CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS
COURSE MODIFICATION PROPOSAL


DATE (CHANGE DATE EACH TIME REVISED): 10-9-08 REV 11.17.08
PROGRAM AREA(S): BIOLOGY

Directions: All 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)

<table>
<thead>
<tr>
<th>OLD</th>
<th>NEW</th>
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</thead>
<tbody>
<tr>
<td>Prefix BIOL</td>
<td>Course# 510</td>
</tr>
<tr>
<td>1 hours lecture per week</td>
<td>1 hours lecture per week</td>
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<tr>
<td>6 hours laboratory per week</td>
<td>6 hours laboratory per week</td>
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<tr>
<td>Prerequisites: BIOL 300</td>
<td>Prerequisites: BIOL 504</td>
</tr>
<tr>
<td>Consent of Instructor Required for Enrollment</td>
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<tr>
<td>Corequisites:</td>
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</table>

   Catalog Description (Do not use any symbols): Examine theory and concepts of animal and plant cell and tissue culturing. Focuses on stem cell technology including types of stem cells, ethics of stem cells, pluripotency, culture methods, characterization, monitoring tools such as imaging and differentiation strategies.

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   General Education Categories: CR/NC Repeatable for up to 1 units Total Completions
   Lab Fee Requested: X A - F
   Lab Fee Requested: X A - F

   Course Level: Undergraduate Optional Enrollment in same semester
   Course Level: Undergraduate Optional Enrollment in same semester

   Graded: X Lab Fee Requested: X A - F
   Graded: X Lab Fee Requested: X A - F

   Multiple Enrollment in same semester: 2
   Multiple Enrollment in same semester: 2

2. Mode of Instruction (Hours per Unit are defaulted) (Provided by the Dean)

   Existing
   Proposed

<table>
<thead>
<tr>
<th>Units</th>
<th>Hours Per Unit</th>
<th>Benchmark Enrollment</th>
<th>Graded</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>1</td>
<td>1</td>
<td>20</td>
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<tr>
<td>Seminar</td>
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<td>1</td>
<td>20</td>
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<tr>
<td>Lab</td>
<td>2</td>
<td>2</td>
<td>20</td>
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<tr>
<td>Activity</td>
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<td>20</td>
</tr>
<tr>
<td>Field Studies</td>
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<tr>
<td>Indep Study</td>
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<td>1</td>
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<tr>
<td>Lab</td>
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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
Tissue Culture Techniques and Stem Cell Technology is a required course for the MS/MBA dual degree program. This course will provide students with a solid foundation in the theory and techniques of animal and plant tissue culture and an in-depth view of the current state of the science of human embryonic stem cells and their potential applications in regenerative medicine.

NEW
Tissue Culture Techniques and Stem Cell Technology is a required course for the MS/MBA dual degree program. This course will provide students with a solid foundation in the theory and techniques of animal and plant tissue culture and an in-depth view of the current state of the science of human embryonic stem cells and their potential applications in regenerative medicine.

x Requirement for the Major/Minor
Elective for the Major/Minor
Free Elective
Submit Program Modification if this course changes your program.

5. Learning Objectives. (List in numerical order)

OLD
Upon completion of the course, the student will be able to:
1. Grow, maintain, and propagate specific animal and plant cell types in a sterile environment.
2. Identify the problems associated with growing, storing and identifying a wide range of different cell types and plant tissues.
3. Describe how cell culture can be used for in vitro studies and commercial applications.
4. Articulate the conceptual basis and ethical issues surrounding stem cell research.
5. Demonstrate embryonic stem cell propagation

NEW
Upon completion of the course, the student will be able to:
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3. Describe how cell culture can be used for in vitro studies and commercial applications.
4. Articulate the conceptual basis and ethical issues surrounding stem cell research.
5. Demonstrate embryonic stem cell propagation
6. Course Content in Outline Form. (Be as brief as possible, but use as much space as necessary)

OLD
Animal and Plant tissue culture
1. Various systems of tissue culture - their distinguishing features, advantages and limitations; types of media; types of cell lines and their maintenance; transfection strategies
2. Methodology: Primary culture; adherent and suspension cultures; maintenance of sterility and use of antibiotics; mycoplasma and contaminant detection; plant culture techniques such as micropropagation and callus cultures.
3. Characteristics of cells in culture and growth studies (Cell proliferation, cell cycle, mitosis).

Stem Cell Technology
1. Ethics - What are the pros and cons of using human embryonic stem cells vs. adult stem cells?
2. Culture methods - Description of the different culture methods.
3. Characterization and Differentiation - Includes the use of flow cytometry and immunocytochemistry and identification of differentiated tissues; strategies for differentiation; concept of pluripotency
4. New monitoring tools - Imaging and identifying stem cell morphology and cell numbers

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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]

OLD
5. Embryonic Stem Cells, Methods and Protocols, by Kursad Turksen (Ottawa Health Research Institute, Ottawa, Ontario, Canada), Humana Press.

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

10. Requested Effective Date or First Semester offered: S09

11. New Resource 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: Yes [ ] No [x] (Refer to the Dean’s Office for additional processing)
    E. Other. [ ]

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.]

   Course title
   Prefix/suffix
   Course number
   Units
   Staffing formula and enrollment limits
   Prerequisites/Corequisites
   Catalog description
   Mode of Instruction
   Course Content
   Course Learning Objectives
   References
   GE
   Other
   Reactivate Course

   Justification: BIOL 510 has been offered several times and our assessment of the course indicates that this course requires a higher level of background knowledge and skills in cell and molecular biology in order for students to complete the course successfully. Consequently, we would like to list BIOL 504 as a prerequisite for this course to replace BIOL 300, which is a prerequisite for BIOL 504.

13. Will this course modification alter any degree, credential, certificate, or minor in your program? Yes [ ] No [x]
    If, YES attach a program update or program modification form for all programs affected.
    Priority deadline for New Minors and Programs: October 6, 2008 of preceding year.
    Priority deadline for Course Proposals and Modifications: November 3, 2008.
    Last day to submit forms to be considered during the current academic year: April 15th.

Ching-Hua Wang

Proposer(s) of Course Modification

10-9-08

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>Chair Position</th>
<th>Signature</th>
<th>Date</th>
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<tbody>
<tr>
<td>Program Chair</td>
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<td>Program Chair</td>
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<td>Program Chair</td>
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<td>General Education Chair</td>
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<td>Center for Intl Affairs Director</td>
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<td>Center for Civic Engagement and Service Learning Director</td>
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<tr>
<td>Curriculum Chair</td>
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<tr>
<td>Dean of Faculty</td>
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