

BIOLOGY 103: Issues in Environmental Biology

Group Project 1 – FALL 2005

During the first half of the semester, each group will consider global issues related to your topic, and during the second half groups will apply their expertise to the problem at the local level. Some global issues, such as air pollution, can be tackled at a general level, while most will require some focus on a specific aspect of the general. For instance, a topic such as air pollution could be refined to address the environmental effects of ground-level ozone, or a topic such as invasive species could be refined to address environmental effects of invasive plants.

Because this is a biology course, for each of the two projects you will provide some background on the biological, as well as the environmental, concepts that your chosen issue or problem affects. You will critically examine the problem, consider solutions, and weigh pros and cons of any debate surrounding the issue. Each project will consist of several components, which are described below.

This project will be done using information available to you from a literature search and from class. Sources available to assist you will be discussed in class and with staff at the Library. In addition, use the textbook, lecture material, discussions, and press articles to get you started. Consider the following:

- Are the sources that you've read really relevant to the fundamental issue you're investigating?
- Are the author's conclusions, assertions, and statements generalizable and supported by other research? Given the information provided in the source and the concepts and ideas we've discussed, can you ascertain the merit, validity, and importance of the source?
- Do the author's methods and conclusions agree with your understanding of the relevant theories and ideas we've studied?
- Are the results and conclusions from one article widely supported by other literature? That is, is there general agreement about the results and conclusions from multiple studies?

Begin your literature search early, for two reasons. The first relates to your grade – you must deliver a progress report each week, and lack of progress will count against you. I can also help you assess the quality of your sources as you go. The second is that some resources will not be available in the library and must be requested from interlibrary loan – these may take some time to acquire.

Worksheets and Weekly Reports: Each group will periodically complete worksheets to help you chart your progress and figure out what you still need to do. For instance, on the first day of class, when we form groups and determine projects, a worksheet will be filled out with: 1) what you know, 2) what you need to know, and 3) what strategies you'll use to learn what you need to know. Keep these worksheets in a safe place – you will turn them in when you give your group presentation. In addition, each Friday, one person from each group will deliver a 2 minute progress report. This progress report will be given a group grade. Be sure that you and your partners get together before Friday to go over what will be said.

Journal or Log: Each student will maintain an individual journal with reflections, ideas, progress, summaries of readings, and any other information pertinent to the project. Transcriptions of worksheets and notes of discussions with group members should also be included. This will be turned in on the day your group presentation is given.

Individual Paper: A 4-6 page summary paper (not counting reference pages) will be presented for both the global and the local projects. These will be written by each student independently, using your knowledge gained, your journal notes, group discussions, course material, and any other information you've collected.

Each of the two papers you write for this course is a summary of the two group projects. The structure of the paper should include a thesis paragraph detailing the basic problem. Then, the body of the paper should describe your supporting evidence from the literature, the solutions, debates, and ideas that environmental scientists have wrestled with, and the implications of the problem and solutions to biological systems. Finally, a one paragraph conclusion should wrap everything up,

provide a brief answer to the overall question, and provide some direction for biologists in the future regarding this question.

For ease of reading, I have strict guidelines that provide consistency in the look of all summaries. **My policy is to not accept any summary submitted for publication if it does not adhere to the formatting guidelines presented here and in the References section below.** In other words, your paper will be returned ungraded if you do not follow these **simple** directions. You may then suffer a late penalty if you have to turn in a corrected paper after the due date.

Your paper must be typed and single-spaced, with 1 inch (2.5 cm) margins on all sides. Use a 12 pt font. There should be **NO** title page; **type** your title, name, date, and course name and number at the top of the first page of text. **DO NOT** print out your paper – I accept electronic submissions only. When you are ready to submit your manuscript to me, attach it in an e-mail.

References:

You must use more than 5 references, at least two of which must be from print literature (scientific or technical journals, books, or review articles). Some of these print sources may be found online also – they count as print sources IF you cite the original print source along with the URL of the web page. You may also use Internet sources, but you must cite the URL in your reference section. Also note that many peer-reviewed journals have begun to deliver their articles online. You may include up to two Internet sources that are not reprints of print sources or online journals. If you use Internet sites, they must be credible sites – use your best judgment. It may be best to use “.edu” sites; although remember that “.edu”, “.org” and “.com” sites may not be peer-reviewed, meaning that the owner of the page might put unsupported ideas on their sites. In general, use peer-reviewed journal articles to form the foundation of your paper.

