotechnology program.

B. Degree Requirement: see below Requirement for the Major/Minor **Note: Submit Program Modification if this course changes your program**.
Elective for the Major/Minor
Free Elective
This course **or** equivalent coursework in cellular and molecular biology is a required prerequisite for entry into the MS Biotechnology program.

4. **Learning Objectives.** (*List in numerical order. You may wish to use the following resource in utilizing measurable verbs: http://senate.csuci.edu/comm/curriculum/resources.htm*)
Upon completion of the course, the student will be able to:
Describe the structure and function of the biological macromolecules found in cells
Describe the function and structure of cellular organelles including the plasma membrane
Describe how RNA, DNA and proteins are synthesized
Explain the process of cell division and cell cycle control
Describe gene and genome structure, function, replication and evolution
Perform basic laboratory techniques associated with molecular biology

5. **Course Content in Outline Form.** *[Be as brief as possible, but use as much space as necessary]*
Protein Structure and Function
DNA and chromosomes
DNA replication, repair and recombination
From DNA to protein
Gene expression
Gene expression, genomes
Manipulating DNA
Biomembrane structure and function
Protein sorting and vecisular traffic
Cell signaling
Cell division, cell cycle control
Experimental activities:
Fundamental lab techniques
Protein assays; spectrophotometry
DNA manipulations I
DNA manipulations II

Does this course content overlap with a course offered in your academic program? **Yes** x **No**
If YES, what course(s) and provide a justification of the overlap.
Yes, this course overlaps with two undergraduate courses: Cell Biology (Biol 300) and Molecular Biology (Biol 400). This course differs because it is an accelerated, graduate-level course which covers essentials of both cellular and molecular biology.

Does this course content overlap a course offered in another academic area? **Yes** **No** x
If YES, what course(s) and provide a justification of the overlap.

Overlapping courses require Chairs' signatures.

6. Cross-listed Courses (*Please note each prefix in item No. 1)*

A. List Cross-listed Courses (Signature of Academic Chair(s) of the other academic area(s) is required).
List each cross-listed prefix for the course:

B. Program responsible for staffing: Biology

7. References. *[Provide 3 - 5 references]*

Molecular Biology of the Cell, 5th edition. 2008. Alberts et al. Garland Science.
Molecular Cell Biology, 6th edition. 2007. Lodish et al. W.H. Freeman.
Molecular Biology of the Gene, 5th edition. 2003. Watson et al. Cold Spring Harbor Laboratory Press.

8. Tenure Track Faculty Qualified to Teach This Course.

Nancy Mozingo, Amy Denton, Ching Hua Wang, Nitika Parmar

9. Requested Effective Date:
First semester offered: Spring 2010

10. New Resources Requested. Yes **No** x
If YES, list the resources needed.

A. Computer Needs (data processing, audio visual, broadcasting, other equipment, etc.)

B. Library Needs (streaming media, video hosting, databases, exhibit space, etc.)

C. Facility/Space/Transportation Needs

D. Lab Fee Requested (please refer to Dean's Office for additional processing) **Yes** **No** x

E. Other

11. Will this new course alter any degree, credential, certificate, or minor in your program? Yes x **No**
If, YES attach a program update or program modification form for all programs affected.
Priority deadline for New Minors and Programs: October 5, 2009 of preceding year.
Priority deadline for Course Proposals and Modifications: November 2, 2009, of preceding year.

Last day to submit forms to be considered during the current academic year: April 15th.

Nancy Mozingo and Tom Schmidhauser	2 November 2009
Proposer of Course (Type in name. Signatures will be collected after Curriculum approval)	Date

Approval Sheet

Program/Course:
If your course has a General Education Component or involves Center affiliation, the Center will also sign off during the approval process.

Multiple Chair fields are available for cross-listed courses.

Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
General Education Chair		
	Signature	Date
Center for International Affairs Director		
	Signature	Date
Center for Integrative Studies Director		
	Signature	Date
Center for Multicultural Engagement Director		
	Signature	Date
Center for Civic Engagement Director		
	Signature	Date
Curriculum Chair		
	Signature	Date
Dean of Faculty		
	Signature	Date