

Guidelines for Preparing a Research Proposal

Information available here has been provided by the ASPT Awards Committee for use by the general membership and as a guide for student members preparing proposals for ASPT Graduate Research Awards.

Outline for a Research Proposal

Writing an effective proposal is different from other sorts of scientific writing. It is almost a cross between writing a scientific research publication and a campaign speech. Your audience will be other scientists (peers) and you will relate information (like a publication) and try to sell them on what you want to do (campaigning). The purpose of

most research proposals in the real world of scientific research is to get money to support your research, so selling what you intend to do is **VERY IMPORTANT**. Remember that a proposal that captures the attention of the reviewers' senses and imagination will stand a higher chance of success. All sections of the proposal must be written with clarity and "knock'em dead" logic. By the end (and preferably much sooner), a successful proposal will have convinced the audience:

- (1) that the work is *fundamentally* important,
- (2) that you are ideally poised to carry out the study, and
- (3) that the experimental design you have developed is the straightest approach to the research objective and will make this goal attainable within the projected time period.

Pay great attention to details such as grammar and spelling; to do otherwise may suggest to the reviewer that the research will be conducted sloppily. Be sure to follow any and all instructions (including page limitations!) specified by the potential funding source. Failure to do so may result in outright rejection of your proposal at worst and is likely to make reviewers think that you feel you are above the law at best.

Unless otherwise indicated in the specific instructions from the agency to which you are applying, consider using the following tried and true format:

Title Page: Make the title say what it is you are going to do, without being too long

(e.g., "Phylogeny and Character Evolution in *Carex* Based on cpDNA Sequences"). Identify the target of your proposal (e.g., "Proposal for ASPT Graduate Research Award"). Include your name and address.

Summary: This is a brief, one paragraph statement of the goals of the proposed research and the means by which you intend to achieve them. Write this after the rest of the proposal is complete.

Introduction: The Introduction sets the stage for the research project. It should identify why the project is important and how other scientific issues relate to the project. The Introduction is the place to make reference to prior research that bears directly upon the importance of the question to be addressed. Indicate where other research leaves off and suggest a line of research that should prove successful (this, of course, will be the research you are proposing).

Goals/Objectives: This section of the proposal should state clearly and concisely the scientific objectives or goals or hypotheses to be tested. Use an outline format with some combination of:

(1) indentation,

(2) **bold face type**,

(3) italics,

(4) underlining,

(5) a) numbers or b) letters identifying the goal or goals

(6) short (one or two sentence) explanations of the goals or hypotheses.

The context in which these goals are important should be made clear in the Introduction and the means by which the goals will be achieved will come in the section on Experimental Methods. **This is the shortest, yet most important, section of the proposal.** It should literally stand out from the rest of the proposal, so that the reviewer can refer back to it easily, if he/she needs a reminder of how something else in the proposal relates to the goals.

Background/Preliminary Results: Review the published and unpublished results that bear on the project, showing what is known and convincing the reviewer that what is proposed is feasible on the basis of prior research. This section will frame the specific research that is needed to achieve the previously stated goals and will set up the discussion to follow on the experimental methods that form the body of the proposed research. This section should include results that relate both to the goals and to the appropriateness of the methods (e.g., show that a method, particularly if it is new, can do what you say it will).

Experimental Methods: Explain, in as much detail as space and your knowledge allow, the specific observations, experiments, and research methods that you will undertake during the course of the research. Take a logical course through this discussion that will parallel the course the research will take. Cite publications for protocols that are too detailed to explain in the text and for methods that might not be familiar to the reviewer in order to substantiate their use. For established researchers, this is usually the easiest part of the proposal to write, even though it is usually the longest.

Significance of Proposed Research: This is an optional section in which the importance of the work in a broader context (human impact; impact of shared results with others in the same or other fields; etc.) can be emphasized. This is a good place to re-state the goals or objectives as a final reminder to reviewers. For certain types of proposals this is required.

Literature cited: List all publications cited in the text of the proposal (and don't include any publications, no matter how relevant, if they are not cited in the text). There are many different formats for citation of references (check the back of articles in various scientific journals). Here is an example that is acceptable:

In the Text: "A recent chloroplast DNA analysis of the family Solanaceae indicates that tobacco is more closely related to tomato than to petunia (Olmstead and Palmer 1992)."

In the Literature Cited: Olmstead, R. and J. Palmer. 1992. A chloroplast DNA phylogeny of the Solanaceae: subfamilial relationships and character evolution. *Ann. Missouri Bot. Gard.* 79:275-288.

Reasons for proper referencing:

1) Citing published references bolsters your argument by showing that previous work lends support to it.

2) Citing previously published work acknowledges the contributions of others. To use someone else's ideas in your writing without proper citation is intellectual piracy and in some cases may be considered plagiarism.

Tables and Figures

Use tables and figures as visual aids. These may be of preliminary results or figures illustrating research methods or published results that help form the basis of the proposed research. Remember a good proposal is a visual as well as verbal product.

Biographical Information: Grant proposals usually include some information about the author (or Principal Investigator in the jargon), usually a Curriculum Vitae (or CV). If you have not yet developed your own CV, ask a senior graduate student or one of your faculty mentors for his/hers to use a model.

Last but not least: be sure to have at least two other people read your proposal. At least one of these should be an experienced grantsperson. It is not a bad idea to select as the other reader a person who is in a somewhat different field from your own (almost all proposals are read by a spectrum of scientists; some are read by a much broader community of scholars and lay-persons). Ask your readers to read with their most jaundiced eye: it may hurt a little at first to have your work criticized, but the pain is well worth it when it translates into funded proposals!

Return to [Graduate Student Awards](#) or the [ASPT Homepage](#).

Created: *16 September 1996*, last update: **14 May 1999**