

## EEB 2208 (Introduction to Conservation Biology)

### Poster projects

To reduce the portion of the total grade that is exam-based, and to give you an assignment that requires skills used regularly in the sciences and integrates lessons from class, everyone is expected to participate in a group project that will be presented as a poster in the penultimate week of classes. Posters are one of the main ways that scientists summarize and communicate research results. These projects are worth 30% of the course grade.

### GOALS

The assignment goals are that you will (a) examine how the course material relates to newsworthy events taking place in the world today, (b) learn to gather and interpret relevant scientific information so that you can understand/evaluate the reporting better, (c) synthesize that information and present it to your peers in a format commonly used by scientists, (d) experience collaborative work, and (e) practice providing constructive criticism to your peers. All of these skills are critical to the development of someone who wants a career in science.

### THE TASK

In groups of three, you should identify a topic relating directly to conservation biology that has been in the news since the beginning of this year (publication must be 1<sup>st</sup> Jan or later). You should identify the relevant conservation issues, and search the peer-reviewed research literature for scientific information about the topic. Then you should present that information in the form of a poster in one of the two poster sessions during the penultimate week of classes (see syllabus; I will determine which session you will be in). All posters must be brought to the first poster session, whether you are presenting or not.

For examples of appropriate news articles check out my Twitter feed (follow @ssts if you are a Twitter user) or search for #eeb2208 on Twitter's web site (this will work even if you are not on Twitter). You do not need to use the articles I post and I would prefer that you found your own, but they will give you a sense of what topics are appropriate. If you use Twitter, feel free to use #eeb2208 to flag articles you think are relevant to the course as other students might find them interesting. Your project can be narrowly or broadly focused on the news article, but you must get it approved by me before 4 pm on Friday 27<sup>th</sup> February. Here are some examples of how you could develop a project from a news article:

- The *Hartford Courant* article on invasive species (tweeted with #eeb2208 on 19 Jan) could lead you to a project on the effects and management of invasive species in Connecticut.
- The *New York Times* article on the extinction of ocean species (tweeted on 17 Jan) could lead to a project on how extinction rates in ocean habitats compare to those in terrestrial habitats.
- The *BBC News* article on winter flowering of plants in UK (tweeted on 10 Jan) could lead to a project on how flowering phenology in plants is changing as a result of climate warming, and what the conservation consequences are.

If you are not sure if a topic is appropriate, please ask. Every group must work on a different topic – first come, first served. I will post a list of topics that are taken on the course web site. The deadline for telling me your topic and the people you will work with is **4 pm, Friday 27<sup>th</sup> February** (see below). If you want to avoid having your topic taken by another group, do not wait until the last minute to do this part of the assignment. Also, do some preliminary literature searches before you make your choice to ensure that there is sufficient information in the scientific literature on your chosen topic.

Once you have identified the topic you are interested in, you need to research that topic to find out what the scientific studies show. The scientific literature, popular literature, news, personal experience, and the Internet are filled with information about conservation biology. You can use any of these sources for background information. But, the content of your poster presentation must be based exclusively on information from the peer-reviewed scientific literature (i.e., the type of articles we are reading in most of the class discussions). Scopus (available via the UConn libraries) or Google Scholar (**NOT** regular Google!) are probably the best places for searches of primary literature. I will talk about what counts as the peer-reviewed literature in lecture, but if you are unsure ask me or the TA.

You will need to read a number of scientific articles (probably 5-10 is the absolute minimum; more would be better) to produce a good poster. Your poster should (a) identify the conservation issue you were interested in and the news event that it connects to; (b) provide background information on the problem; (c) describe current scientific knowledge on the topic; and (d) identify what is known in terms of finding solutions to the problem. More on poster preparation below. Everyone must bring their completed posters to class on Monday 20<sup>th</sup> April.

Half the group will present their posters in the first poster session, while the other half of the class evaluates those posters. During the second session, roles will switch. Poster sessions will be held during the class sessions on 20<sup>th</sup> and 22<sup>nd</sup> April and will take place in the lecture hall and the adjacent lobby area.

Members of each team will be expected to answer questions about their project when people come to view the posters. Students who are not presenting, will look at other posters and formally evaluate three other groups' posters in order to practice thinking critically and assessing the work of others. Your evaluations will be graded (see below), based on your doing a careful, constructive job of reviewing posters. If you say a poster is great when it is not (or vice versa), your evaluation grade will suffer. If you just point out flaws, without also providing remedies, your grade will also suffer. Students will also assign a grade to each poster they evaluate, and their grades will affect the poster's final grade.

