

BIOL 4010/12—Research and Technical Writing in Biology—Fall 2011

Instructor: Dr. Patrick Kelly
Office Hours: In N-274 on Wednesdays (9-noon), or by appointment.
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Initial Class Meeting: Aug. 22, 2011, 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 (formerly BOTY 1050 and ZOOL 1050); 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).
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 summarizing and testing the data, and displaying summaries in tables and figures (100 pts);
- prepare an application for a job or graduate/professional school (10 pts).

The feature article will be in the form of a journal review article on a specific topic in the general areas of ecology, behavioral ecology, or animal behavior. The body of the paper will be 12 pages (double-spaced) long, not including title page (or abstract, or table of contents), references (Literature Cited), or any figures and/or tables you choose to use. It will contain a minimum of 20 cited references from the research literature (i.e., peer-reviewed). The feature article accounts for 33% of the total possible grade for the course.

Instructions on the Grant Proposal assignment will be provided in the coming weeks. Subject matter will be more dependent on the make up of the grant-writing teams (i.e., not restricted to ecology, behavioral ecology, or animal behavior). The grant proposal accounts for 33% of the total possible grade for the course.

There will be no exams, but some of the other assignments will be completed in lab, and you may have a some short quizzes that require putting into practice what you are expected to learn (from lectures, handouts, and the assigned textbook). 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, and a plus and minus grading scale will be used to assign final grades. Note that a C or better is required to pass the class. Except for designated collaborative activities (grant proposal), all writing and other work you present for credit must be entirely your own.

Class Logistics, Conduct and Ethics

- Lectures start at 2:00 p.m. and run until 3:50 p.m. on Mondays in C-205 (Dorothy & Bill Bizzini Hall), but please note that this room assignment may change. This time slot will be used also for labs, especially towards the end of the semester.
- Wednesdays from 2:00 to 3:50 p.m. are set aside as laboratory time (P-103, Demergasso-Bava Hall), but please note that this room assignment may also change. For the last few weeks of the semester, some laboratory time may be done on your own in the library or elsewhere.
- My office hours are listed at the top of p. 1. Please do not be shy about contacting me or coming to see me.
- I am best reached via email (pkelly@csustan.edu).
- 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 (e.g.,

iPods) are all prohibited during class time. Any use of a cell phone during class will result in confiscation of the phone until the class has ended.

- 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* (<http://www.turnitin.com/>) 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 Wed. and turned in on Fri., 20% will be deducted). This rule will be enforced. For larger assignments, it 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 (headings can have a larger font size).
4. Double spacing (except for your name, date, etc. 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. A total of 20% of the grade for a paper is for length: for example, if the required length is 12 pages and your paper is only 9, then the number of points earned for length is calculated as follows:

$$\text{actual length/minimum specified length} = 9/12 = 0.75$$

$$0.75 (0.2) = 0.15$$

Thus, 15% or 30 points will be awarded for “length” of a 200 pt. paper.

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

Students will be required to follow specific file-naming instructions.

Return of Written Materials

With the exception of any in-class writing 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 email or Blackboard (site will be fully operational soon) on the due date. 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. This class will help you to hone those skills.

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. I am slightly more lax in grading drafts than final versions of papers, but it is important to note that I do not mark (or pick up on) 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. Don't expect others to write your paper for you by marking all necessary or desirable changes. Yet it is important to have others evaluate your work prior to its submission.

Reference Materials

The assigned text for the course is new this year: Angelika H. Hofmann's *Scientific Writing and Communication: Papers, Proposals, and Presentations* (2010, Oxford University Press, New York, NY. 682 pp). In the past I have used Karin Knisely's *A Student Handbook for Writing in Biology* (3rd edition, 2009; Sinauer, Sunderland, MA. 296 pp; <http://www.sinauer.com/knisely/>) and Victoria McMillan's *Writing Papers in the Biological Sciences* (4th edition, 2006; Bedford/St. Martin's, New York, NY. 288 pp), but I also like Jan Pechenik's *A Short Guide to Writing About Biology* (7th edition, 2010; Longman/Pearson, New York, NY. 288 pp).

