

Applicants to the Biological Sciences BS/MS Program's Independent Research Track must outline their anticipated research plan by completing this document. Applicants, their thesis advisor, and their nominated co-chair/second committee member must fill out their respective sections of the research plan directly on this document. The completed research plan will serve as a guide for the student's anticipated thesis research progress while in the Master's portion of the BS/MS program. When this document is completed by all required contributors, the applicant must attach the plan as a PDF to their graduate studies application.

Use File > Make a Copy or File > Download Microsoft Word to generate an editable document.

### BS/MS Thesis Expectations

*To be reviewed by student, thesis advisor, and co-chair*

Successfully defending a thesis requires that the student has obtained sufficient data to make a **significant contribution to a research paper** that will be published in a peer-reviewed journal. Such contribution could consist of one or more of the following:

- The student produces **at least one figure or a table** that could be included in a peer-reviewed research paper.
- The student's effort lays a **significant foundation** for further research (for example, the student conducted a genetic screen).
- The student develops a **new technique or improves an existing method**, producing a significant, applicable technical advance.

In addition to their research progress (for which they earn BGGN 271 credit units), MS students are expected to complete 12 units of academic coursework. Please refer to the BS/MS Program website for the most updated information on our program's expectations and requirements.

If an unforeseen or catastrophic event or circumstance (e.g., a pandemic) prevents a student from completing their research project in the lab, the student may be permitted (as an exception) to pursue a literature-based thesis under the guidance of their committee chair. For this exception to be reviewed, the committee chair must contact program leadership: BS/MS program faculty co-directors Katherine Petrie ([kpetrie@ucsd.edu](mailto:kpetrie@ucsd.edu)) and Ella Tour ([etour@ucsd.edu](mailto:etour@ucsd.edu)). The scope and expectations for the literature review should be determined in consultation with the student's committee. If the student has already collected data, those data are expected to be incorporated alongside the literature review.

**To be completed by the student *and reviewed by the thesis advisor***

Please write your responses below the questions. Copying directly from grant proposals does *not* fulfill the requirement to create a research plan.

1. Provide a brief background (1-2 paragraphs) of your research project and state your project's overarching goal. Include any cited papers at the end of your answer.
2. What hypothesis will you test or what experimental questions will you aim to answer? Outline the general plan of your research project, including the broad design of experiments to be performed. Indicate if there will be substantial collaboration with other individuals (e. g., graduate students, postdocs, and other BS/MS students).
3. Provide a quarter-by-quarter timetable for your graduate research project. Briefly identify experimental milestones (key experiments) that you expect to complete while in the MS program, and their estimated time of completion.

**Note:** Summer research is not a program requirement or expectation. Any summer research completed at the graduate level does not apply toward the 6-quarter residency requirement.

| Quarter | Research Goal(s) |
|---------|------------------|
|         |                  |
|         |                  |
|         |                  |
|         |                  |
|         |                  |

4. What is the estimated quarter and year of your thesis defense?

Quarter: \_\_\_\_\_

Year: \_\_\_\_\_

5. When did you begin performing research in your proposed Master's thesis lab (specify time spent as a volunteer and time spent enrolled in BISP 199/196/193)?
6. Graduate students are expected to participate in the scientific activities of your lab and your department or section. Examples of such activities are: participation in lab meetings, journal clubs, presentation of your research in scientific meetings, attendance

of departmental and division seminars. Additionally, Master's students are invited to present a poster in the Biology Research Showcase (usually held in the 10th week of the Spring quarter). Describe which academic activities you will take part in.

Student's Printed Name: \_\_\_\_\_

Date: \_\_\_\_\_

Student's Signature: \_\_\_\_\_

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**To be completed by the thesis advisor *and reviewed by the student***

Successful graduate students have a clearly defined mentorship plan which includes frequent formal and informal interactions with their immediate mentor and their thesis advisor, in which they discuss their data, review the progress of their project and discuss future experiments. Respond to the questions below to describe the mentorship plan for your BS/MS student (this plan should be discussed and approved by the student, the student's daily research mentor, and the student's thesis advisor. Please confirm the following by checking the boxes below:

