Advisor-Doctoral Student Expectations at SIO

This document articulates the *minimum* expectations for both students and advisors at SIO. These expectations are intended to lay the foundation for building a successful student-advisor relationship.

Advisor Expectations

Advisors will be committed to the education, training, and funding of their graduate student. Advisors are important role models to their student, and will lead by example, facilitating the training of the graduate student in the skills needed to be successful. In addition to scientific expertise, these skills include oral and written communication, management skills, ethical conduct, mentoring, and scholarly professionalism, including but not limited to engaging in respectful interactions and establishing and maintaining respectful and fair collaborations. The advisor will encourage their student to seek opportunities in professional development. In addition, each quarter, the advisor and their graduate student will define the expected research and academic accomplishments through a 299 syllabus. A suggested template can be found here (and as Appendix 1 below) and the content of the SIO 299 syllabus should consider the PhD milestones in Appendix 2 below.

Advisors will recognize the power differential between themselves and their student, and the disproportionate influence of their words and actions. Advisors will recognize that their students are learning new skills, and will take longer to accomplish tasks than it might take the advisor. Advisors will recognize that failure is an important part of learning. Advisors will be supportive, accessible, encouraging, and respectful to their student. They will foster the graduate student's professional confidence and encourage critical thinking, skepticism, and creativity. Advisors will be respectful of their student's intellectual, cultural, political, ethnic, gender, and other forms of diversity.

1. An advisor will establish a research environment that is intellectually stimulating, supportive, safe, and free of harassment.

2. An advisor will make a good faith effort to be knowledgeable of the policies, requirements, and deadlines of the graduate program as well as those of the institution, including curricular group requirements and applicable business office guidelines. When unsure of the policies, they will initiate and facilitate contact between the student and parties that are well-versed in the relevant policies. The advisor will guide their graduate student in these areas to ensure academic and professional success.

3. An advisor will meet regularly (at least twice per month, or at some mutually agreed- upon interval) with their graduate student and provide constructive feedback on the progress and results of ongoing research and/or coursework. Meetings are an opportunity to ask questions, discuss expectations (including, but not limited to, coursework and research), receive feedback, and set goals.

4. An advisor will work with their graduate student to develop and execute a thesis project. This will include providing advice in writing a thesis proposal and discussing how to achieve the goals of the proposal. The advisor will work with their student to ensure continuing progress.

5. An advisor will work with their graduate student to select a thesis committee. The advisor will support their student in arranging annual committee meetings to review the student's progress.

6. An advisor will provide feedback on their graduate student's written documents within a month or provide a timeline for feedback if that timeframe cannot be met.

7. An advisor will mentor their graduate student in following proper lab procedure and maintaining documentation of their work (e.g., lab procedures, computer code).

8. An advisor will discuss expectations of their graduate student's work hours, working remotely, sick leave, and vacation. The advisor will inform their student in advance of any planned absences.

9. An advisor will discuss acknowledgement of intellectual contributions to and authorship of presentations, publications, and other publicly disseminated work with their graduate student. The advisor will work with their student to present and publish the student's work in a timely manner.

10. An advisor will discuss intellectual property issues with the student regarding disclosure, patent rights, and publishing research discoveries.

11. An advisor will encourage their graduate student to attend professional meetings or workshops and make an effort to secure and facilitate funding for such activities. The advisor will promote attendance at seminars and journal clubs that are beneficial to their student's professional development.

12. An advisor will provide career advice and assist in finding a position for their graduate student following graduation. The advisor will provide honest letters of recommendation and be accessible for advice and feedback on career goals.

13. Securing graduate student funding is ultimately the responsibility of the advisor. The advisor will work with their graduate student and the graduate department to ensure the student remains funded and has adequate resources to accomplish their proposed research.

14. An advisor will anticipate conflicts between the interests of externally funded research programs and those of their graduate student and will help keep these interests from interfering with the student's thesis research.

15. An advisor will not require the graduate student to perform tasks unrelated to their academic and professional development (e.g., babysitting, dog walking, etc.).