Other reference texts include *Scientific Style and Format* (CSE Manual for Authors, Editors, and Publishers, 7th Edition; \$60); *Chicago Manual of Style* (16th 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). For next week, I have requested a tour of 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. I recommend that you use a 3-ring binder for course materials.

Assignment #1:

- Write a short biographical statement about yourself.
- It must be no more than one page long, contain 2 to 3 paragraphs, and be double-spaced (except for your name, date, and class code which are to be placed single-spaced in top left corner of the front page).
- Include only the most relevant information on your major, professional goals, academic background, work experiences, writing experiences, and what you hope to accomplish by taking this course.
- Please remember the **3 C's** of effective writing: be Clear, Concise, and Complete.
- You will hear a lot more about the **3 C's** of effective scientific/technical writing over the next three months.
- This is your first **3 C's** test, but it will not be graded. ☺

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				Class Schedule, Topics, and Assignments
1	M	22 Aug	2:00-3:50	Course Introduction Assignment: short essay on self.
	W	24 Aug	2:00-3:50	Lab assignment: Reading and Note-taking
2	M	29 Aug	2:00-3:50	Scientific Method; Ethics; Documenting a Paper, References/Citations
	W	31 Aug	2:00-3:50	Finding research literature; library tour. Ex. 1: Bibliographic Tools
3	M	5 Sep		NO CLASS—HAVE A NICE LABOR DAY
	W	7 Sep	2:00-3:50	Scientific writing principles—words to paragraphs; Feature Article overview; word processing basics
4	M	12 Sep	2:00-3:50	Scientific writing principles (cont.) and the Abstract (Ex. 2)
	W	14 Sep	2:00-3:50	Technical sentences; paraphrasing
5	M	19 Sep	2:00-3:50	Using Tables and Figures
	W	21 Sep	2:00-3:50	XY Graphs (scatterplots) in MS Excel
6	M	26 Sep	2:00-3:50	Statistics
	W	28 Sep	2:00-3:50	Statistics (cont.; incl. using statistical software). Ex. 3: Statistics
7	M	3 Oct	2:00-3:50	Revising; word usage
	W	5 Oct	2:00-3:50	Formatting (incl. TOC). Ex. 4: Figures and Tables.
8	M	10 Oct	2:00-3:50	Revising papers (cont.)
	W	12 Oct	2:00-3:50	Writing clear, accurate sentences (lab. ex.)
9	M	17 Oct	2:00-3:50	Grant Proposals; Posters & Presentations
	W	19 Oct	2:00-3:50	Grant Proposals – hands-on lab
10	M	24 Oct	2:00-3:50	Individual appointments
	W	26 Oct	2:00-3:50	Individual appointments
11	M	31 Oct	2:00-3:50	Individual appointments
	W	2 Nov	2:00-3:50	Writing clear, accurate sentences (lab. ex.)
12	M	7 Nov	2:00-3:50	Job Applications. Ex. 5
	W	9 Nov	2:00-3:50	In-class writing review and assistance
13	M	14 Nov	2:00-3:50	In-class writing review and assistance
	W	16 Nov	2:00-3:50	In-class writing review and assistance
14	M	21 Nov	2:00-3:50	In-class writing review and assistance
	W	23 Nov	2:00-3:50	In-class writing review and assistance
15	M	28 Nov	2:00-3:50	In-class writing review and assistance
	W	30 Nov	2:00-3:50	Presentations by grant-writing teams (Part I) Turn in Feature Articles and Grant Proposals
16	M	5 Dec	2:00-3:50	Presentations by grant-writing teams (Part II)

Note: short quizzes may be given at any time on material covered in lectures or the textbook (Hofmann, 2010).