DATE (*Change if modified and redate file with current date)*)	10-9-08 REV 11.17.08; REV 2.3.09
PROGRAM AREA(S)	BIOLOGY

1. **Course Information.** *[Follow accepted catalog format.]*
   Prefix(es) (Add additional prefixes if cross-listed) **and Course No. BIOL 602**
   Title: Stem Cell Technology Internship   **Units: 3 + 3 (2 semesters)**
   x Prerequisites BIOL 511
   ☐ Corequisites ☐
   ☐ Consent of Instructor Required for Enrollment

   Catalog Description (Do not use any symbols): **A** required two-semester project where students conduct original research in an active stem cell research laboratory at various off campus institutions. Culminates in a final written report and oral presentation.

Grading Scheme:
☐ A-F Grades
x 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
☐ 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	☐	1	☐	☐	
Seminar	☐	1	☐	☐	
Laboratory		3			
Activity	☐	2	☐	☐	
Field Studies	6	3	15	X	
Indep Study	☐		☐	☐	
Other Blank		1			

Leave the following hours per week areas blank. The hours per week will be filled out for you.
18 hours field studies 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

3.   Justification and Requirements for the Course. (Make a brief statement to justify the need for the course)

A.   Justification: This course is a requirement for the MS in Biotechnology and Bioinformatics program with an Emphasis in Stem Cell Technology and Laboratory Management. It is going to be offered through Extended Education as part of a self-supported program. This course will provide students with exposure to the actual research environments of stem cell laboratories. The course intends to provide students with the skills to perform mentored original research in stem cell technology. The duration of the internship is requested by the California Institute for Regenerative Medicine (CIRM) and the institutions that will host our interns. Agreements have been set up with these CIRM-funded research institutions to host our student interns specifically for our MS SCT&LM program, with approval from our administration. Due to the extensive training and complexity of the techniques the students have to learn during this process, we plan to offer several non lab courses in the MS Biotechnology and Bioinformatics program as on-line courses. Therefore, the students will be able to complete the internship while taking other required or elective courses on-line to finish the degree program on time.

B.   Degree Requirement: x Requirement for the Major/Minor   **Note: Submit Program Modification if**
                                  Elective for the Major/Minor   **this course changes your program**.
                                  Free Elective

4.   Learning Objectives. (*List in numerical order*)

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

- Describe the process of scientific research in the area of stem cell technology
- Conduct experiments with embryonic or adult stem cells in a project-driven and mentored environment
- Demonstrate the ability to keep accurate records of her/his research project in the area of stem cell technology
- Analyze research findings
- Generate written technical reports of her/his research results using standardized and accepted scientific terminology
- Communicate her/his research results via oral presentations at a symposium forum
- Describe state-of-the-art technology and advances in human stem cell technology

5.   Course Content in Outline Form. *[Be as brief as possible, but use as much space as necessary]*

- Research laboratory biosafety and other laboratory rules and regulations
- Stem cell research techniques
- Identification of research questions to be addressed by student under mentor supervision
- Routine work and experimentation with stem cell culture
- Attend group meetings at the research laboratory
- Familiarize with scientific literature in stem cell technology

- Record keeping and laboratory notebook maintenance
- Analysis of research findings
- Submission of quarterly written reports
- Preparation and delivery of oral presentation of research activities

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.

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]*

   1. Human Stem Cell Manual: A Laboratory Guide (Spiral-bound) by Jeanne F. Loring (Editor), Academic Press, 2007
   2. Human Embryonic Stem Cells: The Practical Handbook (Hardcover) by Stephen Sullivan (Editor), Chad A Cowan (Editor), Kevin Eggan (Editor), Wiley, 2007
   3. Human Embryonic Stem Cell Protocols (Methods in Molecular Biology) (Hardcover) by Kursad Turksen (Editor), Humana Press, 2006

8. **Tenure Track Faculty Qualified to Teach This Course.**

   Biology faculty

9. **Requested Effective Date:**
   First semester offered: Fall 2009

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.
<u>Priority deadline</u> for New Minors and Programs: October 6, 2008 of preceding year.
<u>Priority deadline</u> for Course Proposals and Modifications: November 3, 2008, of preceding year.
Last day to submit forms to be considered during the current academic year: April 15th.

Ching-Hua Wang   10-9-08

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