

# BIOL 4010/12—Research and Technical Writing in Biology—Fall 2012

Instructor: Dr. Patrick Kelly  
Office Hours: 10:30-12:00 on Mondays and Wednesdays, or by appointment, in N277.  
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**Initial Class Meeting:** Monday, Aug. 27, 2012, 2:00 PM

## Course Description

This course provides an introduction to bibliographic research, design/interpretation of experiments, statistical testing of results, and preparation of technical communications in biology. It is designed to enhance the skills of biology majors by focusing on those elements of research, interpretation, and written presentation that typically require considerable practice. It satisfies the upper-division writing proficiency (WP) requirement.

## Prerequisites

You must have passed the Writing Proficiency Screening Test (WPST) or already have taken and passed with a C or better a writing proficiency course; have completed BIOL 1050/1150 (or their equivalents); or be classified as a graduate student. It also helps to have had statistics and to be computer literate.

## Learning Objectives

After completing this course, you should be able to:

1. deal comfortably with conventional scientific communications;
2. distill a (conventional) scientific paper into an abstract;
3. write a short scientific review paper;
4. work effectively with other students (in a small team) to develop a grant proposal;
5. present that proposal to the class (using PowerPoint or Keynote); and
6. prepare an application for a job or graduate/professional school.

## Assignments

There are two major assignments, each worth 200 points. Each student will write an original review paper (Feature Article), which will entail considerable library research. Also, students will be randomly assigned to small teams to prepare and present a research proposal (Grant Proposal).

Other assignments include:

- Practice using bibliographic tools in the library (20 pts);
- Writing abstracts for already-published articles (70 pts);
- Starting with raw data, statistically summarize and test the data, and display summaries in tables and figures (100 pts);
- Prepare an application for a job or graduate/professional school (10 pts).

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The Feature Article will be in the form of a journal review article on a specific topic in the general areas of ecology (plant or animal), behavioral ecology, animal behavior, or conservation biology. No more than one student can write about any particular topic. The body of the paper will be 12 pages (double-spaced) long, not including title page (or Table of Contents), references (Literature Cited), or any figures and/or tables you choose to use. I expect the paper to include 15 to 25 citations (references) from the research literature (i.e., peer-reviewed). The Feature Article accounts for one third of the course grade (200 pts).

Instructions on the Grant Proposal assignment will be provided in the coming weeks. Grant-writing teams will be randomly selected. Each team will submit a short list of topics for approval. Including a class presentation (PowerPoint or Keynote), the Grant Proposal accounts for one third of the course grade (200 pts).

There will be no exams, but some of the lesser assignments will be completed in lab, and there may be some quizzes. Grades will be based mostly on written assignments: neatness, grammar, spelling, clarity, organization, conciseness of writing, and how well results are tested, interpreted, presented, and discussed all count in grading. Unexcused absences during quizzes and “in-class” writing assignments will be treated the same as unexcused absences during exams.

Final grades will be based on overall performance in all assignments. Note that a C or better is required to pass the class. Except for designated collaborative activities, all writing and other work you present for credit must be entirely your own.

### **Class Logistics, Conduct and Ethics**

- Lectures and labs will take place from 2:00 to 3:50 on Mondays and Wednesdays in L-125C. Lecture time slots will be used also for labs, especially during the 2<sup>nd</sup> half of the semester. For the last few weeks of the semester, some lab time may be done on your own in the library or elsewhere (for library research and writing).
- Please do not be shy about contacting me or coming to see me.
- Occasionally, students can be hard to reach, and this can be a problem.
- Please be on time for lectures and labs; unexcused absences will be noted.
- Please do not speak when another person is speaking, and please be respectful of fellow students when you are required to work together.
- Cell Phone Policy: Use of cell/smart phones, text-messaging, personal internet use (text-messaging, email, social networking, browsing), and music devices is prohibited during class time.
- Please be neat and clean up after yourself.
- You are required to work independently during in-class assignments and on take-home assignments, unless instructed otherwise.
- Plagiarism is a form of cheating, and will not be tolerated. Reports and other assignments with plagiarized material will receive a zero. A second incident of plagiarism by a student will result in an F for the course grade. Students should note that *Turnitin* is used routinely in this class.

