PLB 498 – Undergraduate Research Form and Proposal Guidelines

All undergraduates in the Department of Plant Biology are required to complete at least three credits of PLB 498. All research projects must be approved by Dr. Andrew Jarosz.

We encourage students to start in a research lab by the fall semester of their junior year. This gives students time to learn research techniques and develop ideas for an independent project, which we recommend students start the following summer or in the fall semester of their senior year. Research projects often take longer than one semester. A grade extension (ET) allows a letter grade to be assigned in a later semester when research projects are completed.

Discuss your project ideas with your faculty mentor and complete a project proposal using the attached guidelines. After your faculty mentor had reviewed and approved your proposal, submit this form (PDF), along with your project proposal (Word doc or RTF), to Dr. Jarosz at amjarosz@msu.edu. The form and proposal are due by the first week of classes during the semester you wish to complete the research. Note, you may begin the research in semesters before you register for the course.

Once your project is approved, the undergraduate secretary will enroll you in PLB 498 and PLB 499 for the spring semester (required for graduating seniors).

Student Name: _____ Date: _____

PID: _____ Semester: _____ Year: _____ Credits: _____

Do you wish to enroll in PLB 499 for spring? ☐ Yes ☐ No

Project title: _____

_____

Deadline for submitting work: _____

Evaluation procedure: _____

_____

Signatures

Student's Signature: _____ Phone: _____

Faculty Mentor Name: _____ Dept: _____

Faculty Mentor Signature: _____ Date: _____

By signing this form, I acknowledge that I have read and approved the PLB 498 project proposal.

Dr. Jarosz's Signature (dept. approval of project): _____

PLB 498 Research Proposal Guidelines

These guidelines are intended to provide you a framework for developing your research proposal for PLB 498. As you meet with your potential faculty advisor from a lab in Plant Biology or in a plant lab in another department, discuss the proposal components with them. You are more than welcome to discuss this proposal with Dr. Jarosz at any time during the process. Overall, the length of the proposal depends on the research you propose, but realistically 5 pages is the maximum, with fewer pages likely.

Proposal components:

Title: Concise, conveys the main point of the experiment/research and includes these key components:

- Study system
- Variables
- Expected result and direction

Introduction:

BIG PICTURE: Does the intro convey why the experiment will be performed and what it is designed to test?

Clearly, concisely, and logically present all key components:

- Relevant and correctly cited background information
- Question
- Biological rationale (including biological assumptions about how the system works and knowledge gap the research addresses)
- Hypothesis
- Approach

Methods and materials:

BIG PICTURE: Do the methods clearly describe how the hypothesis will be tested?

- Concisely, clearly, and chronologically describes the procedure to be used such that a knowledgeable reader could replicate the experiment and understand expected results.
- Methods used are appropriate for the study.
- Clearly defines controls and how they will inform the experiment.
- Briefly describes mathematical manipulations or statistical analyses to be used, if applicable.

TIMELINE: What is the anticipated timeline for your research. Dates and activities.

Predicted results:

BIG PICTURE: Predict the expected results and how the results will be displayed.

- What data go into tables? What data go into figures?
- Will the data in the figures and tables support the hypothesis as well as present alternative results. Do the data align with the research question?

Implications:

BIG PICTURE: Do the implications make sense based on the predicted data? How would the work advance the field?

Literature Cited:

References within the body of the paper are cited appropriately. Follow CBE style for citing research in STEM. Use name-year format.
http://www.webwritingthatworks.com/DResourcesCITE06cbe.htm

Overall grammar, organization, wording:

Excellent organization and paper flow, appropriate word choice, few to no grammatical errors, consistently uses future tense.

Modified from the Biocore Research Proposal Rubric. In Biocore Writing Manual. 2016-2017. Batzli J and Harris M. eds. University of Wisconsin, Madison.