M.S. Degree Prospectus Guidelines
Department of Biological Sciences

The signature page should include all information on this page. A copy of the Prospectus Guidelines should be attached to the copy of the Prospectus when it is circulated for signatures.

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CALIFORNIA STATE UNIVERSITY, LOS ANGELES

DEPARTMENT OF BIOLOGICAL SCIENCES
MS DEGREE GRADUATE RESEARCH PROSPECTUS

☐ BIOL MS ☐ ENVS MS

Each of the undersigned affirms that he/she has found this Prospectus to be in accord with the attached Prospectus Guidelines.

Name _____ Signature _____

CIN _____ Phone _____

Research Advisor _____ Signature _____

(If applicable) Off-campus research dept/phone_____

Committee Member _____ Signature _____

Committee Member _____ Signature _____

Date Prospectus Approved by the Department _____

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Procedures, Deadlines and Approval Process:

Your thesis prospectus will be reviewed at three levels:

1) by your primary thesis advisor
2) by your entire thesis committee
3) by the department's Graduate Affairs Committee

This review process will deepen your critical thinking about your work and how your research fits into the "big picture" of your field. It will help you to clarify your ideas and improve your scientific writing by introducing you to peer review, the process by which scientific findings are evaluated by other researchers. ***Note: All deadlines are firm.***

- **Step 1 – Notification.** Notify your primary thesis advisor at least **the semester in advance** of the term that you intend to submit your prospectus to the department. Expect to make numerous revisions as you work with your advisor to define the scope of your project, synthesize the relevant literature, and master the style and nuance of scientific writing.
- **Step 2 – Writing and preliminary revisions.** Your primary thesis advisor will work with you until the Prospectus is ready to be reviewed by your other committee members. The Thesis Advisor is charged with ensuring that the scientific reasoning is sound, the Prospectus is organized according to the Prospectus Guidelines and the writing is clear. *Upon accepting a student, an off-campus advisor will be advised of this requirement and be given a copy of these Prospectus Guidelines by the Department Secretary*.
- **Step 3 – Committee review.** After your advisor approves your prospectus, distribute it to your thesis committee no later than **Monday of 14th week** of spring semester if you intend to submit at the start of the following fall. Your committee members require **at least 2 weeks** to review your prospectus and return their comments and corrections to you. Note that faculty are not on duty in the summer, so while you may work on your prospectus over the summer, in that case allow *even more time* for your committee to read it and return comments to you.

  Your **thesis committee** members will carry out an in-depth evaluation that includes content, format, organization, style, clarity of writing, depth of student knowledge, writing skills (grammar, etc.), and adherence to the prospectus guidelines.
- **Step 4 – Committee review revisions**. You must **then** work on a revision with your primary thesis advisor, revising your prospectus to address all concerns raised by members of your thesis committee. This must happen **prior to** review by the department committee.
- **Step 5 - Department Graduate Affairs Committee review**. Once your thesis committee and advisor have approved all of your revisions and signed the cover page, submit your prospectus to the department office by the **1st day of the semester,** for review by the Graduate Affairs Committee during that term. Once you turn in a signed prospectus to the department, you may enroll in research and thesis units (BIOL 5970/5990) for that semester, while the committee reviews your prospectus.

  The **department Graduate Affairs Committee** will evaluate (a) whether your prospectus is properly organized, formatted, and written for a general scientific audience; (b) if the project is reasonable for a Master's degree; and (c) if the scientific logic and methods are clearly explained and appropriate for the goals of the project.

Note: Do not be distressed if the Department committee requests corrections, clarifications or revisions of your prospectus! This is a normal part of the review process, and is designed to improve your skills in scientific communication. Something that may seem clear to you and your committee members may not make sense to a biologist outside of your immediate field, who may ask for additional clarification. Learning how to explain your work clearly to non-specialists is an important part of your development as a biologist.

- **Step 6 – Post-Department Graduate Affairs Committee.** Following review by the Graduate Affairs Committee, the prospectus will be returned to you as either approved, conditionally approved, or not approved.

  Once **approved,** you have completed the review process.

  If **conditionally approved**, your prospectus will be returned with minor corrections or suggestions for improvement from the department committee. A revision should be prepared **in consultation** with your primary thesis advisor and must be submitted to the department office by the **end of the 12th week** of the semester, for review by the Graduate Affairs Committee. Failure to submit a revision by this deadline means you will **not** be allowed to register for research and thesis units in the following semester!

  If **not approved,** there were substantial concerns with formatting, written expression, or the scope of the project. If this occurs, meet with your advisor and committee members to review the comments from the department committee and discuss these concerns. You may **not** register for thesis or research units again until the department Graduate Affairs Committee approves your revised prospectus.

