

BIOL 4010—Research and Technical Writing in Biology—Spring 2015

Times/Room: Wed. 6:00-7:45 p.m. (lecture) and Friday 1:00-3:50 (lab.), both in N201

Instructor: Dr. Patrick Kelly, Prof. of Zoology and ESRP Coordinator

Office Hours: Friday 8:00-10:00, or by appointment, in N277

Phone: 209-667-3446 (note: when I am not on campus, I do not check messages)

Email: pkelly@csustan.edu

Email is the best way to reach me. I usually respond to simple requests and questions within 24 hours. Please write “BIOL 4010” in the subject line and include your full name in the email. Otherwise, your email may go unnoticed and not be responded to.

Communication: Please check your CSUStan email on a regular basis, ideally every day. You can easily set up your CSUStan email address to forward to another email address you check more frequently

Initial Class Meeting: Wednesday, Jan. 28, 2015, 6:00 p.m.

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—Completion of the Writing Proficiency Screening Test (WPST) with a passing score, BIOL 1050/1150 (or their equivalents), ENGL 1001, ENGL 1002, or ENGL 1005, and junior standing or consent of instructor, or already have taken and passed with a C or better a writing proficiency course, or be classified as a graduate student. It also helps to have taken UD biology classes and statistics, and to know how to use Microsoft Office applications (or acceptable equivalents), especially MS Word.

Course Questions & Learning Objectives:

- a. What makes scientific information reliable?
- b. How do you find scientific information?
- c. How are scientific ideas conveyed to fellow scientists and to the public?
- d. How do you effectively and efficiently read scientific publications?
- e. What aspects of style and composition are unique to science writing?
- f. How can we write in a way that convinces readers of the validity of our ideas?
- g. What forms of criticism are most helpful for improving writing?
- h. How can we effectively be our own best editor?

After completing this course, you should be able to:

1. Critically analyze and understand written scientific communications.
2. Identify aspects of writing style, composition, and data presentations that effectively communicate scientific ideas and information.
3. Use bibliographic databases to find published scientific information.
4. Synthesize scientific information from multiple sources and develop novel research questions.
5. Distill a (conventional) scientific paper into an abstract.
6. Write a short scientific review paper.
7. Work effectively with other students (small team) to develop a grant proposal.
8. Present that proposal to the class (using PowerPoint or Keynote).
9. Prepare an application for a job or graduate/professional school.

Assignments

Various assignments total 400 points:

- Each student will write an original review paper (100 pts);
- Student teams will write and present a grant proposal (150 pts)
- Practice using bibliographic tools in the library (20 pts);
- Paraphrasing and abstracting (40 pts);
- Starting with raw data, statistically summarize and test the data, and display summaries in tables and figures (50 pts);
- Exams on fundamentals of scientific writing (40 pts).

The original review paper (*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. Topics have to be approved in advance and no more than one student can write about any particular topic. It must be completely original. It cannot be submitted to any other class, and no paper from any other class can be used for Biol 4010. The body of the paper will be 8 pages (double-spaced), not including title page, abstract, table of contents, reference list, or any figures and tables you choose to use. I expect the paper to include at least 12 citations (references) from the research literature (i.e., peer-reviewed).

Instructions on the *Grant Proposal* will be provided in the coming weeks. Grant-writing teams will be randomly selected. Each team of 3-4 students will submit a short list of topics for approval. Using PowerPoint or Keynote, each team will give a presentation on the last day of class. The presentations (worth 50/150 pts) will be judged by other students in the class as well as by your instructor.

There will be 2 lab exams on the fundamentals of scientific writing, and some of the other assignments will also be completed in lab. 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 lab assignments will be treated the same as unexcused absences during exams (0 pts).

Grading Scale (%)	
90-100	A
80 - 89	B
70 - 79	C
60 - 69	D
0 - 59	F

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.

