

Organismal Diversity Poster Project

During the course of this semester **each lab group** will carry out an in-depth investigation of a single taxonomic group of organisms at the Phylum or Class level (you may not report on a single species.) You will be assigned a taxonomic group early in the semester. The goal of this exercise is to expose you to the principles of *taxonomic classification, phylogeny, organismal diversity, natural history, and evolution* in the context of a group of organisms less familiar to you than the highly charismatic megafauna we know and love. In the course of researching this group, we expect that you will become an "expert" on that group beyond the minimum content areas outlined below. If you are already expert on the particular group, you will be asked to research something unknown to you so as to maximize and broaden your learning experience

Your findings will be presented to your classmates and instructors via a "poster" session to be held in lab in Week 7 of classes. Each group will create a poster summarizing its research. There is not time for each group to make a presentation to the whole class, so plan for your presentation to be self-guided. Organization of the information in the poster is of paramount importance. Specific tips for making an excellent poster are available at:

http://abacus.bates.edu/~ganderso/biology/resources/making_posters_2004.pdf.

Minimum Content Requirements

Our intent is to give you as much flexibility as possible so that your own creativity can come through. The appearance of your presentation is crucial and your goal should be a professional looking poster, so **ALL text must be neatly typed in a font size no smaller than 16 point**. Below we list the **minimum** content your presentation must include in order to earn a passing grade. The information should be presented in a logical sequence from upper left to lower right, beginning with the broadest category of information, and following with more, and more specific information. See http://abacus.bates.edu/~ganderso/biology/resources/making_posters_2004.pdf for ideas on how to create an excellent poster. The organization is up to you, however, the organization you choose should adhere to the good poster practices mentioned on the aforementioned web page.

- 1. Taxonomic classification** starting from the Domain of your taxon and proceeding to more and more specific taxonomic categories, down to the major Families (spelling counts!) in the group you studied. For the example species (see below), classify it/them to the species level. (Use your textbook's classification scheme for Domain and Phylum levels).
- 2. Draw a phylogenetic tree** showing the evolutionary relationship of a.) the **Phylum** to which your taxon belongs to other related phyla, and b.) your taxon's relationship to other groups at the same taxonomic level. Discuss the confidence of the phylogenetics, i.e., how certain are we of the phylogeny? Is it stable? Or are there many alternative ideas about the relationships? The Tree of Life website may be very helpful as a starting point for constructing your tree (<http://tolweb.org/tree/phylogeny.html>). Note: A phylogenetic tree is not simply the classification/taxonomy of the organism!

3. Describe the distinguishing characteristics that define your taxonomic group. Your list of characteristics should allow someone who finds an unknown creature to decide whether or not that creature belongs to your taxonomic group. Pictures or diagrams can help a great deal here. Include major characteristics for Domain, Phylum, Order and Family of the example species you choose. You must have a good photograph or drawing of the organisms that show the distinguishing characteristics of the group. Credit for the sources of photographs, drawings, etc. that are not your own are required to avoid plagiarism.

4. Abundance and geographic distribution: Where are these organisms found? What types of habitats do they occupy? Where do these habitats that support these organisms occur? Just a map showing worldwide distribution would not be acceptable, because habitats vary so widely both on land and in the ocean. However, your taxon may occur over wide parts of the globe. Be specific about the locations or habitats in which your taxonomic group occurs. Include the total number of Families in the Phylum and total number of species.

5. Example species: Include one or two examples of interesting species that are included in your taxon. Briefly summarize their interesting or unusual characteristics, behavior, or geographic occurrence, etc., in this taxon that make them notable to you.

6. Natural History and General Biology: Natural history concerns things like reproductive strategies, diet, behavior, migratory patterns ecological role, etc. for the taxon. Time will be set aside in lab to research via the world-wide web aspects of the group's natural history and general biology related to the lab topics we cover.