Required Prospectus Components and Accompanying Guidelines:

General Considerations:

A. All text must be single-spaced in 12-point Times New Roman font.
B. Margins should be one inch on all sides.

I. Title

A. Convey the specific nature of the proposed study.

B. Format title so that:
   1. Only the first word and proper nouns are capitalized, or
   2. All words except articles, prepositions, and conjunctions are capitalized.

II. Abstract ***limit: 300 words***

A. Briefly convey the research to be conducted, including the rationale so that a general audience can understand what you will be doing.

B. Include a hypothesis or objective of the study, an overview of methods, and a brief statement of expected results and their significance.

C. Avoid acronyms, abbreviations, citations, and technical jargon specific to the field.

III. Objectives ***limit: ½ page***

A. List specific hypotheses to be tested, expressed as statements.

B. If work will not test a hypothesis, clearly state the objective(s) to be met.

IV. Background ***limit: 2 ½ pages***

A. Introduce the topic to a reader outside of the field.

B. Review the primary literature, summarizing the key information that is relevant to your proposed research.
   1. Synthesize information; do not simply list unconnected facts.
   2. Include relevant unpublished data (with citations) from your lab.
   3. Properly reference all published and unpublished work that you mention.

C. Briefly restate your objectives, explaining how objectives relate to earlier work covered in the literature review.

V. Overview of Study Design ***limit: ½ page***

1. Present the conceptual approach to the study.
2. Summarize the general experimental design.

VI. Methods and Materials ***limit: 1½ pages***

A. Describe experimental procedures to be used, measurements to be made, analyses to be performed and statistical tests to be applied.
   1. Explain the purpose of each experiment (topic sentences are useful). Do not just list "cookbook" steps; explain **why** you are doing a procedure.
   2. Explain treatments versus controls, where appropriate.
   3. Include enough detail for ***the reader*** to evaluate whether a given method is appropriate to address your objectives, such as sample sizes and the number of replicates. Where appropriate, state how long it may take you to complete major experiments or to process all of your samples.

B. Include sources of specialized reagents, samples or equipment as appropriate.

C. Include citations for published procedures, software, and statistical references.

D. If the proposed work involves animal or human subjects, state that you and your Advisor will comply with all appropriate federal and institutional guidelines.

VII. Data Interpretation ***limit: ½ page***

A. If you are testing a hypothesis:
   1. Compare the experimental outcomes that you might expect if your hypothesis is *correct* to the outcomes you might expect if your hypothesis is *incorrect*.
   2. Discuss how the **statistical tests** given in the Methods will be used to support or refute a hypothesis: What will you compare to what, to test whether a hypothesis can be rejected? If a hypothesis is not rejected, then what might you conclude?
   3. Where possible, provide alternative models for unexpected results.

B. If your Prospectus has an objective that does not involve testing a hypothesis (for example, developing a new method or procedure):
    1. Explain what anticipated results will indicate the successful achievement of your objective(s).
    2. Where possible, anticipate and interpret alternative or unexpected results.

VIII. Significance: ***limit: ½ page***

A. Explain how your proposed work will, in a broad sense:
    1. Fill gaps in current knowledge or improve upon current procedures.
    2. Contribute to the advancement of your field, benefit society, and/or lead to improvements in human or environmental health.
    3. Lay the foundation for future research.

IX. Budget ***limit: 1 page***

A. Itemize major expenses.

B. Specify the sources of funds to be used to cover these expenses.

X. References ***No page limit***

A. List all citations mentioned in the text, in one of the following formats:
    1. In numerical order as mentioned in text; reference in text by number.
    2. In alphabetical order, by last name of the first author.
    3. In alphabetical order and enumerated, with numbers cited in the text.

B. **Follow one consistent format for all references**! Use the format followed by a leading journal in your particular discipline of biology. Be consistent!

XI. Figures and Tables (optional) ***No page limit***

A. Use figures, tables, or flowcharts where needed to illustrate complex ideas, designs and methods. This can help explain complicated experimental designs, intracellular pathways, geographical sampling locations, etc.

B. All figures and tables must include concise, explanatory legends or captions**. Table captions are presented above the table, while figure legends are presented below the figure**.

C. If you reproduce someone else's figure, you must include a citation in the legend indicating where this figure or schematic diagram came from. This citation needs to be included in your References section.

Note: The MS thesis of former members of your lab should be cited like any other work, following the standard format for a dissertation.

NOTE: You are expected to work at least 10 hours per week for each unit of BIOL 5970 and 5990 for which you register. You can take a maximum of 2 units of BIOL 5970 plus a maximum of 3 units of BIOL 5990 in any one semester. It will therefore take you at least 2 semesters of BIOL 5970/5990 enrollments to graduate. Do not try to register for all 10 units of 5970+5990 in one semester!