Expectations

1. You are expected to treat everyone in class with respect and kindness. In order to create a thriving learning community, it is important that we encourage one another to do our best and not put anyone down. To avoid distracting yourself and others, please do not phone, text, email, social network, surf the web, or do work for other classes when we are working on in-class activities.
2. Come to class properly prepared by doing the assigned readings prior to class.
3. Engage the material deeply and critically. Treat your education as if it is helping prepare you to change the world (which hopefully it is).
4. Attend every class session, be on time, and participate fully. Absences will be noted.
5. It is important to take good notes. There is no substitute for good note-taking.
6. You are required to work independently during in-class assignments and on take-home assignments, unless instructed otherwise.
7. Complete and turn in assignments on time.
8. Maintain the highest standards of academic integrity. All work that you submit must be your own. Plagiarism—taking direct quotes or ideas from other sources without attribution—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. I am very good at detecting plagiarism and you should note that *Turnitin* is used for major assignments in this class. Don't take the risk. If you have questions about what is acceptable, please ask me.
9. All electronic devices (phones, tablets, mp3/music players, etc.) must be turned off and kept in your bag during class. You will be using the Dell computers in N201 for most labs, but in certain instances personal laptops may be used for designated in-class activities. If I see you using computers for other purposes, I will ask you to leave. Please disable your wireless Internet to avoid the temptation of checking email, texts, Facebook, etc. If you need to make an emergency phone call or text, please step out of the room, preferably after I am done presenting new material.
10. Take the initiative to use course and campus resources (office hours, web sites, readings, tutoring, etc.) to get the most out of the course.
11. Lecture time slots will be used also for labs, especially during the 2nd half of the semester. For the last few weeks of the semester, some lab time may be done on your own or in small groups (e.g., grant-writing teams) in the library or elsewhere (for library research and writing).
12. Please be neat and clean up after yourself.

You can expect that your instructor will:

- Do his best to provide you with a stimulating, useful, and fun course.
- Treat you with respect.
- Assign grades impartially based on rubrics and standards.
- Be available to help during office hours and via email.
- Return assignments and post grades in a timely manner (<2 weeks).

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). For larger assignments, this can significantly affect your final grade.

Format and length of writing assignments

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

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 Arial for body text (some headings can be 14- or 16-pt).
4. Double spacing (except for your name and date, top left corner of the front page)

Papers that do not meet the minimum specified length will have a proportional amount of points deducted. It is a good idea to aim for a draft that is 10 – 20% longer than the required length. This allows you to edit and refine your writing, and in so doing, shorten the paper to the required length.

Written materials and electronic submission (& reply)

With the exception of some in-class assignments, always make copies of assignments before turning them in. Damage, failure, or theft of your computer files or equipment are not acceptable excuses. Hard copies (if required; single-sided only) and electronic copies (submitted via Blackboard only) must be turned in on the due date in class. Students will be required to follow specific file-naming instructions.

In emails to me, please use your official CSUS email address and identify yourself clearly in the body of the email and provide identifying keywords in the subject line. So that your communication gets the timely attention it deserves, it is important to also start all email subject lines with “BIOL 4010 - ...”: e.g., “*BIOL 4010 - Abstracting Assignment, J. Smith.*” Note that careful and courteous email correspondence is increasingly important in today’s job market.

I may keep originals of some submitted hard copy materials. If so, you will have an opportunity to examine and copy such material, and electronic feedback will be provided (using MS Word’s track changes and comment features; get to know them).

Reference materials and sources

The assigned text for the course is Angelika H. Hofmann's new book, *Writing in the Biological Sciences: A Comprehensive Resource for Scientific Communication* (2013, Oxford University Press, New York). This is an excellent textbook and reference.

Other useful texts are Jan Pechenik's *A Short Guide to Writing About Biology* (8th edition, 2012/13; Longman/Pearson, New York), Victoria McMillan's *Writing Papers in the Biological Sciences* (5th edition, 2012; Bedford/St. Martin's, Boston/New York), and Karin Knisely's *A Student Handbook for Writing in Biology* (3rd edition, 2009; Sinauer, Sunderland, MA). Other useful 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*.

On Friday, January 30, we will meet at the Library, where you will get an overview of the latest bibliographic and electronic search tools.

