

SYLLABUS

BIOL 4700 Biological Literature and Communication/"Neuro" WAC

Spring 2015

Monday, Wednesday, 3:30-4:45 Wolfe Hall 1240

Instructor: **Bruce Bamber**
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Course Description

The objective of this course is to teach students how professional biologists communicate. To achieve this objective, students will

- learn to read and understand biological research papers and other kinds of primary literature
- learn to write scientifically
- learn to organize and deliver oral presentations to a scientific audience
- Above all: learn to recognize and communicate the 7 critical elements of scientific thought: Background/significance, Hypothesis, Rationale, Approach, Predictions, Results, Interpretation.

Initially, we will focus on research papers selected from the classic biology literature and discuss them in detail. Then we will analyze an assortment of interesting new papers written in the modern style. By the end of the course, students should be comfortable reading research papers and organizing and expressing their ideas in written and oral formats.

This BIOL4700 section is designated as the "Neurobiology" WAC, and fulfills the requirements for the Neurobiology Concentration. Since the Neuro Concentration is so new, there are very few Neuro students, so the general emphasis will be more on Biology topics that do not require a Neuro background. In other words, **if you are not a Neurobiology student, you will not be at a disadvantage!!** If you are a Neurobiology student, your final presentation (see below) will be a neurobiology paper, so this course will still fulfill the Neuro Concentration requirement.

Student input into the choice of current papers is highly encouraged! If you think there is something cool out there we could be discussing LET ME KNOW!!

The principal mode of learning in this class will be the in-class discussion. Therefore it is imperative that each student comes prepared, and takes part in the discussion. To ensure compliance, a substantial fraction of the course grade will be determined by a student's actual participation in discussions (see Evaluation, below), and unannounced pop quizzes used at the instructor's discretion. To earn the maximum points in this category, you

need to do three things: first, show up to every class. Second, read assigned papers before class; the pop quizzes will ask basic questions designed to establish whether you read the paper. Third, participate in the discussion. The instructor will keep track of who is an active participant and who is not.

Learning to write scientifically is a skill that can only be learned by doing. You will be given 5-6 writing assignments. About 4 of these will be relatively short, analyzing the papers we discuss in class in terms of the 7 critical elements discussed above. A final assignment (Term Paper) will be longer, and worth more points. Here you will be expected to put your writing and analytical skills together to produce an in-depth critical review of an interesting scientific question, focusing not only on the big picture but also on experimental methodology and interpretation of results. The students will choose topics of interest to them, but an abstract and outline will need to be approved by the instructor before proceeding with the writing (Assignment schedule and approval deadline TBA).

Finally, an important way that biologists communicate with one another is through the oral presentation. In the final few weeks of class, each student will give a 30-45 minute presentation in front of the class based on their Term Paper.

In addition to these major objectives, we may cover an assortment of other topics as time permits. These may include conducting literature searches, the use of common computer software to manage citations in written work, how the publishing process works, and the grant review system.

Evaluation

Term Paper	30%
In-class Presentation	20%
Short written assignments	30%
Pop Quizzes	10%
Class Participation	10%

Tentative Grading Scale:	85-100%	A	60-64%	C+
	80-84%	A-	55-59%	C
	75-79%	B+	50-54%	C-
	70-74%	B	40-50%	D
	65-69%	B-	<40%	F

Plagiarism can justify failure in this course!!

Your writing must be in your own words. Your instructor can easily distinguish between student writing and professional-level writing as may be found in Review articles or Wikipedia pages. A routine part of grading will be to randomly Google snippets of the student's work, or any parts that appear suspicious. If you have cut-and-pasted material into your assignments (even with minor cosmetic changes), it will be discovered and

dealt with muscularly. First offense: 0 for the assignment. Second offense: F in the course and report of plagiarism to University Administration. **Don't do this!**

B. Bamber office hours: By appointment.

Tentative course schedule (in progress):

Week 1: January 12, 14

- Introduction
- The 7 Critical Elements
- Writing Mechanics
- Begin Classic Papers
 - Meselsohn and Stahl
 - Chapeville and Benzer

Week 2: January 19, 21

- **January 19 is Martin Luther King Day, No Class**
- Classic Papers, continued