Biology 1: Environmental Preservation and Improvement Seminar
Course Expectations
Fall 2018

This is a seminar course which by definition involves a small group engaged in advanced study on a topic, meeting weekly to exchange information and hold discussions based on readings of original research (the primary literature: that which is written by the researchers themselves and which is the first to report their findings, including measurements i.e., graphs or tables). The core of our seminar involves reading scientific articles (based mostly on data rather than opinion), and presenting an organized talk on current environmental topics highlighted in recent issues of our “feature journal”: Frontiers in Ecology and the Environment. Students in teams of 2 will make 2 presentations (40 min each, so each speaker responsible for about 20 min. in the 40-min talk) over the course of the semester. Ideas for topics are drawn from articles since 2016 in our feature journal.

The week before a presentation, each presenter team will send Ellmore a pdf of the one paper you want us class to read, relevant to your presentation. This paper is not from ‘Frontiers’, but from the reading list you assemble about your topic from ‘Frontiers’. This paper should contain data (measurements presented in graphs or tables). Each member of the audience must read the one paper assigned to us from each presenting team, by the following week (thus, 2 papers each week) to prepare for hearing the talks and contributing to substantive discussion. Each member of the audience is to provide a written statement of something that surprised you (and why) about each paper you read. Please hand in your written hard-copy statement of “surprises” at the beginning of the class period, before the presentations are made.

On the day of their talk, the presenters will distribute a half-page abstract (250-300 words) of their talk, followed by at least 5 citations from the primary scientific literature that they read in preparing the talk. Following each presentation, the presenters will lead a discussion on the material, and the audience is expected to participate. Details are provided below.

Grading

- Presentations: These comprise 60% of the grade (30% per presentation). Each presenter pair will give 2 oral presentations. The following page outlines minimum benchmarks that should be included in each presentation. Each presentation is graded based on how well organized it is, whether it covers the material, evaluates some original data, and appears well-rehearsed (does not go over time). Additional factors affecting presentation grades include the quality of discussion questions prepared for the audience, how well you handle questions and discussion from the audience, if each speaker presented data from at least 3 different primary sources, and the clarity of any visuals used. A copy of the evaluation form used by the instructor is found on the last page of this syllabus.
Abstracts and scientific references cited: 20% (10% per presentation) An abstract (summary) not exceeding 1 page, and a bibliography of at least 5 scientific sources on your topic, should be handed out to the class on the day of your presentation. Abstracts should 1) summarize the issue you are presenting (what is known, how it is known, reason it is important), 2) highlight any open questions related to your topic and 3) give your ideas of what the next step should be in answering those open questions.

Weekly participation: 20%. We all do our part to exchange ideas in a seminar. Audience members must participate in discussions. At the start of the class, audience members should hand in a statement of one thing that surprised you (and why you found it surprising) in the paper read for each presentation (audience members will be reading 2 papers each week). At the end of each presentation, audience members are expected to initiate and participate in discussion based on the presentation and our reading.

Presenters do not need to submit “surprise statements” on the two days that they present.

Presentation benchmarks:

The presentation should include the following material, but can include additional information that you find relevant. This is not necessarily the order in which you want to present the information, as much as a reminder of benchmarks to include in your talk.

- the overall nature of your topic: Is it biotic (plant or animal, genetically modified?) abiotic (soil, water, atmosphere) cultural (indigenous peoples) policy-oriented (economics, politics, management policy)
- the type of habitat: rainforest, aquatic/marine, dry forest, agricultural including grazing, aqua and mariculture, alpine...
- location of the habitat in question
- history and overview of the issue or phenomenon (how did we arrive at the present state of knowledge?)
- current state of knowledge, including original data (summarized in graphs, charts, tables) collected since 1990. In presenting original data, summarize what the worker did to collect the data (did they measure tree height, track waterways, collect DNA, use GIS, fumigate canopies, use bug lights, contact local experts?), and be prepared to lead the class to think of a way the study might have been improved upon. Keep sight of these questions: What have we found? How do we know it? Why is it important?
- your ideas as to what is not yet known that should be known, and some suggested steps to help arrive at that information (or policy recommendation)

Sources to get you started

Citations: Use scientific journals, electronic data bases (SCOPUS, or Web of Science through the Tufts Library Web Page, under research tools – indexes and abstracts), and books that provide references to the primary scientific literature. Citations that you hand in must be from the scientific literature, and you should have read each of the 5 or more citations that you submit. By submitting those citations, you are suggesting that they were the best of the literature you read to prepare your presentation.

Some scientific journals in which many environmental papers are published:

- Conservation Biology
- Ecology
- Ecological Applications
- Oecologia
- Science

Web sites are potentially useful for getting ideas (these sites are NOT scientific, nor do they qualify as published primary literature, but they might lead you to some)

Suggestions from recent students:

- Choosing a topic we would have wanted to hear about ourselves, and that we didn't mind reading a lot about.

- Doing a general Google search before reading scientific articles to see what the general public is talking about and already knows. This also helped us come up with a rough outline.

- This may be obvious, but looking through the references of useful articles to get more good sources. After looking through the references of several articles, we were also able to see which studies were commonly cited and look into them.

- In making the presentation, it is useful to think about who the audience is- what would keep them interested, and how to present the information in a way they would actually be able to understand it.
Presentation Evaluation form – Bio 1
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Presenter: ________________
Date of talk: ________________

Content and effectiveness

☐ outline (overview) given, and new terms (if any) adequately introduced
☐ original data: at least 3 graphs or tables from primary literature
☐ methodology discussed (methods used in the experiment or survey)
☐ evaluated the evidence for both sides of a controversy. (data in support of each of two sides)
  - limitations to the methods used
  - other methods that could have been used
  - other data that might (should) have been collected
  - other explanations that could account for the data (is the authors’ the only interpretation possible?)
☐ posed “involvement” questions, that got the class involved in suggesting a list of possibilities. Ex: Why is this a current issue (why not earlier)? What prevents the problem from spreading? What areas are most susceptible to the issue, and why?
☐ what is not yet known, that should be known
☐ suggestions as to how to proceed from here (suggestions for how the next experiments or policy documents could improve over earlier ones)
☐ strengths and limitations of the class reading assignment. What grade would you give the paper you assigned to us, and why?

General comments

Technical comment
Did presenter finish on time, leaving enough opportunity for questions and discussion?
What was the evidence that the talk was well-rehearsed?

Visual aids: were they well explained; how did they add to the talk; quality?