If you do not attend both sessions, it will be mathematically impossible for you to get better than a D on this portion of the class.

## DEADLINES

**ABSOLUTELY NO EXCEPTIONS. Why? Because there are many deadlines in life that truly must be met – job applications, scholarship applications, grant deadlines, project deadlines, meetings that must be prepared for, etc. Getting used to deadlines is important for many careers. These are that kind of deadline. My advice is to have everything done at least a week early (in each case you have plenty of time to do this, as long as you plan ahead). Then it won't matter if you get sick or something else comes up.**

*Anytime before 4 pm Friday 27<sup>th</sup> February (sooner is better):*

- Identify two other people who you will work with on the project. (Make sure they agree.)
- Identify a recent news article that discusses a topic relevant to conservation biology and that you think you can do a project on. The article must have been published after 1<sup>st</sup> Jan, this year.
- Identify one peer-reviewed scientific paper that is relevant to the topic. Send an email to [chris.elphick@uconn.edu](mailto:chris.elphick@uconn.edu) describing the topic that you intend to do your poster on. The email must also contain a link to the news article, a link to the peer-reviewed paper, and the names of your collaborators. The subject line in your email must say "EEB 2208: Poster Topic". DO NOT send attachments.

- Members of a group can all use the same news article, but must each identify a different peer-reviewed paper (you may work together to identify papers – the goal is to ensure that each group has at least three papers by this date).
- If you are unsure what a peer-reviewed paper is, please ask (but see below, first).
- **This email is worth 3% of your total course grade. The instructions are simple though, so you will only get full points if you do everything mentioned above.**

**No later than 25<sup>th</sup> March (earlier is better as you will get feedback sooner)** turn in a short “prospectus” for your poster project. The prospectus should include the following information:

- A short work plan, including information on how you have divided up the work, your time-line for completing the project, etc. How you do this is entirely up to you – I just want to see that you are already on-track to complete the project, have a plan for the final few weeks, and know who is responsible for what when I evaluate the posters. Note that even though I expect you to divide the labor, I will hold everyone in a group responsible for the entire final product, which should be a single integrated project (not 3 mini-projects stuck on the same poster board). Consequently, everyone will be expected to know all of the scientific information that goes into the final poster and will be considered equally responsible for ensuring there is no plagiarism, etc.
- An updated reference list including all of the papers that you are expecting to use (following the citation guidelines posted on the eebedia web site).
- A sketch of the layout you are thinking of using for the poster; this can literally be a pencil sketch on a piece of paper, or it could be a computer-drawn diagram (e.g., made in PowerPoint, Word, etc.) and printed). The key is that it should show what type of information is going to go where on the poster, approx. how much space you plan to devote to each section, etc., etc.
- The prospectus should be submitted in class or delivered to my mailbox in the EEB office (TLS, 3<sup>rd</sup> floor, office is often closed by 4 pm) and **should be signed by all group members**. You can view it as a contract between the three of you to ensure that everyone knows what they are expected to do.
- **This prospectus is worth 2% of your total class grade. You will get 1% for turning it in before the deadline, and 1% if you do all of the things described above (and I really mean all).**

**On Monday 20<sup>th</sup> April:** Before this date, I will assign each group a date on which to present their poster (either 20<sup>th</sup> or 22<sup>nd</sup>). These assignments will be posted on the eebedia web site, in the section titled “Poster topics”. Everyone, however, should bring their completed posters to the first poster session and everyone must attend both sessions.

## GROUPS

My preference is for you to choose who to work with yourselves, but if you really need help, let me know. If you need my assistance, **DO NOT** wait until late February to email me. There is a poster discussion board on the class huskyct site where you can search for students with similar interests.

## PEER-REVIEWED LITERATURE

If you are unsure whether an article is peer-reviewed, please ask. Generally such articles can be identified by the fact that they appear in major scientific research journals and they contain original data collected by the authors or compile data from other studies for new analyses. Peer-reviewed papers normally follow the standard format of: Abstract, Introduction, Methods, Results, Discussion, References (usually in this order, although the Methods is sometimes moved to the end). Normally, peer-reviewed papers are not printed on colorful, glossy paper, and do not have much in the way of photographs. Scientific journals that publish many papers relevant to this class include:

Animal Conservation  
Biodiversity & Conservation  
Biological Conservation  
Bird Conservation & Ecology  
Conservation Biology  
Conservation Ecology

Ecological Applications  
Journal of Applied Ecology  
Journal of Wildlife Management  
Landscape & Urban Planning  
Restoration Ecology  
Wildlife Society Bulletin

For more information on finding peer-reviewed articles, see the FAQs on the course web site.