- ☐ Based on the student's research proposal, the student can produce enough data to successfully defend a Master's thesis.
- ☐ The proposed timeline for this research is feasible.
- ☐ I will provide sufficient resources for the student to perform the thesis work, including mentorship and the necessary materials to conduct the experiments proposed in this research plan.
- ☐ I will advise the student on potential committee members. MS students must have 3 faculty on their thesis committee, 2 of whom must be [Biological Sciences faculty](#). The second committee member (co-chair) nominated at the time of admissions must be a Biological Sciences faculty member.
- ☐ I acknowledge that the MS program is a self-pay, research for academic credit degree program. The program does not require research products as a part of student matriculation through the program, and does not require students to engage in any research employment activity (all research efforts are considered to be a part of academic credit). As such, I acknowledge that Biological Sciences Master's students cannot be hired in the GSR title codes and are not eligible for remuneration for research training effort.

Please respond to the following questions:

1. What expectations does the thesis advisor have of the student (e.g. intellectual engagement in lab meetings, reading papers, independence in the lab, communication)?
2. What laboratory techniques should the student gain proficiency and independence in during their time in the lab?
3. Graduate students must enroll in BGGN 271 between 4-12 units per academic quarter (Fall, Winter and Spring). Each unit corresponds to a minimum of three hours of work per week in thesis research and lab related activities. Students may enroll in different units of BGGN 271 during each of the quarters in the program.

With this in mind, the student and faculty thesis advisor have agreed that the BS/MS student will conduct research at least \_\_\_\_\_ hours per week on their project during the academic year.

**Note:** Summer research is not a program requirement or expectation. Any summer research completed at the graduate level does not apply toward the 6-quarter residency requirement.

4. How often and for how long will the student meet with their daily research mentor and their thesis advisor?

### **Creating a Mentorship Compact**

The BS/MS program encourages students and advisors to establish and agree upon a set of expectations for work culture, teamwork, professional development, support, personal conduct, and open communication on research progress. Some resources to help with these discussions can be found below.

- [Types of Expectations Included in Mentoring Contracts and Agreements](#)
- [Mentoring Compact/Contracts Examples](#) - five sample frameworks for a customized compact
- [Scripps Institution of Oceanography, Advisor-Doctoral Student Expectations at SIO](#)
- [Jacobs School of Engineering, Mentoring](#)

Mentors and mentees are encouraged to collaborate on a mentorship compact to be used as a living document, to be reviewed and referenced throughout the student's academic career.

### **When Academic Expectations are Not Met**

BS/MS Thesis Advisors (PIs) cannot initiate actions like dismissal of the student from their lab if the Master's student is not making satisfactory progress towards degree requirements and/or showing consistent poor performance (based on program determination, please [see](#) Master's Thesis Standards for our program). Concerns with academic progress and performance of graduate students are governed by the policies of the Division of Graduate Education and Postdoctoral Affairs (GEPA), and typically require a performance improvement plan.

BS/MS Thesis Advisors (PI) should notify the BS/MS program of any concerns in their student's academic progress.

Note: BS/MS students do not have the option to switch labs while in the MS program.

Thesis Advisor's Printed Name: \_\_\_\_\_

Date: \_\_\_\_\_

Thesis Advisor's Signature: \_\_\_\_\_

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**To be completed by the Co-Chair/Second Committee Member:**

In addition to their Thesis Advisor, the student must find at least one other thesis committee member (who is a tenure-track faculty member with the School of Biological Sciences) prior to admission to the MS program. The Thesis Advisor will serve as Chair of the thesis committee. If the Thesis Advisor is not a tenure-track faculty member with the School of Biological Sciences, the second committee member must serve as Co-Chair of the committee.

The student's second committee member must be a [Biology faculty member](#) with one of the following titles: Professor, Professor Emeritus, Distinguished Professor, Associate Professor, or Assistant Professor (note: only students conducting research with a Biology Teaching Professor may nominate a Teaching Professor, any rank, as their second committee member). **Students who nominate an ineligible second committee member will forfeit their eligibility for the BS/MS program.**

Please confirm the following by checking these boxes and signing below.

- ☐ Based on the student's research proposal, the student can produce enough data to successfully defend a Master's thesis.
- ☐ The proposed timeline for this research is feasible.
- ☐ I am eligible to serve as the second committee member (or co-chair) of the student's thesis committee.

Co-Chair/Committee Member's Printed Name: \_\_\_\_\_

Date: \_\_\_\_\_

Co-Chair/Committee Member's Signature: \_\_\_\_\_