CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS
COURSE MODIFICATION PROPOSAL

Courses must be submitted by November 2, 2009, to make the next catalog (2010--2011) production

DATE (CHANGE DATE EACH TIME REVISED): 10-15-09
PROGRAM AREA(S): BIOLOGY

Directions: All of sections of this form must be completed for course modifications. All documents are stand alone sources of course information.

1. Course Information.
   [Follow accepted catalog format.] (Add additional prefixes if cross-listed)

   OLD
   Prefix BIOL Course# 504 Title MOLECULAR CELL BIOLOGY Units (3)
   3 hours lecture per week
   x hours blank per week
   x Prerequisites: BIOL 300
   x Consent of Instructor Required for Enrollment
   x Corequisites: 
   Catalog Description (Do not use any symbols): 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.
   
   NEW
   Prefix BIOL Course# 504 Title MOLECULAR CELL BIOLOGY Units (3)
   3 hours lecture per week
   x hours blank per week
   x Prerequisites: BIOL 300 and BIOL 400, or BIOL 501
   x Consent of Instructor Required for Enrollment
   x Corequisites: 
   Catalog Description (Do not use any symbols): Examines molecular and mechanistic aspects of cell biology. Topics include: cell biochemistry and biosynthesis, cell signaling, regulation of the cell cycle and membrane trafficking. Original research articles will be studied and student presentations are required.

   General Education Categories CR/NC Repeatable for up to units
   Lab Fee Requested
   Repeatable for up to units Complete
   Course Level: Optional (Student’s choice)
   Undergraduate Enrollment in same semester
   Post-bac/Credential
   Graduate
   x Multiple enrollment in same semester

2. Mode of Instruction (Hours per Unit are defaulted)

   Hegis Code(s)___________________________
   (Provided by the Dean)

<table>
<thead>
<tr>
<th></th>
<th>Existing</th>
<th>Proposed</th>
<th>CS No. (filled out by Dean)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Units</td>
<td>Hours Per Unit</td>
<td>Benchmark Enrollment</td>
</tr>
<tr>
<td>Lecture</td>
<td>3</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Seminar</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Lab</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Field Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indep Study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other blank</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Course Attributes:

9.15.08 km2
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).

4. Justification and Requirements for the Course. [Make a brief statement to justify the need for the course]

OLD
Molecular Cell Biology is a required course for graduate students in the Professional Master of Science Degree Program in Biotechnology and Bioinformatics.

NEW
Molecular Cell Biology is a required course for graduate students in the Professional Master of Science Degree Program in Biotechnology and Bioinformatics.

x Requirement for the Major/Minor
 Electoral for the Major/Minor
 Free Elective

Submit Program Modification if this course changes your program.

5. Learning Objectives. (List in numerical order. You may wish to visit resource information at the following website: http://senate.csuci.edu/comm/curriculum/resources.htm)

OLD
- 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

NEW
- Synthesize the complex processes of signal transduction pathways into a big picture
- Analyze mechanisms involved in regulation of the eucaryotic cell cycle
- Summarize the chemical components of cells and compare biosynthetic pathways
- Explain how proteins and lipids are transported into organelles, membranes and to the extracellular surface
- Analyze and critique original research articles
- Present scientific knowledge in professional setting

6. Course Content in Outline Form. (Be as brief as possible, but use as much space as necessary)

OLD

NEW

9.15.08 km2
I. Chemical and molecular foundations
   Cell structure/function
   Cell chemistry and biosynthesis
   Protein structure/function
   Basis molecular genetic mechanisms

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

Does this course content overlap with a course offered in your academic program? Yes ☐ No ☒
If YES, what course(s) and provide a justification of the overlap.

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

Overlapping courses require Chairs’ signatures.

7. 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).
   B. List each cross-listed prefix for the course:
   C. Program responsible for staffing:

8. References. [Provide 3-5 references]


9. Tenure Track Faculty qualified to teach this course.
   Biology faculty

10. Requested Effective Date or First Semester offered: F2010

11. New Resource Requested: Yes ☐ No ☒
If YES, list the resources needed.
12. 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.]

<table>
<thead>
<tr>
<th>Course title</th>
<th>Course Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefix/suffix</td>
<td>Course Learning Objectives</td>
</tr>
<tr>
<td>Course number</td>
<td>References</td>
</tr>
<tr>
<td>Units</td>
<td>GE</td>
</tr>
<tr>
<td>Staffing formula and enrollment limits</td>
<td>Other</td>
</tr>
<tr>
<td>Prerequisites/Corequisites</td>
<td>Reactivate Course</td>
</tr>
<tr>
<td>Catalog description</td>
<td></td>
</tr>
<tr>
<td>Mode of Instruction</td>
<td></td>
</tr>
</tbody>
</table>

**Justification:**

BIOL 504 is a required course for the MS Biotechnology and Bioinformatics Program. Previously, we included BIOL 300, Cell Biology, as the prerequisite for this course. In the last few years of offering the program, we have recognized that in order for students to succeed in this course, they need both Cell Biology and Molecular Biology as prerequisites. Hence, there is a need to add BIOL 400 as a prerequisite for BIOL 504. However, many students have come to our program with various academic background and preparation. Some times, they need to make up deficiencies in either Cell Biology (BIOL 300), or Molecular Biology (BIOL 400), or in both areas. To help the students who have had neither BIOL 300 or 400 or equivalent courses to make up their deficiencies and better prepare them for the program, we have developed BIOL 501 that combines the essential knowledge and skills from both BIOL 300 and 400. Due to this newly created course, we also need to include BIOL 501 as an option for the prerequisite courses for BIOL 504. This modification will allow those students who have not done BIOL 300 or BIOL 400 but have completed BIOL 501 to enroll in BIOL 504. Since the number of students enrolled in the program has increased significantly in the last few years, we have actually enrolled nearly 40 students in the class. Raising the enrollment cap from 15 to 30 is reasonable as this is a required and lecture only course. It will help the students in their timely graduation from the program.

13. Will this course modification alter any degree, credential, certificate, or minor in your program? Yes ☑ 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.
Last day to submit forms to be considered during the current academic year: April 15th.

Ching-Hua Wang 10-15-09

Proposer(s) of Course Modification  Date

Type in name. Signatures will be collected after Curriculum approval.
### Approval Sheet

**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.

<table>
<thead>
<tr>
<th>Field</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Chair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Chair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Chair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Education Chair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center for Intl Affairs Director</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center for Integrative Studies Director</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center for Multicultural Engagement Director</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Center for Civic Engagement and Service Learning Director</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum Chair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dean of Faculty</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>