Doctoral Student Expectations

Graduate students have the primary responsibility for the successful completion of their degree. They will be committed to their graduate education and will demonstrate this through their efforts in the classroom and research activities.

Graduate students are expected to maintain a high level of professionalism, self-motivation, engagement, scholarly curiosity, and ethical standards. Students must recognize that they represent their advisors, labs, and the institution in public and professional settings, and conduct themselves accordingly. They will seek guidance from available resources, including their research advisor, thesis committee, career counseling services, peers, and any other mentors. Graduate students will acknowledge their own responsibility for developing their career following the completion of their doctoral degree. Students will be respectful of their advisor's and lab-mates' intellectual, cultural, political, ethnic, gender, and other forms of diversity.

1. A graduate student will contribute to maintaining a research environment that is intellectually stimulating, supportive, safe, and free of harassment.

2. A graduate student will be knowledgeable of and compliant with the policies, requirements, and deadlines of the graduate program and the institution. The student will strive to meet these policies and requirements in both letter and spirit.

3. A graduate student will meet regularly (at least twice per month, or at some mutually agreed-upon interval) with their advisor(s) and provide updates on the progress and results of ongoing research and/or coursework. Meetings are an opportunity to ask questions, discuss expectations (including, but not limited to, coursework and research), receive constructive feedback, and set goals.

4. A graduate student will work with their advisor(s) to develop and execute a thesis project. This will include soliciting advice in writing a thesis proposal and discussing how to achieve the goals of the proposal. The student will work with their advisor(s) to ensure continuing progress.

5. A graduate student will work with their advisor(s) to select a thesis committee. The student will meet with this committee at least annually to report on progress and receive advice as well as constructive criticism from the committee members.

6. A graduate student will keep complete documentation of their work (e.g., lab procedures, computer code), and be prepared to share it with their advisor(s).

7. A graduate student will discuss expectations of work hours, working remotely, sick leave, and vacation with their advisor(s). The student will consult with their advisor(s) in advance of any planned absences.

8. A graduate student will discuss acknowledgement of intellectual contributions to and authorship of presentations, publications, and other publicly disseminated work with their advisor(s). The student will work with their advisor(s) to write and submit their research in a timely manner.

9. A graduate student will discuss intellectual property issues with their advisor(s) regarding disclosure, patent rights, and publishing research discoveries.

10. A graduate student will expect to attend and/or participate in professional meetings or workshops, as well as seminars and journal clubs that are beneficial to the student's professional development.

11. Though securing graduate student funding is ultimately the responsibility of the advisor(s), graduate students will work with their advisor(s) and the graduate department to ensure they remain funded and have adequate resources to accomplish their proposed research.

If you need guidance or support in fulfilling the above expectations, or to address issues that cannot be resolved between the above parties, useful resources may be found in the SIO Graduate Student Handbook and the Faculty Handbook.

The content of this document was modified from:
"Compact Between Biomedical Graduate Students and Their Research Advisors," Association of American Medical Colleges, January 2017.

Revised 10/04/2024

Appendix 1

Course Title: Graduate Thesis Research and Professional Development

Course: SIO 299

Contact Information:
Course Instructor: *Instructor's Name, Contact Information, Office location*

Course Description:
SIO 299 provides master's and doctoral students with the opportunity to conduct advanced research in the marine sciences. The Scripps Institution of Oceanography (SIO) offers a PhD or MS in Oceanography, Marine Biology, and Earth Sciences. In addition, SIO offers a joint doctoral degree in Geophysics with San Diego State University.

SIO 299 will facilitate the development of critical thinking and problem-solving skills, independent research aptitude, proficiency in using modern research tools and techniques, and the rigorous interpretation of data in the context of the current literature. It emphasizes active involvement in research projects, including field-based methods, if appropriate.
Students are strongly encouraged to develop their own research questions. Research ethics, professional development, and the responsible conduct of research will be incorporated throughout the course. Training on ensuring rigor and reproducibility for research results will be emphasized. As part of the 299 instruction, evaluation, and revision of the student's Individual Development Plan (IDP) will be prioritized to define short- and long-term career goals.

