



BIOL864 RECENT DEVELOPMENTS IN MICROBIOLOGY: *EVOLUTION, DIVERSITY, PHYSIOLOGY & ECOLOGY OF THE ARCHAEA* FALL 2009

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Office Hours: Monday 3 – 5 p.m.; Hensill Hall 668A

Course Description:

Since the earliest times, human have sought to catalog and categorize the natural world around us. In Biology, the early Greeks drew distinctions between Plants and Animals. By the middle of the 19th Century, scientists confidently asserted that five forms of life existed on Earth. However, in 1977, Carl Woese argued that all cellular life belong to only three fundamental types of organisms, or Domains of Life: ***Bacteria, Archaea and Eucarya***. This new view represented the most fundamental reorganization of our perspective on the Origins of Life since the work of Charles Darwin. Nevertheless, this perspective is still rarely taught in high school and even college level textbooks. In particular, the biology of members of the Domain Archaea remains largely ignored in most Biology courses. In this class, we will focus on the fascinating biology of members of the Archaea. Using primary research articles, we will examine the evolution, diversity and ecology of the Archaea. From our readings and discussions, students will then develop focused mini-proposals to address compelling questions in the field.

Enrollment:

This graduate-level course is primarily intended for Microbiology graduate students interested in exploring the origins, evolution, physiology and ecology of the Archaea. Under exceptional circumstances, advanced undergraduate students will be allowed to enroll. Enrollment will be limited to 10-15 students. ***In all cases, consent of the instructor is required for continued enrollment.***

Format:

- In the first week of class, we will jointly develop a list of topics to be explored by the class through presentations of primary research articles. These topics can be taken from the list provided by the instructor or may develop from discussions in class.
- Individual students will assign themselves to specific topics and, working with the instructor, will select two to three primary research articles of significant interest to the topic.
- Students will lead a critical discussion of the selected topic using the selected research article as a launching point. Presenting students are encouraged to request help from the instructor and/or classmates on how to organize their presentation and prepare visual aids.
- The selected research article must be provided to the rest of the class at least one week prior to the presentation. All students are required to write a brief summary of the article which is due before class on the day of the presentation. This summary should **BRIEFLY** address the following points:
 - *What is the general topic of the paper that is being presented?*
 - *Why is this general topic significant?*
 - *What is the significance of this particular paper? What “gap in our knowledge” is being addressed by this paper?*
 - *Include **three questions** that you have about this paper.*
- Each student will lead 1-2 discussions over the course of the semester, depending on the number of students enrolled in the class.
- Following each week’s class, students will prepare a written evaluation of the presentation(s), to be turned in electronically to the instructor before the next meeting. Presentation will be evaluated according to the following criteria:
 - *Preparation and organization of presentation.*
 - *Accuracy of the information presented.*
 - *Whether the presenter was persuasive and demonstrated an understanding of the material.*
 - *How well the speaker communicated (clarity, tone, audibility).*
 - *Usefulness of additional information and the degree to which the presenter relied on the projected images.*

- *How well the presentation engages the audience*
- *Overall performance of presenter.*
- Based on their interests and the material presented in the course, students will develop a mini-grant proposal. We will dedicate time throughout the course to discuss these ideas as a group in order to provide feedback and constructive criticism. Finalized versions of the proposals will be presented to the class and written up to turn in as final projects, which will then be critically evaluated by the students and the instructor.

Grading:

<i>Participation in class discussions</i>	20%
<i>Reading Summaries</i>	10%
<i>Presentation Evaluations</i>	10%
<i>Research article presentation(s)</i>	20%
<i>Proposal presentation</i>	20%
<i>Written mini-grant proposal</i>	20%
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<i>Total</i>	<i>100%</i>

Attendance:

Attendance is mandatory and class participation is an important part of the final grade. Students will be permitted only one absence over the semester. Subsequent absences will result in multiplicative 20% penalties. It will be impossible to pass the class with more than 2 absences.

Holidays and Furloughs

There will be no class on Wednesday November 11th, 2009 in honor of Veteran's Day.
Due to work furloughs, there will be no class on Wednesday October 7th, 2009.

Statement on plagiarism

Students are expected to maintain a high level of academic integrity in all work pursued at SFSU. **Plagiarism will not be tolerated under any circumstances.** Plagiarism is defined as either direct copying or loose paraphrasing of text from any published work (including online) without appropriate referencing, or use of another person's work or ideas without appropriate attribution (including fellow students). Any incidence of plagiarism will result in zero points for that assignment and will be reported to the Chair of the Biology Department, the Dean of the College of Science and Engineering, and the Office of Student Affairs. Consequences can include penalties up to expulsion from the University.

American with Disabilities (ADA) Accommodation

The University is committed to providing reasonable academic accommodation to students with disabilities. Students with disabilities who need accommodations are encouraged to contact the instructor. The Disability Programs and Resource Center (DPRC) is available to facilitate the accommodations process. The DPRC is located in the Student Service Building and can be reached by telephone (voice/TTY 415-338-2472) or by e-mail (dprc@sfsu.edu).

Important Deadlines for Add/Drop/Withdrawal:September 11, 2009

Deadline to drop courses using GATOR REG.

September 22, 2009

Deadline to add courses with instructor-issued permit number.

September 12 – November 19, 2008

After the first two weeks of classes, withdrawal is permissible only for serious and compelling reasons. Students must file a petition to be reviewed by the Instructor and the Department Chair. Approved withdrawals will result in a "W" grade on transcript records.

November 20 – December 14, 2008

From the SFSU Bulletin: "*Withdrawals are not normally permitted during the final three weeks except in verified cases of accident or serious illness where the cause of withdrawal is due to circumstances clearly beyond the student's control and where the assignment of an incomplete is not practical. Ordinarily, withdrawals in this category will involve total withdrawal from the University.*"