CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS COURSE MODIFICATION PROPOSAL

Courses must be submitted by November 3, 2008,

to make the next catalog (2009-2010) production

Repeatable

for up to units

Completions Multiple

Enrollment in

same semester

Total

DATE (CHANGE DATE EACH TIME REVISED): 10-9-08 REV 11.17.08

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 i f cross-listed)

OLD Prefix **BIOL** Course# 510 Title : TISSUE CULTURE TECHNIQUES AND STEM CELL TECHNOLOGY Units (3) 1 hours lecture per week

6 hours laboratory per week

x Prerequisites: BIOL 300

General Education

x Lab Fee Requested

Undergraduate

Post-bac/Credential

Categories

Course Level:

X Graduate

Consent of Instructor Required for Enrollment Corequisites:

Catalog Description (Do not use any symbols): Examines 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.

Graded

CR/NC

x A - F

Optional

choice)

(Student's

NEW

Prefix **BIOL** Course# 510 Title : TISSUE CULTURE TECHNIQUES AND STEM CELL TECHNOLOGY Units (3)

1 hours lecture per week 6 hours laboratory per week

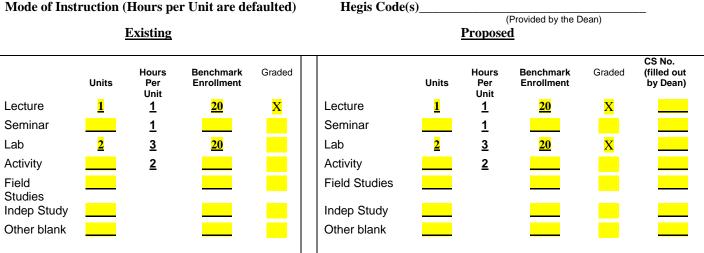
x Prerequisites: BIOL 504

Consent of Instructor Required for Enrollment Corequisites:

Catalog Description (Do not use any symbols): Examines 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.

	Graded	
General Education		Repeatable for
Categories	CR/NC	up to units
Lab Fee Requested	<mark>x</mark> A - F	Total
		Completions 2
Course Level:		Multiple
Undergraduate	Optional	Enrollment in same
Post-bac/Credential	(Student's	semester
x Graduate	choice)	

2 Mode of Instruction (Hours per Unit are defaulted)



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 History US Constitution 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).

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

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.

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)

Upon completion of the course, the student will be able to: OLD

Upon completion of the course, students 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.

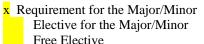
3. Describe how cell culture can be used for in vitro studies and commercial applications.

4. Articulate the conceptual basis and ethicall issues surrounding stem cell research.

5. Demonstrate embryonic stem cell propogation

NEW

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Upon completion of the course, the student will be able to: NEW

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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 ethicall issues surrounding stem cell research.

5. Demonstrate embryonic stem cell propogation

methods.

methods.

6. Course Content in Outline Form. (Be as brief as possible, but	use as much space as necessary)
OLD	NEW
Animal and Plant tissue culture	Animal and Plant tissue culture
 Various systems of tissue culture - their distinguishing features, advantages and limitations; types of media; types of cell lines and their maintenance; transfection strategies 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. Characteristics of cells in culture and growth studies (Cell proliferation, cell cycle, mitosis). 	 Various systems of tissue culture - their distinguishing features, advantages and limitations; types of media; types of cell lines and their maintenance; transfection strategies 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. 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 o differentiated tissues; strategies for differentiation; concept of pluripotency 4. New monitoring tools - Imaging and identifying stem cell morphology and cell numbers 	 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

Does this course content overlap with a course offered in your academic program? Yes _____ No x 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 x 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

- 1. Culture of Animal Cells: A Manual of Basic Technique, 4th Edition, 2000. R. Ian Freshney, ISBN: 0471348899 Publisher: Wiley-Liss
- 2. Basic Cell Culture (The Practical Approach Series), 2002. J. M. Davis, ISBN: 0199638535, Publisher: Oxford University Press, USA
- 3. Plant Tissue Culture: Techniques and Experiments, 2nd edition, 2000. Roberta H. Smith, ISBN: 0126503427
- **Publisher: Academic Press**
- 4. Introduction to Plant Tissue Culture, M. K. Razdan. ISBN: 1578082374, Publisher: Science Publishers, Inc.
- 5. Embryonic Stem Cells, Methods and Protocols, by Kursad Turksen (Ottawa Health Research Institute, Ottawa, Ontario, Canada), Humana Press.
- 6. Human Embryonic Stem Cells, Second Edition, by Ann A. Kiesling and Scott C. Anderson

NEW

1. Culture of Animal Cells: A Manual of Basic Technique, 4th Edition, 2000. R. Ian Freshney, ISBN: 0471348899 Publisher: Wiley-Liss 2. Basic Cell Culture (The Practical Approach Series), 2002. J. M. Davis, ISBN: 0199638535, Publisher: Oxford University Press, USA

3. Plant Tissue Culture: Techniques and Experiments, 2nd edition, 2000. Roberta H. Smith, ISBN: 0126503427 Publisher: Academic Press

4. Introduction to Plant Tissue Culture, M. K. Razdan. ISBN: 1578082374, Publisher: Science Publishers, Inc.

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

6. Human Embryonic Stem Cells, Second Edition, by Ann A. Kiesling and Scott C. Anderson

- 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 (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.]

noe	us much space as necessary.j
	Course title
	Prefix/suffix
	Course number
	Units
	Staffing formula and enrollment limits
x Pi	rerequisites/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 BIOL504.

13.	Will this course modification alter any degree, credential, certificate, or minor in your program? Yes	No <mark>x</mark>	i
	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 15 th .		

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Proposer(s) of Course Modification Type in name. Signatures will be collected after Curriculum approval. Date

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.

Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
General Education Chair		
	Signature	Date
Center for Intl Affairs Director		
	Signature	Date
Center for Integrative Studies Director		
	Signature	Date
Center for Multicultural Engagement Director		
	Signature	Date
Center for Civic Engagement and Service Learning Director		
	Signature	Date
Curriculum Chair		
	Signature	Date
Dean of Faculty		
	Signature	Date