

Writing in the Majors Section for BioEE 1610 “Ecology and the Environment” Syllabus

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General course description

The Writing in the Majors (WIM) section of BioEE 1610 (Ecology and the Environment) aims to provide students with an opportunity to learn the material covered in the traditional BioEE 1610 lecture through a writing and discussion-intensive structure.

Course Goals

The main goals of this course are for students:

- To experience the scientific writing process
- To improve their critical thinking, reading, editing, and writing skills
- To gain the tools to succeed in upper-level science courses
- To engage thoughtfully and deeply with the material covered during the BIOEE 1610 lecture

Expectations

WIM students will:

- Attend all lectures and complete all assigned textbook readings and pre/post quizzes
- Apply lecture concepts to assigned readings including primary scientific literature, popular science articles and science policy documents
- Participate in small group discussions and iterative writing opportunities centered around peer feedback.
- Translate concepts learned in class to individual writing projects, including popular science writing and a scientific research paper.
- Proactively engage with materials and questions to develop a self-directed and deep understanding of course material and how it applies to our daily lives

Course materials

Textbook: Text: Essentials of Ecology, by Begon, Howarth, & Townsend, 4th edition (2014). Reading assignments for lectures and discussion sections should be read BEFORE coming to class. Readings for discussions and lecture (when not in the textbook) will be posted on Blackboard. Supplementary readings will be available online through the course Blackboard website.

Lectures and textbook

You are required to attend lectures and follow the reading in the textbook. The Writing in the Majors section builds on the material covered in the lecture and emphasizes learning by writing, so all material covered in lectures and in the readings is required for our section discussions and writing activities.

Participation

Your participation in (and preparation for) section is essential to make it a valuable and rewarding experience for you and your classmates. Participation grades are based on active contribution to discussions, attentive and thoughtful participation in peer review, and thorough preparation before both class and conferences. Absences will receive no participation points, and more than 2 unexcused absences will count as a failing grade. See the participation rubric on Blackboard for more information about how participation will be evaluated.

Assignments and Grading

Your grade will be divided between a semester-long paper writing project, short science writing exercises and in-class participation. You will be required to pass the three exams in the lecture class with a score of 75% or higher. Tests below this threshold must be reworked; you will have one week to submit corrections to incorrect or incomplete answers. Letter grades will be assigned (A-F) as per Cornell University grading policy guidelines.

Grade Breakdown

Research Paper overall.....	20%
Discussion section participation.....	25%
Weekly short-assignments.....	25%
Pre-Lecture Quizzes	5%
Post-Lecture Quizzes.....	5%
iClicker Participation.....	5%
Exams (must pass all 3 exams).....	15%

Extra credit opportunity: You are expected to complete all assignments to the best of your ability, but occasionally life gets in the way. You may replace your lowest short-assignment score with a brief summary about a relevant lecture or seminar that you attend on campus this semester. See course resources for tips for finding seminars and speakers. Summaries should be 500-600 words and include one question you had about/because of the talk.

Assignment Deadlines

All late assignments will be penalized 20% the 1st day they are late, and 10% per day thereafter (weekends count). Exceptions will be made on a case-by-case basis for serious illness, emergency, religious observances, or death in the family.

All assignments must be turned in by **the beginning of class on the day they are due.**

Conferences and Additional Support

We will meet one-on-one for a 15-30 minute conversation halfway through the semester to discuss your planned topic for the research paper, as well as any questions you may have about course content, challenges, your experience as a student in the section or anything else.

I also welcome requests to meet at any time during the semester to discuss writing, ecology, careers, classes, or anything else. I am more than happy to help with anything you would like to discuss.

Finally, please use your classmates as resources for developing ideas and improving your writing (but be sure that your work remains your own!).

Plagiarism

All work submitted for this class **must** be original, written by you for this purpose, and not taken from another class or source. Sources must always be appropriately and accurately credited. Consult Cornell's *Acknowledging the Work of Others, Dealing with Online Sources, Working Collaboratively*, <http://provost.cornell.edu/files/2014/1/2016-essential-guide-academic-integrity-t7slma.pdf>, to clarify what is and is not plagiarism. Anyone caught committing plagiarism will be dealt with strictly; penalties range from a 'zero' on the assignment in question to expulsion from Cornell. Plagiarism is a very serious offense at Cornell and elsewhere. Please take it seriously.