- Readings are to be done before the class for which they are scheduled.

### All Assignments Are Due On The Day Stated

Points will be deducted for assigned materials that are turned in late: 10% for each day a paper is late (e.g., if due on Mon. and turned in on Wed., 20% will be deducted). For larger assignments, this can significantly affect your final grade.

### Length of Assigned Papers

Length of *all* papers is based on the following format:

1. 1-inch top and bottom margins (headers and footers, if any at 0.5 inches)
2. 1.25-inch left and 1-inch right margins
3. Use 12-point (10 pitch) Arial for body text (some headings can be 14- or 16-pt).
4. Double spacing (except for your name and date, which are to be placed single-spaced in top left corner of the front page)

Papers that do not meet the minimum specified length will have a proportional amount of points deducted. Twenty percent of the grade for a paper is for length. If a 200 pt. paper is supposed to be 12 pages long, but you submit only 9 pages, the number of points earned for length is 30 pts ( $(9/12) \times 0.2 = 15\%$ ;  $0.15 \times 200 = 30$ ).

### Grading

Written assignments are evaluated as objectively as possible. The following components and their maximum points (%) make up the evaluation:

Length	20
Spelling & Grammar	10
Style & Format (Adherence to Instructions)	5
Organization	15
Clarity of Expression	20
Completeness of Topic Coverage (Not Length!)	5
Originality	25

### Return of Written Materials

With the exception of any in-class assignments, you should make a copy of papers before turning them in. Hard copies (single-sided only) must be turned in on the due date in class. And, except for today's assignment, electronic copies must also be turned in via Turnitin or Blackboard on the due date. Students will be required to follow specific file-naming instructions.

Except in the case of an emergency, please do not contact me using personal email addresses. Use your official CSUS email address, from Blackboard if you wish, and identify yourself clearly in the body of the email and provide identifying keywords in the subject line (e.g., "BIOL 4010 - Abstracting Assignment, J. Smith").

It is very important to also start all email subject lines with “BIOL 4010 - ...” so that your communication gets the attention it deserves. And remember, careful and courteous correspondence is increasingly important in today’s job market.

Note that I may keep the originals of submitted hard copy materials. If so, you will have an opportunity to examine and copy all graded material.

### **Caveats**

You are ultimately responsible for all aspects of your reports and articles. It is important to note that I do not mark (or notice) all errors and style faults in your draft papers, especially if they are full of problems. The same errors, repeated throughout a paper are typically marked only once or a few times, then ignored, but you are expected to correct all occurrences. Some errors, faults, or alternate wording to increase clarity or reduce verbiage may be marked in a final draft but not the review draft. This occurs unintentionally because I may have been distracted by other problems in the same passage. This is neither my fault nor that of someone who reviewed your paper. You must learn to be your own best critic. It is very important to have others evaluate your work prior to its submission, but even the best reviewers will not write your paper for you no matter how many edits and comments they recommend and provide.

### **Reference Materials**

The assigned text for the course is Victoria McMillan's *Writing Papers in the Biological Sciences* (5<sup>th</sup> edition, 2012; Bedford/St. Martin's, Boston/New York). However, I also recommend Jan Pechenik's *A Short Guide to Writing About Biology* (8<sup>th</sup> edition, 2012/13; Longman/Pearson, New York).

Other useful texts are Karin Knisely's *A Student Handbook for Writing in Biology* (3<sup>rd</sup> edition, 2009; Sinauer, Sunderland, MA) and Angelika H. Hofmann's *Scientific Writing and Communication: Papers, Proposals, and Presentations* (2010, Oxford University Press, New York).

Other reference texts include *Scientific Style and Format* (CSE Manual for Authors, Editors, and Publishers, 7<sup>th</sup> Edition; \$60); *Chicago Manual of Style* (16<sup>th</sup> Edition); Strunk & White's *The Elements of Style*. I also recommend Brower et al's *Field and Lab. Methods for General Ecology* (it has a nice concise section up front on scientific writing). On Wednesday, we will meet at the library, where you will get an overview of the latest bibliographic and electronic search tools.

### **Other**

Always bring all handouts with you to class. Some will be provided in hard copy others you will download from Blackboard. You will need to refer to the handouts in class, and especially in labs.