## GRADING

Grades will be based on a combination of information, as follows:

- 3 points – meeting all requirements for the 27<sup>th</sup> February deadline
- 2 points – meeting all requirements for the 25<sup>th</sup> March deadline
- 15 points – grade assigned by instructors during poster session. This portion of the grade addresses your ability to synthesize scientific studies relating to your topic accurately, and to present it and answer questions about it clearly.
- 5 points – comments made by students who examined your poster. This is the real test of how well you can communicate information to an audience. All peer comments will be anonymous.
- 5 points – your assessment of other people’s posters. We will be looking for your ability to make thoughtful comments about ways that your peers could improve their posters.
- Social grade multiplier, determined by your group collaborators. Each person will be asked to (confidentially) rate the relative contributions of their team members. Everyone will be asked whether (a) everyone contributed more-or-less equally, (b) one person did substantially more work than the others, or (c) one person did substantially less work than the others. Based on the responses, each person will be assigned a “multiplier grade” between 0.9 and 1.1 to adjust their score up or down based on their contribution to the project.

***This grading scheme is a bit complicated, so here is an example:*** Manette does a pretty good job on the first task, but the scientific article she submits is not from a peer-reviewed journal, so she gets just 2/3 points for the February assignment. She does better on the March deadline and misses nothing from the requirement list, so she gets both available points. Her group’s poster is good, but a few parts are hard to understand and her answers to questions are vague, so she gets 12/15 (one of her group-mates does better with questions and so gets 13/15). Other students who examined the poster are nicer than I am and found the topic interesting and easy to understand, so they all gave her 5/5. Manette also did a superb job of critiquing others – providing good advice on how to improve the posters, without being harsh or unpleasant. So, I gave her 5/5 for that. This gives her a total of 26/30 points. But, both of Manette’s project collaborators recognized that she spent much of the semester drinking expensive coffee in Starbucks and chatting with friends, leaving them to do most of the work; this observation is consistent with her inability to answer questions about the work. Consequently, she got a grade multiplier of 0.9. To calculate the final score I multiplied the total number of points (26) by 0.9. Manette’s final score on this portion of the class is 23.4/30 (78%, or a C+). If she had pulled her weight she’d have got a solid B.

***Plagiarism:*** The maximum penalty for plagiarism will be that everyone in the group gets zero for the entire assignment. Consequently, you are all responsible for ensuring that your poster does not plagiarize the work of others. For my definition of plagiarism, which is the one that will be applied to this assignment, please see my grading policies and the document on plagiarism on the course web site. Note that the poster should not include any quotations (see plagiarism document for more details).

## POSTER PREPARATION

The key to a good poster is to identify the key pieces of information and present them in as few words as possible, but without compromising clarity. The biggest danger is spending more time making the poster look nice than on making sure that the content is detailed, accurate, and easy to understand. Presentation counts for something, but the best presentation in the world will still get you an F if the content is superficial, full of errors, or impossible to understand. Most importantly, note that someone (e.g., the person grading it) should be able to read it and get the main points you want to make within ~3 mins.

Exactly how you present the information is up to you, but every poster should include the following (you don't have to use these titles):

***Project title and names of authors:*** Should be self explanatory. It is conventional (but not required) to put this at the top.

***Abstract:*** In 150 words or fewer, summarize your findings. State the issue, why it matters, what the science tells us, and any recommendations for future action to address the issue. No citations should appear in the abstract.

***Introduction:*** Briefly, introduce the general conservation/management problem, relating it to the news item your project began with. Then, narrow the focus of the introduction to the specific issue that you have researched. Give the location, any interested parties (for many projects this will include who is in conflict), and state your specific goals for the project (e.g., to determine why sturgeon are endangered, and what can be done about it). By the end of the section a reader should know what you are doing and why. One or two short paragraphs should be sufficient.

***Background:*** A brief review of the issues your project addresses. Do not tell us everything you found out about the topic, just what we need to know to understand the research that has been done. If your project focuses on a single species, summarize its pertinent natural history, ecology, behavior, etc. If your focus is an ecosystem, say where it is found, what the primary species are, how it is threatened, etc. This section could be combined with the Introduction.

