

Bioinformatics and Bioengineering Summer Institute
How to Write a Proposal for Activities During the Academic Year

I. Goals of the proposal

The proposal should outline your activities during the academic year, aimed at furthering your research project. The activities may be continued experimentation or program development, data analysis, or study aimed at making you better able to continue your research at a higher level. You will not be able to write a proposal without close consultation with your mentors at both VCU and your home institution.

II. Audience

The proposal should be directed to an audience consisting of your peers. Explain what is necessary so that every one of you will understand the proposal. No need to explain what is common knowledge for all.

III. Format

The format below is one that will get the job done. If you believe your proposal calls for a format that accomplishes the same ends but in a different *and better* way, fine. Then use your own format. It's always OK to add quality.

III.A. Introduction (similar to the section in your BBSI Research Proposal)

The purpose of this section is to engage a general audience and to bring that audience to the specific question you intend to address. This question should be the climax of the section, and it should feel like a climax.

An Introduction should not threaten the reader. Begin with a general question that is well within the grasp of anyone in your intended audience. The Introduction should feel like a logical journey from the general question to your experiment.

Proceed from your general question in logical steps towards the experiment. Explain what is necessary for us to understand each step, particularly previous results that led to the asking of the question (cite references). Don't explain what we don't need to understand, even if the topic is important in many other contexts.

Try to craft the Introduction so that the question you ultimately asked seems inevitable. Let the question spring to our minds, even as you ask it yourself.

III.B. Progress Report

Describe what you have done this summer to accomplish your research goals and the results you have obtained (note that results and conclusions are quite different things). Figures and tables may be very useful. If a computer program that you have written or are writing is central to your project, it may be appropriate to have a link to the code and to sample output.

III.C. Goals for Academic Year

Here you create the hole into which the plan that follows (Section III.D) will fit. Be sure to justify the goals in a way that enables your audience to recognize them as worthy. The justification should be set forth within the context of your research project: How will the proposed activities increase the likelihood and level of success of the project?

III.D. Plan for Academic Year

Describe the plan that you and your mentors have devised for the academic year and how it will be realized.

1. Experiments

If the plan includes experiments, then describe them in sufficient detail so that the audience can understand the experimental conditions, the principles underlying all pertinent methods, and how the results may further the objectives of your overall project. Describe also the equipment available to support the work.

2. Computation

If the plan includes working with databases or programs, provide a brief description of their nature and how you will access them. If you will write software, then outline the program as you envision it, providing explanations of the pertinent algorithms.

3. Courses

If the plan includes courses at your home institution, describe the courses, their relevance to your research project, and how they will be supplemented to make an explicit connection with the project.

III.E. Budget

Up to \$1400 will be available to support you and your work (subject to acceptance of your proposal). List items (if any) and their costs that you will need for your work. This may be difficult for you to predict, but between you and your mentors, do your best.

III.D. References

It goes without saying that you will refer to the results of others, both in justifying the question you're asking and the methods you're using. This proposal is not an exhaustive review of the field, however. Give those key references that would help the interested reader learn more. References may be in any format, so long as the following information is provided: (for journal articles) Authors, year, title, journal citation (volume and inclusive pages); (for chapters in books) Authors, year, title of chapter, title of book, editors, publisher, city, and inclusive pages; (for books) Authors, year, title, publisher, and city.

IV. Length of proposal

The whole thing might run the equivalent of 2 to 3 single-spaced pages, not counting references, but could be considerably longer, depending on the substance of your progress report.

V. How to submit the proposal

Convert the file to PDF or HTML and put it on your web page. If you don't have a ready means of converting your file to PDF, contact me.