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<b>Class Schedule, Topics, and Assignments</b>				
0	W	22 Aug	2:00-3:50	No Lab, but online assignment: Library Tutorials <a href="http://libguides.csustan.edu/tutorials">http://libguides.csustan.edu/tutorials</a>
1	M	27 Aug	2:00-3:50	Course Introduction; Scientific Method; Ethics; Documenting a Paper, References/Citations. <b>Assignment:</b> 3 C's Biography.
	W	29 Aug	2:00-3:50	Finding research literature; library tour. <b>Ex. 1:</b> Bibliographic Tools
2	M	3 Sep	2:00-3:50	NO CLASS—LABOR DAY
	W	5 Sep	2:00-3:50	Reading and note-taking <b>Topic Short List due</b>
3	M	10 Sep	2:00-3:50	Ethics; Feature Article Overview
	W	12 Sep	2:00-3:50	More effective word processing <b>Topic and 3 Refs due</b>
4	M	17 Sep	2:00-3:50	Scientific Writing Principles—Words to Sentences
	W	19 Sep	2:00-3:50	Paragraphs; Paraphrasing ( <b>Ex. 2</b> ) <b>Bibliography due</b>
5	M	24 Sep	2:00-3:50	Abstracts ( <b>Ex. 3</b> ); Tables & Figures. <b>Ex. 2 due</b>
	W	26 Sep	2:00-3:50	Tables & Figures (cont.).
6	M	1 Oct	2:00-3:50	Statistics (incl. descriptive stats, and a t-test demo with SPSS-19)
	W	3 Oct	2:00-3:50	Statistics (cont.; incl. Chi-Square demo). <b>Ex. 4: Statistics</b>
7	M	8 Oct	2:00-3:50	Formatting & Other Stuff. <b>Ex. 5: Figures and Tables. Ex. 3 due</b>
	W	10 Oct	2:00-3:50	NO CLASS—Non-instructional Day
8	M	15 Oct	2:00-3:50	Writing clear, accurate sentences (lab. ex.). <b>Ex. 4 due</b>
	W	17 Oct	2:00-3:50	Writing clear, accurate sentences (lab. ex.; cont.); Abstracting Review
9	M	22 Oct	2:00-3:50	Grant Proposals <b>Ex. 5 due</b>
	W	24 Oct	2:00-3:50	Posters & Presentations; Job Applications. <b>Ex. 6: Resumé, Cover Letter &amp; Job Ad. (due Dec. 10) Rough Draft due</b>
10	M	29 Oct	2:00-3:50	Individual appointments
	W	31 Oct	2:00-3:50	Individual appointments
11	M	5 Nov	2:00-3:50	Individual appointments
	W	7 Nov	2:00-3:50	In-class writing review and assistance
12	M	12 Nov	2:00-3:50	NO CLASS—VETERANS' DAY
	W	14 Nov	2:00-3:50	In-class writing review and assistance
13	M	19 Nov	2:00-3:50	In-class writing review and assistance
	W	21 Nov	2:00-3:50	In-class writing review and assistance
14	M	26 Nov	2:00-3:50	In-class writing review and assistance
	W	28 Nov	2:00-3:50	In-class writing review and assistance
15	M	3 Dec	2:00-3:50	In-class writing review and assistance
	W	5 Dec	2:00-3:50	Team Presentations <b>Feature Articles &amp; Grant Proposals Due</b>

**BIOGRAPHICAL ASSIGNMENT**

- Write a short biographical statement about yourself.
- It must be no more than one page long and must contain 3 to 4 paragraphs, but unlike most other assignments, this one is to be single-spaced.
- Place your name, date, and class code in top left corner of the page.
- Do not use any headings.
- Include only the most relevant information on your academic background, work experiences, writing experiences, major, professional goals, and what you hope to accomplish by taking this course.
- This is your first opportunity to master the **3 C's** of effective scientific writing—to be Clear, Concise, and Complete.
- Most of you will find that being clear, concise, and complete is not that simple or straightforward.
- You will hear a lot more about the **3 C's** of effective scientific/technical writing in the coming weeks.
- This is your first **3 C's** test, but it will not be graded. ☺
- Note that a 4<sup>th</sup> C is to be Consistent, but we need to work first with the 3 C's.