The Research Paper

One of the most important goals of this course is to lead you through the development and writing of a scientific paper. This paper is a significant portion of your grade, and you are expected to work on it over the course of the semester.

Your research paper will be based on **your original research** from an **existing dataset**. Below, you will find some options for datasets to examine from the Teaching Issues and Experiments in Ecology project (TIEE) from the Ecological Society of America. You will then propose a hypothesis based on the data available (for instance, if you choose a dataset of historic bird migration times, you might hypothesize that birds have shifted to later migration times over the past few decades).

Your paper may be on any subject of your choosing, but keep in mind that I reserve the right to guide you away from unprovable or overly ambitious hypotheses. You are also welcome to challenge yourself with other datasets from TIEE, but you should consult with me early on about the proposed project.

Available datasets:

Precipitation, Fire, and Plant Productivity:

http://tiee.esa.org/vol/v3/issues/data_sets/konza/overview.html

Long-term Response of an Arctic River Community to Phosphorus Fertilization:

http://tiee.esa.org/vol/v3/issues/data_sets/arc/overview.html

Hubbard Brook Stream Flow Pre/post Clearcutting

http://tiee.esa.org/vol/v1/data_sets/hubbard/hubbard_overview.html

Paper Structure

Your paper is expected to be between approximately 5 and 8 pages long (not counting citations) and to follow the format of a traditional scientific research paper, as proposed in Turbek *et al*, 2016 (available on Blackboard). Specifically your paper should include:

Abstract: ~1/2 a page, center justified and italicized

Introduction: At least 1 full page, starting with the general motivation for the study and focusing in on your specific question. Remember to include a specific hypothesis.

Methods: At least a half page explaining where the dataset obtained its information, including: where/when the study took place, and what variables were measured and how. This should be followed by a half page explaining the statistical method used to analyze the data.

Results: About a half page. Remember, explain what difference was found, the magnitude of the difference, the significance of the difference, and where helpful, back it up with

figures and/or tables.

Discussion: At least one page. What did you find, and how did it match what you expected? Why was it the same/different? What further study is needed? What important conclusion can we draw from this study? Be sure your conclusions are appropriately backed up by your findings.

Citations: I expect you to be supporting claims in your introduction and discussion with at least five citations from the primary literature. Up to two of these can overlap sources from the dataset website. These should be cited in the style of the Chicago Manual of Style.

Final Paper Rubric:

Abstract	
Brief summary of the paper, no more than five-six sentences, no more than 250 words	5
Introduction	
Introduction follows reverse pyramid format, starting appropriately broad and narrowing to the specifics	5
Use of cited literature supports the study motivation and hypothesis	5
Introduction provides a clear and compelling motivation for the study, a research gap or stasis/disruption	5
Clearly stated, concrete hypothesis	5
Methods	
Establishes study context by describing location, ecosystem, time period, measurement technique	5
Easy to understand, complete explanation of the experimental design including controls and experimental treatments	5
Brief, correct explanation of the statistics used	2
Results	
Overall statistical tests and conclusions are appropriate, correct, and referenced in the text in a meaningful way	5
Figures and tables appropriately convey the data and have correct formatting and readable layout	5
Conveys all necessary detail to explain the effect, magnitude, and significance	5
Appropriate focus and depth (not too wordy, does not repeat the methods or discussion, but does provide any needed background)	2
Discussion	
Restated and contextualized the key hypothesis(es) and findings from the study	5
Showed how you contributed to or filled in the research gap as presented in your intro	5
Critically evaluated your findings and assumptions, as well as any unexpected results	5
Explored the broader impact of your findings, for the literature and the real world	5
Citations	
Correctly used in-text citations, correctly formatted bibliography	6
Writing and Grammar	
Well-written, no grammatical mistakes	5
Logical flow throughout, from hypotheses to conclusions	10
Revisions and Edits	
Incorporated feedback on earlier drafts	5
TOTAL	
<i>100</i>	

Key Due Dates for the Paper (also available in the Course Schedule, below).

Research proposal: Selected dataset, 3 proposed hypotheses, 1 paragraph justification	3/6
One on one meeting to discuss proposal: Must have taken place by 2/28	2/28
Hypothesis and Introduction	3/13
Methods Section	3/20
Results Section	3/27
Discussion Section Draft	4/10
Discussion Section Final	4/24
Research Paper Draft	5/1
Research Paper Final	5/14