When citing a paper **in the text**, use the author, year system (e.g., Mosquito larvae generally feed on microbes (Merritt et al., 1992), or Merritt et al. (1992) state that mosquito larvae generally feed on microbes). **Do not** use footnotes or any kind of numbering system to refer to articles. For sources that have one or two authors, list names of author or authors for in-text citations. For sources that have more than two authors, list the last name of the first author and then “et al.” (which means “and others”). In the reference section at the end of the paper, **NEVER** use “et al.”; type the names of all authors.

References should be listed alphabetically at the end of the paper using the exact format below, including the use of “hanging indents.” Using the standards below, find the example that best fits your source, and include complete citations of works you cite. If you can’t find a format that matches a source, check with me or follow the general format as closely as possible. Do **NOT** use MLA formatting.

A. Citing journal articles: If you obtain from the WWW a journal article originally published in a print journal or from an online-only journal, cite the article exactly as you would for a print source, but also append the web address and date you accessed the article. Sources such as these don’t count toward the web source limit. Use the following format to cite an article (pay attention to punctuation!):

Primary Author's Last Name Initials, Other Author's Last Name Initials (Year) Title of article (only capitalize first word). Journal Volume Number: Page numbers.

McLachlan JA (2001) Environmental signaling: What embryos and evolution teach us about endocrine disrupting chemicals. Endocrine Reviews 22:319-341.

Use the following format to cite a journal article retrieved from the WWW:

Primary Author's Last Name Initials, Other Author's Last Name Initials (Year) Title of article (only capitalize first word). Journal Volume Number: Page numbers, <URL>, Accession Date.

B. Citing books:

Author Last Name Initials, Other Author's Last Name Initials (Year) Title (capitalize first letter of first word and all other words except “of” “and” “a” “the”), edition (if not 1st). Publisher, Place, Number of pages.

Newman MC, & Unger MA (2003) Fundamentals of Ecotoxicology, 2nd ed. Lewis Publishers, Inc. Boca Raton, FL, 458 pages.

C. Citing book chapters:

Author Last Name Initials, Other Author's Last Name Initials (Year) Title of chapter. In: Title of Book, edition (editors). Publisher, Place, Number of pages.

Caswell H (1996) Demography meets ecotoxicology: Untangling the population level effects of toxic substances. In: Ecotoxicology: A Hierarchical Treatment (Newman MC & Jagoe CH, editors). Lewis Publishers, Inc. Boca Raton, FL, 788 pages.

D. Citing web sites:

For on-line sources, provide as much information as you can about the actual author of the material and the title and date. The URL is the **last thing** to give, not the first. It is the location (like the publisher for a book). Just like with a book, the author (or "Anonymous" if there is no author) goes first. If there is no author for the online source, there may be an email of the contact person for the website; give that instead. But give it at the end, not in place of the author's name at the beginning. If you cannot find any name or date, use Anonymous as the Author and accession date as the Year.

To cite a web site, use the following format:

Author Last Name Initials, Other Author's Last Name Initials (Date page created) Title of page (appears at top of browser window). Title of larger work if applicable. <URL>. Accession date.

Anonymous (12/29/2002) UC Davis Ecology – Ecotoxicology Home. Graduate Group in Ecology, UC Davis. http://ecology.ucdavis.edu/ecotox/ecotox_home.htm. 12/21/2003.

D. Examples of other sources

Proceedings or an Abstract to a Meeting or Conference:

Gage M & Paradise CJ (Nov. 2001) Effects of land use on insects in streams north of Charlotte, NC. Annual Meeting of Sigma Xi, Raleigh, NC.

Government Documents:

EPA (Environmental Protection Agency) (1989) Ecological Assessment of Hazardous Waste Sites, EPA 600/3-89/013, National Technical Information Service, Springfield, VA, 260 pages.

Other:

If you use interviews provide the name of the person and date you talked to them. For any other sources not mentioned here, follow above formats as closely as possible, ask me, use common sense, or see the plagiarism website referenced above for guidance.

Before you turn in your paper, ask yourself the following questions:

- Does the summary have a title, an introduction, a body, conclusions, and references?
- Does the introduction set the stage for the topic as a whole?
- Does the conclusion review, interpret, and contextualize the issue being examined?
- Is everything (yes, everything!) single-spaced?
- Are all measurements and units in metric?
- Are all scientific names in italics? If not, use italics for Latin binomial species names.
- Is everything correctly spelled?
- Are all papers cited in the text found in the References (and vice versa)?
- Are all references in the style listed above?
- Have major points been backed up with appropriate references?
- If I have not followed all the instructions, am I prepared to have my paper returned with no grade?