We also expect:

A Bibliography of relevant books, articles, web sites, etc. This may be a separate sheet(s); if separate, it should be attached to the back of your poster. A variety of sources is expected. A bibliography consisting solely of websites is minimally college-level research (no more than three websites, is a good guideline). Wikipedia may be used for background information only but may NOT be cited as part of your bibliography or image citations. Citation should follow the format rules as found in the How to Write Guide. For additional information on how to document sources found on the web see http://www.mla.org/style_faq4.

Anything else you feel is useful and informative about the group, e.g., are they endangered? Do they exhibit unusual behaviors? Is there some importance to humans or the environment? Go with your interests here, be creative, and have fun with it! This part should be a central theme of a section that contributes approximately 15-20% of the total content of your project. This aspect is necessary to obtain "A" level scores.

Project Progress Report #1 is Due in lecture Monday, Jan 26th, 2009

Your group will submit the **name of the taxonomic group** you have been assigned, a brief **description** of the group including common name (if there is one), and which **type of poster** you are planning (large format printer or paste-up).

Project Progress Report #2 is Due in lab during Week 5

Your group will submit a **typed, double-spaced, MAXIMUM two page progress report** that summarizes your project progress. This should include a brief description of the **taxonomic group, poster organization**, a brief **description of the content areas** you will cover beyond the minimum content requirement, **who is doing what**, and provides an up-to-date **bibliography** of relevant sources you are consulting. *There will be a substantial penalty for insignificant progress.* Progress reports count for 10% of the total project grade.

Presentations

Each group will display its poster during a special lab session held March 2-7. Each group will be scheduled for a specific block of time (10 minutes) to meet with the teaching staff. The instructors and TA's will evaluate the posters after asking each group about its taxon and research. Before and after your scheduled meeting with instructors, all students will review the work of each group, and ask questions. Grades for posters will be available 2-3 days after the poster sessions.

Evaluation

Your group will be evaluated for the progress report (10 pt), and the presentation of your project (90 pt). The staff will evaluate the required content areas for completeness, additional content that you present, and the overall creativity and effectiveness of your presentation. Projects that just meet the minimum content requirements can earn no more than "B" grade. A-level projects will exceed the content requirements and be excellent in their organization and effectiveness. Particular attention will be paid to how well you can answer questions about your taxon that go beyond the specific information that you present.

How do we produce a poster?

The Biology Department has a large-format, color printer that will be available to print your poster. The poster should be made as a single Power Point slide in landscape dimensions of 36" height and 48" width. Many examples of posters prepared this way can be found around the halls of Carnegie. Specific instructions for doing this type of poster will be provided, probably as an email. Posters will be printed on plain paper due to the expense of photo quality paper. Posters to be printed by the Department printer must be ready to print at least 4-5 days in advance of the poster session. Send the completed Power Point file to Greg Anderson and it will be printed ASAP as time permits. You will be notified when it is ready. **Note:** Typical file size, including images, should not exceed 2-3 MB.

You may opt instead for a stand up, three-panel type poster if you prefer that medium. Such panels can be purchased at office supply stores such as Staples.

Evaluation Rubric: The staff and TAs will evaluate your poster and questions to probe your depth and breadth of knowledge. Each will award a score based on the rubric shown below, and then we meet to reach consensus on a final score. Only the final consensus score will be reported to your group along with comments.

1. **Classification** (Domain to Family; and to species level for example spp)
2. **Phylogeny** (a. to related phyla, b. to assigned taxon, including stability of phylogenetics)
3. **Distribution & Abundance**
4. **Natural History/General Biology**
5. **Example species**
6. **Characteristics** of taxon (Domain, Phylum, Order, Family of example spp)
7. **Extras** (15-20% of poster) required for an "A"
8. **Bibliography**
9. **Logical Organization/ Professionalism/ Creativity**
10. **Handling of Questions**

Total for presentation = 90% of grade; 10% for progress report.