While employment (e.g., a GSR or IA appointment) is performed as a service for a defined period or a specified set of activities, academic effort under SIO 299 is undertaken in pursuit of a defined academic goal (MS or PhD) that is not always associated with a precise expectation of time or with predetermined activities. This means that learning outcomes and assessment methods will be determined and administered over several years. However, a subset of objectives that should be achieved in a particular quarter must be discussed to ensure timely grading and completion each quarter.

Prerequisites: Admission to an SIO PhD or MS graduate program. Enrollment requires permission of the instructor, typically the thesis research advisor or co-advisor.

Units: Up to 12 units per quarter with one advisor (with the possibility of up to 16 units if the student has multiple advisors). Each unit represents 3 hours or more of academic activity per week, as outlined by UC San Diego Academic Senate and the Western

Association of Schools and Colleges (WASC) credit-hour policy. Therefore, 12 units of SIO 299 credits correspond to a minimum 36 hours of academic activity per week for each week of the quarter. To remain a full-time student, individuals must be registered for 12 units per quarter. Early career PhD students and most MS students will be enrolled in a combination of coursework and research (SIO 299) to satisfy their full-time status. However, more senior graduate students are expected to be primarily focusing on academic activities related to SIO 299.

Grading:

S/U grades only. All work is due no later than Friday of Finals Week. Final Grades are due no later than Tuesday following Finals Week. Any requests for additional time should be made in accordance with UCSD's policy on Incompletes: https://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Regulations/500#B

Course Topics:
We expect that course topics will vary from quarter to quarter; there may be topics not listed here that will be relevant for some students and research groups.

1. Research Methods
   - Overview of research paradigms and approaches
   - Formulating research questions and objectives
   - Understanding the research process
2. Literature Review and Conceptual Framework
   - Conducting a comprehensive literature review
   - Critical analysis of the relevant published data
   - Identifying research gaps and justifying the research study
   - Developing a conceptual framework
3. Research Design, Data Collection, and Data Analysis
   - Design of experimentation, observations, statistical methods, and/or models
   - How to perform experiments, data analysis, and/or modeling
   - Data collection methods
   - Data analysis and interpretation

- Quantitative data analysis
- Qualitative data analysis
- Interpreting research findings and drawing conclusions

4. Writing and Presenting Research Findings
   - Scientific writing skills
   - Effective data visualization and graphical representation
   - Oral presentation skills
5. Research Ethics, Responsible Conduct of Research, and Professional Development
   - Ethical principles in research
   - Professional conduct in workplace
   - Professional and respectful communication skills
   - Plagiarism and intellectual property rights
   - Review and discussion of Individual Development Plan (IDP)

Learning Outcomes:

Upon completion of the course, the student will have enhanced and further developed skills in the following areas.

1. Formulation of research hypotheses in the context of current knowledge
2. Determination of scientific approaches to testing a research hypothesis
3. Proper lab experimental design, field sampling strategies, data analysis methods, model design, and/or access to archived data to ensure rigor and reproducibility
4. Performing experiments, field work, model simulations, statistical analyses, and/or archived data syntheses to address a research hypothesis
5. Analysis and interpretation of data
6. Development of alternative hypotheses and explanations for the results
7. Synthesis of results with current literature to formulate new scientific knowledge and hypotheses
8. Written and oral presentation of research findings (communication skills)
9. Consideration and incorporation of ethical issues in research
10. Evaluation and guidance of short- and long-term professional goals (IDP review)

Assessment Methods:

1. <u>Research Practice</u>: Evaluation of the student's laboratory, field,

engineering or computational techniques, data collection and analysis, problem-solving skills, attention to laboratory/field safety, and practice of the responsible conduct of research. Regular attendance and participation are required as is attendance for any scheduled research group meetings. Performance metrics can include development and utilization of project-specific methodologies, successful organization of research activities, and

acquisition of background knowledge through literature review. Please refer to the PhD milestones document (Appendix 1), which provides a basic set of expectations to be met each year in order to receive a satisfactory grade.

