

## Research Proposal Format

Funding agencies generally require that proposals conform to specific formats. These formats vary somewhat but generally have common components. The format we have developed for this course is a general one that includes sections required for the vast majority of proposal. Proposals always have page limits that are generally strictly enforced. This proposal will be limited to 12 pages not including the following sections: cover page, summary, references and figures / tables. Supporting tables and figures will be included as supporting documents, outside of the project narrative.

The proposal should be written clearly and concisely throughout. Avoid complicated sentence structure and jargon as much as possible, and strive to make your text simple and concise. To the extent possible, use figures and tables to illustrate the sampling design and timeline of the research.

### Cover page

Request for Proposals (RFP's) often have a standard cover page so that all of the basic information the agency requires is included and is easy to find. This cover page, and additional standard forms are typically provided by the granting agency. For this course, you will create your own cover page, including the following information:

#### **Investigator Contact Information:**

Department, School or College:

Thesis Advisor:

Campus Mailing Address:

E-Mail:

Telephone Number:

#### **Project Information:**

Title of Project:

Research Field of Proposed Study:

Project Period:

Keywords:

### Summary (limited to 1 page)

The proposal must contain a summary of the proposed activity, spanning up to one page of text and including no tables or figures are allowed in the summary statement. The project summary is the first thing that reviewers read. It should outline the problem, objectives, activities and expected project outcomes. It should be informative to persons working in the same or related fields and, insofar as possible, understandable to a scientifically or technically literate lay reader. The project summary should not be simply an abstract of the proposal, but rather a self-contained description of the activity that would result if the proposal were funded.

It may help to structure the summary into three sections and to explicitly state:

“This research will test the hypothesis that (develop a technique to)...”

“We will test this hypothesis by (develop this technique by)...”

“The purpose of testing this hypothesis (developing this technique) is to...”

**Introduction – Scientific Background and Rationale for your Research**

The Introduction section should include both the background, or the scientific context for your research, and the rationale, or the reason for your research project. The background section of a grant or contract proposal (sometimes called *Background and Significance*) is typically required for research proposals. This section should describe what is already known about the subject of your work and provide the ancillary information necessary to put your proposed research, and the new knowledge to be gained from it, within the broader context of scientific knowledge. A brief historical review of the development of knowledge in the field is often useful. Although, you should be familiar with the literature in your area of research, it is not necessary to discuss and cite every paper published on the topic. You should however, cite and discuss the most important papers as well as recent work. The goal is to demonstrate that: (i) your work builds up from previous research results, and (ii) that you are familiar with recent developments in your field.

This introduction section should also include a rationale for your research that clearly describes why a particular scientific question or research objective is important. If applicable, it's a good idea to separate the proposed work into short and long-term goals, each stated in a precise and unambiguous way. For each objective or goal, ask yourself if it is reasonable (*i.e.*, feasible) given the constraints of time, facilities, and money to accomplish that goal. List any multiple goals in logical order, each building on the one before. If possible, state your objectives in the form of one or more testable hypotheses with distinct alternatives. Describing your research in terms of a testable hypothesis generally makes it easier to design your research project and complete it successfully. Also, remember that this is a 2-3 year master's thesis. Keep the scope of your research focused, so that you can complete it in 12 – 18 months.

It is often useful to conclude the introduction section with a brief summary paragraph that ties the background information together with the research aims of the project to allow reviewers grasp the overall scope and direction of your research.

**Project Description – Objectives, Research Plan and Methods**

The project description should outline the objectives and overall research effort to achieve those objectives. This should include the broad design of activities to be undertaken, as well as where and when these activities will take place. If field work is a part of the research project, describe the location and the sampling work to be done there. If laboratory work is involved, describe the laboratory location and include the space available for the work and the instruments required / available to do the research. Explicitly describe and justify the sample sizes.

In addition, this section should include a detailed and fully referenced description of the methods to be used in the research. Include any field methods and / or techniques as well as any laboratory analytical protocols that you will use. The methods must be described and thoroughly referenced. If samples will be collected in the field, include a description of these protocols. Laboratory analytical work should also be described along with the equipment necessary to carry out this work. Make sure that all of the methods that you will need to complete your research are included in this section.

**Research Management – Equipment, Personnel and Timeline**

Describe the resources that you will need in this section. If your work requires a research vessel, include a brief description of the sampling platform you will use. Include a brief description of the workforce needed to accomplish this work. If assistance is needed help with any part of your work (i.e., help with field sampling or analytical assistance in the laboratory) include those needs here and describe who will provide this assistance. Also include a description of the major pieces of equipment that will be needed for your research. A timeline for your research project should also go in this section. Be realistic as possible about the time line, so that you do not propose to do more work than you can accomplish in the time-frame allotted for your research

**Outcomes and Impact - Expected Outcomes and Significance**

Describe specifically what outcomes you expect from this work. This should not be limited to the results of testing your hypothesis and the achievement of the goals you listed in the previous sections of the proposal. Those things should be included here if it is not redundant with the previous text. However, this section should also define the importance of this work from a larger perspective (i.e., why this work is significant).

**Budget**

Make a budget for your research project including the following categories: salaries, supplies (usually disposable or expendable: notebooks, batteries, chemicals, gas for your boat, ...), equipment (major purchases over \$5,000: an inflatable boat, satellite tags, a microscope, ...), travel (for field-work, to meetings, to workshops for learning a technique, to work with colleagues,...). Add a justification explicitly explaining why these resources are needed (i.e., why 10 rather than 5). If you are not sure of the quantities, you may want to provide a range (under several scenarios).

**Formatting Details for specific sections**

**Tables, figures and figure captions** - Show all tables on separate pages and include a title for each table. Number tables sequentially as they appear in text. Show all figures on separate pages and include captions with each figure. Number figures sequentially as they appear in the text.

**Format for references** - List all references alphabetically, organized by first author, on a separate line (double spaced). Use the following format:

**Article:** Fenchel, T. 1986. Protozon filter feeding. Prog. Protistol. 1: 65-113.

**Book:** Strumm, W. and J. Morgon. 1981. Aquatic Chemistry. 2<sup>nd</sup> ed. Wiley, New York. 485 pp.

**Chapter:** Codispoti, L. A. 1983. Nitrogen in upwelling systems. Pp. 513-564. In: E.J. Carpenter and D.G. Capone [eds.] Nitrogen in the marine environment. Academic Press, New York. 600 pp.

**Web-sites:** NOAA. 2010. "Fishery Failure" Determination for Alaska Chinook Salmon. Accessed online on January 20, 2010 [www.commerce.gov/NewsRoom/PressReleases\\_FactSheets/PROD01\\_008806](http://www.commerce.gov/NewsRoom/PressReleases_FactSheets/PROD01_008806)