Ordinarily, handouts will be provided in electronic form only (PDFs for download from Blackboard). Please bring them to class—hard copy or on your laptops. You will need to refer to them in lab.

In Conclusion

Writing is one of the most essential tools that you will develop in college and use throughout your life. It is the most important and trusted way that scientific information is shared. Without effective scientific writing, even the best scientific research serves no purpose. Additionally, the quality of your writing is often the most important factor that is used by others, including potential employers, to judge the quality of your work as well as your abilities as a scientist and professional. Without effective writing, your ideas and arguments lack meaning and cannot be critically examined.

Accordingly, you should fully engage with the in-class activities during the course. Many of your activities, especially peer-review and group projects, can only succeed if each and every student contributes fully. It is important that you are fully committed to the class and to staying on-task for in-class assignments, especially for group or collaborative assignments, and there will be a number of those in lab. Showing up late, leaving early, not contributing, or distracting others will be noted.

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. It is very important to have others evaluate your work prior to submission. You must learn to be your own best critic.

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W.	D.	Date	Time	Schedule, Topics, and Assignments
1	W	28 Jan	6:00-7:45	Course introduction; scientific method; documenting a paper
	F	30 Jan	1:00-3:50	Finding research literature; library tour. Ex. 1 (Bibliographic Tools)
2	W	4 Feb	6:00-7:45	Ethics; Sci. Writing Principles—Style; Feature Article (FA) overview
	F	6 Feb	1:00-3:50	Reading & note-taking; word processing Topic short list due
3	W	11 Feb	6:00-7:45	Sci. Writing Principles—Composition; Paraphrasing & Abstracts. Ex. 2
	F	13 Feb	1:00-3:50	Writing lab (paraphrasing & abstracts) 3 refs due
4	W	18 Feb	6:00-7:45	Data, Figures, and Tables
	F	20 Feb	1:00-3:50	Tables & figures—lab assignment Bibliography due
5	W	25 Feb	6:00-7:45	Statistics—reading and writing about statistics. Ex. 2 due
	F	27 Feb	1:00-3:50	Statistics lab Ex. 3 (Figures, Tables, Statistics)
6	W	4 Mar	6:00-7:45	Research/Grant Proposals (GP)
	F	6 Mar	1:00-3:50	Drafting a research proposal; Sci. Writing Principles—Exam 1
7	W	11 Mar	6:00-7:45	Revising and editing
	F	13 Mar	1:00-3:50	Extreme Abstracting I (lab assignment) FA Rough Draft due
8	W	18 Mar	6:00-7:45	Individual appointments (to review FA rough drafts)
	F	19 Mar	1:00-3:50	Individual appointments (to review FA rough drafts) Ex. 3 due
9	W	25 Mar	6:00-7:45	Abstracting review
	F	27 Mar	1:00-3:50	Students work in lab on final drafts.
10	W	1 Apr	6:00-7:45	Presentations (poster and oral); job applications
	F	3 Apr	1:00-3:50	Pulling together a job application. FA Final Draft due
	W	8 Apr		NO CLASS—Spring Break
	F	10 Apr		NO CLASS—Spring Break
11	W	15 Apr	6:00-7:45	Popular science writing and science journalism
	F	17 Apr	1:00-3:50	Extreme Abstracting II (lab assignment)
12	W	22 Apr	6:00-7:45	In-class writing review & assistance; work on proposals
	F	24 Apr	1:00-3:50	In-class writing review & assistance GP Rough Draft due
13	W	29 Apr	6:00-7:45	In-class writing review & assistance; work on proposals
	F	1 May	1:00-3:50	Sci. Writing Principles—Exam 2
14	W	6 May	5:00-7:45	In-class writing review & assistance; work on proposals & presentations
	F	8 May	1:00-3:50	In-class writing review & assistance; work on proposals & presentations
15	W	13 May	6:00-7:45	In-class writing review & assistance; work on proposals & presentations
	F	15 May	6:00-7:45	In-class writing review & assistance; practice presentations
Finals Week		20/22 May	TBD	GP—team presentations and turn in proposals.