

## Research Proposal Guideline

### Introduction to Plant Biology 16:765:501 Fall 2011

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We would like you to write a research proposal (grant proposal) in which you propose a series of experiments that address a particular question or topic in plant science. You will need to research the literature on this topic, decide what needs to be done next and describe how you would go about this. The goal is to get you think about ‘what’s next?’ and ‘how can I get there?’ whenever you read a paper.

#### Choosing the topic

One of the most critical skills to develop is the ability to read the scientific literature and quickly identify what experiments should and can be done next. We are asking students to identify a single research topic based on an area of interest and following on from work published within the last 2-3 years. The topic you choose should fall within the overall area of expertise of one of the faculty giving presentations in this class. This is because you are expected to work with the individual faculty to develop your project.

**Note** that you will first need to identify and turn in two articles related to the area you choose, as well as a ½ page list of project goals and approaches. You also need arrange to meet with your Faculty Advisor and get her or him to read and sign this form which you will turn in class, along with a 1-paragraph outline of your proposal. See the timetable on p2 of this document.

#### Format

The format will be similar to a grant proposal, though reduced in size and without the budget and other paperwork that are needed for a full application. You should provide:

#### I. TITLE AND SUMMARY (1 page)

Title, Principal Investigator (your name), Your Institutional Affiliation. Summary: 1 paragraph only, understandable to a biologist from another field of work

#### II. MAIN BODY (4 pages, 12 pt type, single spaced)

1. **Introduction** (summarize the research field to-date)
2. **Goals and Rationale** (what you intend to do and why)
3. **Experimental Design** (describe methods; mention likely outcomes and alternatives; timeline)

#### III. SUPPLEMENTARY SECTIONS

1. **Bibliography.** A list of references cited in your text. **Include: authors, year, full title, journal, volume and pages.** There is no limit on the length of this section, but include only references that are strictly relevant to your proposal.
2. **Resources.** A 1-to-2 paragraph description of the resources you will need (people, equipment, facilities) to complete this work.

### Information for Faculty Advisors about Student Projects

Dear Faculty Advisor,

Thank you for agreeing to serve as the project mentor for this graduate student project. By having students work closely with faculty, we hope to give students a foretaste of how real projects are developed.

The details of the project –a mock proposal for novel work –are shown in the accompanying sheet. A suggested timeline is shown in the table below. Your help is sought in making sure that the student is on the right track by providing suggestions for the design of experiments (especially in terms of what is feasible), pointing out key articles and other useful information that you think would help. It is especially important that the student has an opportunity to contribute his or her own ideas and approaches to the project.

After the project is turned in, you will be asked to read the resulting project proposal and provide a detailed review and score. A grading sheet will be provided for your use. If you agree to serve as an advisor, could you please sign the sheet below and return it to the student, who will turn it in.

Thank you.

*Ning Zhang*

Student Name \_\_\_\_\_ (PRINT NAME and SIGN)

Faculty Mentor \_\_\_\_\_ (PRINT NAME and SIGN)

### Timetable for Grant Proposal:

DATE	ACTIVITY
Oct 3	Identify 1-2 recent papers in your area of interest. <b>Assignment:</b> Email Dr. Zhang the name of your proposed Faculty Advisor and a tentative proposal title (you may change later on).
Oct 19	After getting approval from Dr. Zhang, meet with Faculty Advisor to discuss project and project outline. Bring necessary articles, prepare appropriate background. Have faculty advisor sign above form, agreeing to be advisor. <b>Assignment:</b> turn in the form to Dr. Zhang
Oct 26	Write 1-page project outline describing project goals and approach. Show to your faculty advisor. Make changes as appropriate.
Oct 31	<b>Assignment:</b> e-mail revised 1-page project outline to Dr. Zhang and copy to your faculty advisor
Nov 9	Meet with Faculty Advisor to discuss project progress.
Nov 21	Review written proposal with Faculty Advisor. Make final modifications in accordance with her/his suggestions.
Dec 14	<b>Assignment:</b> Send e-mail AND hard copy of final proposal to Faculty Advisor AND to Dr. Zhang. The proposal will be reviewed by your faculty advisor and by Dr. Zhang.