

DEVELOPING A PROPOSAL FOR EXPERIMENTAL RESEARCH IN BIOLOGY

(place in “Plans” Section of Research Notebook)

Your proposal should include the following:

1. Title—clearly stated, concise, descriptive, and complete.
2. Introduction Section—This section establishes the current state of the art via survey of the pertinent literature. A case for your project must be built in this section, i.e., why does it need doing, why do you want to do it, what is its significance, etc. The goals and the objectives of this research must be clearly explained in this section.
3. Procedure—This section should describe in detail how the problem will be approached. In other words, the experimental design must be described in detail including the following:
 - a) Kinds of organisms to be used. Numbers needed. Required growth facilities needed. Maintenance needs, i.e., food, water, etc. Availability of growth facilities when you need them.
 - b) Proposed treatments. What, how much, etc.
 - c) Number of replications. Total number of samples in experiment. Controls. Blind or double-blind.
 - d) Time required for entire project. Do you have this much time? When will it be done? Where?
 - e) Space requirement. Where? Is it available for your use when you need it?
 - f) Equipment needed. Is it available when you need it? What new equipment will you need? Costs? Will you be able to operate it properly?
 - g) Supplies and expendable needs. Is it available? What and how much will we need to order? Costs?
 - h) Statistical analysis to be conducted. Who will do it? Kinds of tests?
 - i) Actual experimental design, i.e., randomized block, Latin square, etc.
4. Credentials—This section must present evidence of skills, persistence, successes, attitudes, and general abilities necessary for successful completion of your proposed research. Experience and training are the best evidence, i.e., courses you’ve taken, laboratory experiences you’ve had, techniques for which you are competent, or can feasibly learn.
5. Animal and Human Subjects Review Committees
If animal or human subjects are to be used in the proposed research, the University must approve the ethics and safety aspects of the proposal. A consent document must be included with the proposal.
6. Budget—This section should itemize the expected expenditures as much as possible.
 - a) Supplies (Itemize, list source, and costs)
 - b) Equipment (Itemize, list source, and costs)
 - c) Miscellaneous (Itemize, list source, and costs)
7. Endorsement Signature—Your advisor’s signature endorsing the proposed research project.