

BISP 170

Bioscholars Seminar: "High-Tech Healing"

Instructor: Dr. Kathleen French kfrench@ucsd.edu

Pacific Hall 3123B

Seminar meetings Mon 3:00-5:30 PM York Hall 3010

Course Description: 2 units, letter grade (or P/NP)

Each year this student-organized seminar course considers several aspects of a current topic in biology. This year we'll consider "High Tech Healing" and discuss cutting-edge techniques that *may* make the transition into therapeutics. We'll begin by considering the process by which results obtained in the basic sciences are translated into safe and effective clinical practice, including the constraints that must be satisfied before any procedure, drug, or device can legally and ethically be used to treat patients. Subsequent speakers will discuss their own contributions to translational medicine.

Schedule

Week	Date	Speaker	Topic
1	March 30	Kathy French, Ph.D. (Biological Sciences), Arnold Gass, M.D. (School of Medicine) and Michael Kalichman, Ph.D. (School of Medicine)	Introduction to BISP 170; The path from bench to bedside: what is required to get through this process? What are the pitfalls? Who benefits?
2	April 6	Drs. Kathy French and Callen Hyland	Finding and reading papers from the primary research literature
3	April 13	Dr. Gert Cauwanbergs (Bioengineering)	Unobtrusive Brain-Machine-Body Interfaces
4	April 20	Dr. Adam Engler (Bioengineering)	Effect of physical cues on the differentiation of stem cells
5	April 27	Dr. Clark Chen (Neurology)	Surgically treating brain tumors
6	May 4	Dr. Larry Goldstein (Cellular and Molecular Medicine)	Axonal transport and neurodegenerative disorders; can stem cell therapy help?;
7	May 11	TBA	Using viral vectors as therapeutic agents
8	May 18	Students	<i>Wrap-up</i> and brief student presentations

Prerequisites

Completion of BILD 1 and 2 or their equivalent.

Course Assignments/Grading

Students will earn a letter grade in the course based on the following scheme:

1. Attendance (25%)
For 8 weeks, the class will meet weekly for 2 hours each. Students can miss one session, but more than one absence will result in a no-pass grade. The official record of attendance is a sign-in sheet that will be available at every class meeting. Be SURE to sign in every week.
2. Readings and discussion questions (25%)
Each speaker will choose approximately two papers from the primary research literature, and each assignment will be posted on the Web site one week before the speaker talks to us. Every student is expected to have read the assigned papers before the associated class session, and based on their reading, each student will write and submit TWO interesting questions that they would like to discuss in class. Questions will be sent to Dr. Kathy French (kfrench@ucsd.edu), and they will be due **by 6 p.m. on the Sunday before each class meeting**. Then each student should be prepared to ask their questions during the discussion period.
3. Final paper (50%)
Students will write a paper that elaborates on a topic of their choice that was introduced or covered by the speakers during the course. The papers must be properly formatted, AND must include citation of at least one source from the primary research literature that extends beyond the reading assignment for that topic. This paper and any others cited must be from the peer-reviewed scientific literature (not from a Website). The paper must be 3 pages long, with 1-inch margins, written in 12-pt Times New Roman or 11-pt Arial, and double-spaced. Hard-copy of the paper must be turned in by 5 p.m. on Friday, May 29) to Dr. Kathy French or to her office (Pacific Hall 3123B).

Learning Goals

We expect that this course will:

- develop skill in discussing important topics in science and their broader social/interdisciplinary implications
- foster oral and written skills that lead to successful scientific communication
- promote students' development as scientifically trained individuals who are also sensitive to the social, political, cultural, and ethical context of scientific research
- educate students about the continuing contributions of scientists at UCSD and other local institutions to research that addresses the pressing scientific, societal, and global challenges of today