Assessment: This paper will be assessed using the following criteria:

- Content: ideas presented are appropriate for the target audience.
- Style: ideas presented are in a manner readable by the target audience.
- Development: content is supported using correct citations, quotations, and data.
- Critical analysis/original thought.
- Organization and layout: paper is presented in a logical manner with effective transitions between ideas, no missing links in the flow of ideas, and effective use of headings.
- Correct format.
- Reference sources are of high quality.
- Spelling and grammar: errors do not undermine the quality of ideas.

Group Oral Presentations: Each group will deliver a 15-minute presentation to the class, teaching them about the issue investigated, linking it to other ideas discussed in the class, and presenting the current state of the problem or issue. The group will receive one grade for the presentation.

Requirements and format:

- You will meet with me before each presentation – most groups will meet with me in one of in-class activity periods. This presents an opportunity to go over the outline of your presentation.
- You must use PowerPoint or some similar program for your presentation. Anyone who isn't familiar with this program or a similar one should see me to get a tutorial.
- Gear your presentation for no more than 15 minutes in length. In each class where presentations are given, three groups will present. Each 50 minute class session will be broken into three 15 minute slots with 2 minute breaks in between. Ideally, your presentation will be between 12 and 14 minutes, with 1-3 minutes at the end for discussion or Q&A. Practice your timing beforehand!

Organizational tips:

- Include an **introduction** or overview to the topic. The introduction should tell your audience what you are going to say. This is where you have the chance to motivate and interest your audience. It should take about 1-3 minutes and use 1 or 2 slides.
- A **background** section should be used to introduce necessary terms (illustrate complex ones with examples). It should present key elements of what you have to say, relate to material presented in the course, and take about 0-2 minutes.
- Develop a smooth transition to the main body of your talk.
- The **main body** is where you tell the audience what you have to say and what you've learned. Leave about 6-8 minutes for this section. The body should take its cue from the introduction and should expand on each of your major points, in the same order as you outlined in the introduction. For each point you should provide discussion based on analysis, a link to the original question or point, and supportive examples. Develop a smooth transition to present your conclusions.
- The **conclusions** tell the audience what you just said. It should take about 2-3 minutes. The conclusion should summarize your main arguments and reiterate how you have addressed the original issue. You can use the conclusion to motivate the audience and ask for feedback.
- If you finish early and there are no questions, elicit some discussion from your audience. One way to do this is to ask them some questions (see next point).
- You may wish to use some of your time for questions and discussion. If so, prepare ahead of time a list of questions and discussion points to provide the group. Think about the questions below, as some of them might help you prepare your presentation. Not all questions will fit every situation, and don't feel that you need to ask these questions at all. Develop the questions and discussion points to get a discussion started. Be prepared to answer every question you ask.
 - o What are your reactions to...?
 - o What aspects were of greatest interest to you?
 - o What are the next steps that need to be taken...?
 - o Take a devil's advocate role and argue a counterpoint.

- o What implications to your conclusions are there?
- o How can you integrate past material with...?

Tips for giving an oral presentation:

Oral communication is a valuable skill and presentations help you develop this skill. In order to explain an issue or argument, you must have fully considered it yourself, and figured out how to best present it. Effective communication dictates that you Keep It Simple. Focus on getting one to three key points across. Also, tell them what you're going to tell them (forecast), tell them, and tell them what you told them (summary). This second model is the one illustrated above. Consider what your audience already knows as you develop your presentation. Decide what is appropriate for your topic, then go with it. What is important is that you plan!

- KNOW your task: Think very clearly about the purpose of your presentation. Use your journals, worksheets, and papers to help you prepare. Ask yourself if all of our main points and arguments relate to my original topic and objective?
- KNOW your stuff: Formulate a clear plan for arguing your case or presenting your explanation. You will need to have examples and expert opinions on hand to support your points.
- KNOW what to expect: Try to anticipate the kinds of questions that the students and instructor might ask. Prepare some answers for these questions in advance.
- Make a good first impression by looking at the people around the room, not just at your notes or the screen. Omit distracting gestures (like stray hand movements) but use enhancing gestures. For example, if you make a sweeping statement, a sweeping gesture with your hand will seem appropriate (e.g., "In all of environmental science, no issue is as important as...").
- Monitor the volume and pace of your voice. Speak at a level that can be heard by all – but not too fast. Be sure to enunciate so that you are easy to understand. The use of silence and repetition can emphasize important points. We have a tendency to speak lower and faster when nervous, so pause to catch your breath. Be enthusiastic about your topic and avoid monotone – remember that you worked hard to prepare for this, so express yourself! **Do not read your presentation!**
- Avoid filling pauses with "uhm", "like" and "you know".
- Talk your audience through the organization. "We will discuss three issues, first X, then Y, and end with a discussion of Z." At the end of each section, tell the audience that you are now moving on to the next section. Use PowerPoint as an aid to show organization, define terms, show pictures, figures, and tables. Don't overload the audience's eyes with information that will distract.
- Make each slide clear and uncluttered. Use the visual aid quite literally and do not spend space on words. Your aim is to highlight, reinforce, focus and illustrate a point. You could overburden your audience if you require them to see too much or remember too much from earlier slides.
- At the end of your presentation, thank your audience for their attention. Then ask if there are any questions. That clues in the audience that you're done.
- Given your time budget, think about each statement and ask if it informs the audience, if it fits with what you've said and are about to say, and if it makes a relevant point.