2. Written Research Report: A written report that includes the background & significance, initial plans, new results, data analysis and interpretation, and future plans.
3. Oral Presentation: An oral presentation that contains background & significance, initial plans, new results, data analysis and interpretation, and future plans.

Resources and Materials:

Resources and materials will be provided by the thesis advisor's research program or collaborators. Students are expected to familiarize themselves with the specific protocols and techniques relevant to their project. The course instructor and associated personnel are available for consultation and support.

Additional Information:

Maintaining a safe and respectful environment in the lab/field is required at all times. All safety procedures should be strictly followed. Also, while this course is largely self- directed, regular meetings with the course instructor and thesis or guidance committee are required to ensure progress, support, and instruction. This includes development and discussion of the Individual Development Plan (IDP) with the thesis advisor and committee members for students in their second year and beyond.

Campus Policies

- UC San Diego Principles of Community
- UC San Diego Policy on Integrity of Scholarship
- Religious Accommodation
- Nondiscrimination and Harassment
- UC San Diego Student Standards of Conduct

Appendix 2

Ph.D. TIMELINE/MILESTONES (9/23, please refer to the SIO PhD Student Handbook for updates)

● Year 1. Coursework and departmental exam. Student completes core coursework. To be in good standing, students must maintain a GPA above 3.0 and successfully pass the departmental exam for their curricular group, which will normally be scheduled during the summer following the first year. Curricular groups specify their own expectations for the first year, which may include identifying an advisor (if the student starts out with a rotating advisor), identifying an initial research project, and possibly completing sufficient research to present results as part of the departmental exam.

● Year 2. Initial research. At the start of the academic year, the student should work with the advisor to determine objectives for the year. This process can take advantage of information in the SIO Advisor/Advisee Expectations document and can make use of a student-initiated Individual Development Plan. In some curricular groups, students may be expected to complete additional coursework in year 2 (maintaining a GPA above 3.0). As an outcome of the departmental exam, the exam committee might communicate to the student specific recommendations to address identified shortcomings e.g. through additional coursework or supervised projects. Recommendations from the exam committee should be addressed in year 2 in consultation with the advisor and the exam committee. By the end of year 2, a student's research progress should be sufficient to contribute to the first chapter of their PhD thesis. Student should fulfill the ethics course requirement (usually by taking SIOG 232 Ethical and Professional Science or SIOB 273 Professional Ethics in Science).

● Year 3. Advancement to candidacy (qualifying). At the start of the academic year, the student should work with the advisor to determine objectives for the year. Student should form their PhD thesis committee by the end of winter quarter. To be in good standing, the student must qualify by the end of Year 3*. Before qualifying, student should have completed all required coursework, as specified by their curricular group, including fulfilling the ethics course

requirement. The qualifying exam requires writing and orally defending (to the PhD

committee) a thesis proposal that lays out a research plan for the PhD thesis.

● Year 4. Ongoing research. At the start of the academic year, the student should work with the advisor to determine objectives for the year. Student should meet with their PhD thesis committee at least once to check on progress since qualifying. By the end of year 4, student will have completed and written up research representing at least half of the material that will appear in the final dissertation. Ideally, this will have been submitted as at least one journal article, and a second article may be in preparation.

● Year 5. Defending. At the start of the academic year, the student should work with the advisor to determine objectives for the year. Student should be well on their way to finalizing their PhD theses (e.g., research for all chapters is complete) at the end of year 5 in preparation for the upcoming defense. We recognize that there may be extenuating circumstances*, and the student's advisor and the PhD thesis committee can agree to extend the student's academic timeline beyond year 5 if adequate justification can be provided and if funding is available from the advisor.

*For students who are in the Fall 2019 cohort or older, the Graduate Division issued an automatic extension of time limits due to COVID-19.. Students who had not advanced to candidacy by winter 2020 received a 2-quarter extension to their pre-candidacy time limit and a 2-quarter extension to their support time limit.

Students who had advanced to candidacy by winter 2020 received a 4-quarter extension of their support time limit.

These university-approved extensions do not come with a guarantee of additional department funding.