***Current state of knowledge:*** This is the bulk of your project. You will not have space to say everything that you found out, so you need to identify and summarize only the most important parts. The hardest part of the assignment is to reduce all the research to a few key points. So, this is the part that you should spend most time on. If your group members each worked on different parts of the project, make sure that you work together to integrate the information – I am not looking for 3 mini-projects tacked together.

***Recommendations:*** Not every project will have this section, but most topics will relate to some real-world issue, where someone is trying to solve a problem. If so, tell us what you think should be done based on the specific research you have read about and the general ideas I have discussed in class. If there are big unknowns, tell us about them. What is the most important research that still needs to be done? Given that managers cannot sit around forever waiting for new data, what can you tell them they should do now? Be sure to identify specific things that you think should be done, rather than just broad generalities. Suggestions like “more research” or “public education” will not get many points, but if you say what type of research, or how public education should be implemented, and why, you should do well.

***Literature cited:*** All ideas, data, and information that is not your own, must be cited, unless the ideas are common knowledge in the scientific literature (e.g., that plants photosynthesize). All citations must come from the peer-reviewed literature (see above). The literature cited section should contain all citations used, and no extras. All citations must follow the format that I will post on the web site. **Citing Web**

**pages: DO NOT**, unless it is a peer-reviewed on-line journal; then you may cite following the standard guidelines (i.e., author, date, title, journal name, pages if provided or doi if not; no urls). Numbering your citations like footnotes and using the numbers in the body of the poster as a way to save space is fine. Making the font size for this section small is also fine. Putting the references on the back of the poster, or on a separate piece of paper is not fine and will be treated the same as if you had simply left them off.

**Pictures, tables, figures:** Feel free to include these. But, you **MUST** provide attributions. If they came from a web site you must say where. If the web site does not say that they can be used, then you cannot use them no matter how suitable or attractive they are. Most pictures on Wikipedia should be free game, but check their guidelines. Making your own figures or illustrations, based on existing ones, is fine (often preferred) as long as you attribute the source. If you have not read what my web site's Plagiarism Statement says about plagiarism, go and read it right now to avoid a nasty shock later.

**PROOFREAD YOUR POSTER.** I guarantee that if you wait until the week before posters are due to start this project it will show in the quality of your work and your subsequent grade.

### **Additional tips**

1. Your goal is to distill the information on your chosen topic into short, clear paragraphs (bulleted lists are good), illustrations, and/or tables in a space not exceeding ~1 m tall by ~1.3 m wide.
2. Everything should be easily readable from at least a meter away. Generally, text font should be no smaller than ~28 pt (bigger is OK). A smaller font is OK for the literature cited section. Use a font that is easy to read without getting too close - Arial is good.
3. If you are having trouble making everything fit, look to see if you have irrelevant information, or if you can simplify your sentences so that they have fewer words. Writing in "telegraphic" style, rather than complete sentences is OK, as long as what you write is understandable.
4. We will not have poster boards to pin posters to, so you will need something that stands up on its own. My recommendation is that you use a poster-board trifold (available from the Coop for a few bucks) and attach your information to that. Graphs, figures, and tables can be pre-mounted on colored paper and poster board for ease in setting up your poster and to highlight the material. Each figure or table should be numbered and referred to in the text of the poster. Each should be easy to understand and have a heading of one or more lines that provides a brief "take home" message.
5. Choose fonts that are easy to read. Do not overuse bold or italics. Background colors should draw attention to material, but not detract from presentation. In general, if the reader notices your use of color, then you have overdone it because they are not thinking about the stuff that matters.
6. Avoid unnecessary details in preparing figures, drawings or illustrations. Try to keep everything simple. If you copy a figure and the font comes out too small, then remake it!
7. Ideally, your poster should be self-explanatory so that you are free to supplement and discuss questions raised by visitors.
8. If you use a picture or diagram from the web or some other source, you must attribute it.
9. Arrange material in columns rather than in rows. It is easier for viewers to scan a poster by moving systematically down, then across, rather than zigzagging back and forth. The abstract should be somewhere obvious (upper left, center). Make sure your names appear on the poster under the title.
10. For design ideas, look at the real posters, pinned to walls throughout TLS and the EEB floors (2, 3 and 4) of the Bio/Pharmacy building. Determine what you like and dislike about them, and use that to guide your own poster design. I will also provide examples in lecture and on the HuskyCT site.
11. Be prepared to answer questions about your poster.
12. For more information, see the FAQs about poster projects on the course web site.