Dealing with nervousness:

Feeling nervous before a presentation is normal, but there are many ways that you can control nervous feelings. The best way to overcome shyness and gain confidence is to **prepare**. Rehearse and time yourselves. In your groups, listen and give each other feedback. Before presenting, sit quietly and breathe deeply, rather than frantically re-reading your notes and working yourself up. The surer you are of your topic and your mastery of it, the less nervous you will feel. Think about how far you have come and that you have something to say that no one else in the room knows. Exert your expertise in the subject matter with confidence! Finally, relax and have fun!

Answering questions at the end of your presentation:

As part of your presentation, you will need to answer questions from your peers and instructor. Remember that because you have already researched the topic in depth, you will be the expert in the

subject area. The audience is showing interest if it asks questions; do not consider this to be threatening. Consider the following tips when answering questions.

- Try to anticipate questions the audience might ask and prepare responses. When planning your answers be sure to have examples ready that illustrate major points. Be concise by stating your answer clearly and illustrating it with a single example.
- Repeat and/or paraphrase the question. Here you can buy yourself time to fully consider your answer, help the audience by ensuring that everyone has heard the question, and demonstrate that you understand the question. If you don't understand the question, ask the audience member to repeat it in a different way.
- Never guess an answer or "make up" an answer. If you don't know the answer to someone's question, you're going to have to admit it.
- Remember that question/answer time is part of the assessment process. Summarize each of your responses and check that the audience understands. Look for confirmation from your partners.
- If someone in the audience begins a commentary, gently remind them that, while comments are valuable, at this point you are only answering questions. Offer to discuss with them after class.
- If someone asks a really complex question that will take too long to answer, acknowledge the complexity of the question, offer a simple answer, and offer to discuss the topic in depth later.

How to Give a Bad Talk, or Nine Things To Do If You Want To Give a Poor Presentation

1. Be messy and don't pay attention to detail: Why waste time preparing slides? Ignore spelling, grammar and legibility. Who cares what anyone else thinks?
2. Fill every bit of every slide with pictures, words, and distracting animations. Hey, it looks cool.
3. Always use complete sentences, never just key words. If possible, use whole paragraphs and read every word to your audience, as if they can't read themselves.
4. Use all the bells and whistles that PowerPoint supplies. You need the suspense!
5. Use a small font. Who cares if no one can read what you wrote? You're going to read it to them anyway (see #3).
6. Use only text, with no pictures. "A picture = 1000 words," but others say that "pictures are for weak minds." A picture, graph, or table is useless for making an effective point.
7. Never make eye contact. If you look right at them, you'd have to acknowledge that they're really there. In fact, just look at the screen the entire time.
8. Don't pay attention to the time. Your audience doesn't care if you go over the time limit – if you're first, the later groups will have to shorten their presentations.
9. Why waste time practicing? It could take a couple hours out of the ~2500 hours in a semester. When you practice with your partners, don't take any suggestions – what do they know anyway?

Assessment:

Grades will be based on the following:

- Introduction: How well was it developed and how well did it set up the body of your presentation?
- Background: Have all terms been defined?
- Main Body: Were all aspects covered in sufficient detail? Did you appear to understand the topic? Provide an understandable explanation of that topic? Use example(s) that illustrated the topic?
- Conclusions: Were the major points reiterated? Was it clear what the take-home message was?
- Organization: Were ideas presented logically? Did you follow an obvious and memorable structure for the presentation?
- Synthesis: Was material from the text/class integrated with the presentation?
- Transitions: Were they smooth?
- Presentation: Did you use technology effectively? Did you appear to have practiced?
- Speaking Skills: Did you use clear and concise language? Did you speak loudly enough to be heard? Vary the pitch of your voice and pace of speaking? Refrain from using verbal pauses and slang too frequently? Did you move easily from point to point during the presentation? Did you make eye contact with the audience?
- Directions: Have you followed the directions above and in the syllabus?