Research Grant Proposal
BIOO 470
Spring 2013

Overview of Assignment

Why write a grant proposal?
Being able to write an interesting, cohesive grant proposal to obtain funding is a useful skill in areas beyond science. Conservation agencies write grants to fund land acquisition and management. Teachers write grants to fund education projects. Artists, photographers, and filmmakers apply for funds to develop creative projects. Nonprofit organizations rely on funded grants for day to day operations, relief efforts, health initiatives, and to provide for a variety of other needs. In science, most research efforts require grant funding for scientific studies. Regardless of your eventual career path, grant writing is a valuable skill to develop.

Writing a successful grant
A successful grant requires a thorough understanding of your research field, alongside the ability to identify critical unanswered questions in your field. Once you have developed a question, you will need to determine what kind of information is needed to answer your question, and what kind of experimental or observational set up you require to find your answer. Your finished proposal must have a logical progression of information, a cohesive story, and be well-organized and easy for someone not familiar with your topic to understand.

Getting Started
As a biology student, you spend a lot of time learning about what we already know. However, scientific research is oriented around what we don’t know. You may be surprised how much we don’t understand about the world around us. Your first step is to find such a question that interests you. Consider your textbook as your first resource – skim through it and isolate areas of interest within ornithology. You may also peruse ornithological journals to determine the most current and exciting trends in ornithological research. These journals include:

The Auk (http://www.aou.org/auk/)
Condor (http://www.cooper.org/publications/Condor.htm)
Ibis (http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1474-919X)

Refer to the “Ornithological Resources” handout on moodle for more. Ornithology is an area that encompasses a broad variety of biology – are you interested in ecology? Physiology? Habitat use? Life history strategies? Nesting? Species invasions? Evolutionary ecology? Flight? The possibilities are nearly limitless!
Once you have an idea of an area of interest, and perhaps even a question, you will dive in to primary literature to determine what we know and what we still need to know. You'll eventually settle on a single question that you believe merits further research. This selection should merit a good deal of thought – (1) How would this knowledge improve your field of interest? (2) How can you answer this question in your proposed research? And finally, (3) what do you expect to find? Be sure you can address both of these points before you select a project! Your first assignment will be a brief paragraph answering both of the above questions.

Completed Grant Proposal

Your completed grant proposal will be no more than 5 pages, double spaced, in length. This means you must be succinct and clear – you have a lot of information to get across in minimal space! This limitation mimics many real-world grant proposals. Below is a brief outline of what your proposal should consist of. You are not required to stick with this format, but it is recommended.

Background: It is essential to motivate your research question – this means, why should your reader care? The best way to do this is in two steps. The first, you should provide some basic background, placing your project in a broader conceptual framework. What have other researchers done or found that sets the stage for your next question? Why is your particular question a logical “next step?” Funding agencies are much more likely to fund a well motivated research proposal. You should end this section with a clear statement of your research goals.

Proposed Work: Here, you will describe the methods you plan to use to address your question. This may include an experiment, observation, or combination. Be sure to provide as much detail as necessary for the reader to evaluate the integrity of your plan and the likelihood of it allowing you to directly answer your question. Try to devise experiments that provide clear and unambiguous answers to question you are asking. Be explicit about how you will set up your study, what you will measure and why, and how you plan to analyze the data statistically (the stats can be brief). Use subheadings, numbering systems, anything you need to make this clear and easy to follow.

Significance and Impact: This section may be brief (1 paragraph). It should remind the reader why your research project is exciting, and how it will further scientific knowledge. If there are practical applications to technology or industry, include these here (note that this may not exist for your project, and that’s ok! Science can improve our understanding, and that’s a worthy topic!).

Literature Cited: You are required to include at least 10 peer-reviewed scientific articles in your citations throughout the paper. This will be a standard literature cited section (similar to the end of a scientific paper). We will chat about how to use primary literature for this project in class.

Peer Review

In order to determine who gets funding, funding agencies (such as the NSF) will often times have a panel of your scientific peers review grants. This panel is oftentimes composed of individuals with limited knowledge or your specific field. In
the final week of the semester, we will have a “mock review panel” composed of your classmates – your grant will be reviewed (under a pseudonym), and you will review your classmates grants.

**Timeline**

It requires a great deal of time and effort to produce a grant proposal. As such, I have broken it down into parts to keep you thinking about the project throughout the semester.

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**Please note that individual assignments will come with more detailed instructions uploaded on moodle and discussed in class.**