

Spring 2011: Biology 375 Emerging Issues in Regenerative Medicine Course Syllabus

COURSE TEXT: None.

REFERENCE BOOKS:

- ***Stem Cell Now*** by Christopher Thomas Scott, Plume Publishing, 2006
- ***Stem Cell Research: Medical Applications and Ethical Controversy***, by Joseph Panno, Checkmark Books, 2006
- ***Foundations in Regenerative Medicine: Clinical and Therapeutic Applications***, Anthony Atala (Editor), Academic Press, 2009.
- ***Principles of Regenerative Biology*** by Bruce M. Carlson, Academic Press, 2007
- ***Cracking the Stem Cell Code*** by Christian Drapeau, Sutton Hart Publishing, 2010
- ***Stem Cell Research and Science: Background and Issues*** (Advances in Stem Cell Research) Brendan E. Aylesworth (Editor), Nova Science Publishers, 2010.
- ***The Delivery of Regenerative Medicines and Their Impact on Healthcare***, Catherine Prescott and Dame Julia Polak (Editors), CRC Press, 2010.

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CLASS SCHEDULE: TR 12:30pm-1:45pm, CR5126

OFFICE HOURS: T: 2:00 pm -4:00 pm
W: 9:00 am- 11:00 am
or by appointment

COURSE WEBSITE: <http://moodle.csun.edu>

COURSE OBJECTIVES:

Students will demonstrate an understanding of basic concepts, experimental approaches, and the therapeutic potential of human embryonic stem cells, human adult stem cells, and induced pluripotent stem cells in regenerative medicine. Students will explain how the scientific method is used to advance knowledge in the field of regenerative medicine and how this knowledge will affect human society and everyday life. The politics and ethics of this emerging field of medicine and how these will affect society will be a major component of this course and students will critically assess real world issues and decision making with regard to stem cells and regenerative medicine. This course emphasizes active student participation. Available for General Education, Lifelong Learning, Information Competence (IC) and Writing Intensive (WI).

GENERAL EDUCATION GOALS:

Students will develop the knowledge and understanding of cutting-edge science and technologies at the interface of molecular therapy, stem cell technology, tissue engineering and innovative biomaterials. Ethics of emerging technologies and their impact on society related to these emerging technologies will also be discussed. Students will obtain the knowledge needed to understand these new technologies through the use of the methods of scientific inquiry needed for an increasingly biotechnical workforce.

METHODS OF EVALUATION: Various formats will be used to evaluate how well a student has grasped the subject:

Writing assignments: (50 points for A1 OR A2; 70 points for Bi; 30 points for Bii)

A1) California Institute for Regenerative Medicine (CIRM) Progress Report (1000 words)

In this report, students will describe what CIRM is, what it does, its impact on society in California, in the US, and in the world. Students will include the history that led to its founding, and how CSUN has been impacted by this institute. The main bulk of the report will cover what scientific breakthroughs have been accomplished due to this institute's funding of basic and clinically relevant science. Students will use publications, newspaper articles, journals and the CIRM website for information. The paper should begin with an introductory paragraph and end with a concluding paragraph, be entirely IN YOUR OWN WORDS, and use appropriate in text citation and referencing.

OR

A2) Historical Vs. Current Federal Stem Cell Policy Report (1000 words)

In this report, students will investigate the current USA Federal stem cell policies under the Obama administration. These current policies will be compared to the previous administrations' federal policies on the use of federally funded stem cell research. Issues such as ethical and moral responsibilities and safety should be researched and discussed as well. Students will use publications, newspaper articles, journals and books for information (the textbooks have information from 2006, not current info...). The paper should begin with an introductory paragraph and end with a concluding paragraph, be entirely IN YOUR OWN WORDS, and use appropriate in text citation and referencing.

B) Current Clinical Trials in Stem Cell Therapy or Regenerative Medicine (1000 words)

i) Choose a disease or condition (a list will be provided to you on Moodle), and have it approved by the instructor. Research the disease and answer the following questions IN YOUR OWN WORDS using appropriate in text citation and referencing. What systems are affected? How does it affect the body? How many people in the US and/or world are affected with this disease? - Briefly discuss the normal function of the healthy system(s) – what are the tissues, organs, cells involved and how do they work? What is the best treatment(s) for this disease that are being used now, a.k.a. the “Gold Standard.” The answer may be nothing. For some diseases there may be combination treatments, like for breast cancer, which includes chemotherapy and tamoxifen (or other cancer drug). Your paper should begin with an introductory paragraph and end with a concluding paragraph, be entirely IN YOUR OWN WORDS, and use appropriate in text citation and referencing..

ii) Go to **Clinicaltrials.gov** and search your disease and “stem cell” or use other identifiers that will assist you in finding current trials, in which qualified patients could enroll, that test the effectiveness and safety of new therapies using stem cells or products made from stem cells. Keep in mind that regenerative medicine includes drugs that affect stem cell function; for example, “Colony-Stimulating Factor” causes proliferation and differentiation (a possible therapy) in immune progenitor cells. Drugs affecting stem cell function can be included in your report. Fill in the forms (available on Moodle) for at least 3 trials (including 1 or 2 extra trials will earn 10 extra credit points each). Only include trials that are active, in search of volunteers, or completed – DO NOT include any that have been terminated.

Class Quizzes (8 X 10 pts = 80 pts)

Quizzes will be Multiple choice, True or False or other types of objective questions, as announced during lecture. Each quiz will be for 15 min at the beginning of class on the assigned day. There will be no make up quiz, nor will you have the option to drop any quiz.

Midterm Exams (2 X 75 pts = 150 pts)

Midterm examinations will be multiple choice, matching, and essay questions as scheduled in the attached course schedule.

No make-up examinations will be given without documented medical emergency within one week.

Final Exam (120 points)

The final examination will be comprehensive and consist of multiple choice, matching and essay questions scheduled for May 19, from 12:45pm to 2:45pm.

SEMESTER EVALUATION:

Online Quizzes	8 @ 10 pts each	80 pts
Writing Assignment A		50 pts
Writing Assignment Bi		70 pts
Writing Assignment Bii	3 @ 10 pts each	30 pts
Midterm Exams	2 @ 75 pts ea	150 pts
Final Exam		<u>120 pts</u>
		500 pts

GRADING SCALE:

<u>Percentage</u>	<u>Letter Grade</u>
90-100%	A
87-89%	A-
82-86%	B+
78-81%	B
74-77%	B-
69-73%	C+
64-68%	C
60-63%	C-
55-59%	D
<55%	F

CHEATING AND PLAGIARISM:

All forms of cheating and plagiarism (the claiming of the work of others as your own) are expressly forbidden by University rules and will not be tolerated. Any student observed cheating will be subject to disciplinary action by the University and will receive a grade of F in the course.

BIOLOGY DEPARTMENT WITHDRAWAL POLICY:

Unrestricted withdrawals are permitted only until Friday February 6, 2009. Thereafter, requests to drop a class will be honored only when a *verifiable* serious and compelling reason exists and when there is no viable alternative to withdrawal. *Poor performance is NOT an acceptable reason for withdrawal.* During the last three weeks of the semester withdrawals will not be approved except when a student is withdrawing from ALL classes for verifiable medical reasons. There will be no incomplete (I) grades given in this course, *no exceptions.*