**SIO199 for Marine Biology Majors**

Applications for SIO199 will be reviewed to ensure that projects are expected to involve primary, experimental/analytical approaches that augment training in marine biology and that echo the curricular focus of marine biology undergraduate major. Thus, projects

should involve analysis of biological processes or systems at a molecular, biochemical, cellular,

organismal, or ecosystem scale.

All applications will also be reviewed for adequate depth in the articulation of research goals and planning of the work to be carried out. Answers to questions 1‐3 below should be written in complete sentences (not bullet points or lists), and generally 70‐150 words each.

Submit the following as a PDF as an attachment to your online EASY application. In a few cases these questions are similar to the generic UCSD online submission but are needed here to provide a complete application.

**Questions to be answered by student applicant (in consultation with proposed instructor):**

1. What research question(s) will you address in your independent project? Begin this section with at least one sentence of background information (existing knowledge) that your question(s) build on.

2. How will you address these questions experimentally? Describe the methodologies, procedures, and tools/techniques you plan to use.

3. How will the experimental data be analyzed? Include any software or other tools to be used for data analysis not described above, if applicable.

4. How many hours per week will you participate in this project? Four units of academic credit

requires approximately 12 hours/week during the academic year. During a 5 week Summer

Session, 24 hours/week are required for four units of academic credit.

5. A report on the work conducted is expected for completion of the special studies course with a passing grade. What kind of report will you give (e.g. paper, lab presentation etc.)?

6. SIO199 can be requested to be taken for:

a) Credit (units only)

b) Marine biology major elective

c) Marine biology major LAB elective

For a) or b) above, the type of report/evaluation can be chosen by you and your advisor.

For c) a research paper report is required. **This research paper MUST be graded according to the rubric at the end of this document** (due date up to advisor).

Marine Biology major credit is subject to petition and approval by the SIO Department.

Which of these are you requesting at this time: a b c

**Questions to be answered by proposed instructor**

1. How will you participate in training/mentoring of this student?

2. While we expect you to play an active role in mentoring of independent study students, the

Marine biology major allows PIs to delegate the role of day‐to‐day training and supervision of these students to postdocs or PhD students in your group. If someone other than you will serve as the primary supervisor of the student:

a. Who is that person and what is their role (PhD student or postdoc?)

b. How many other undergraduates does this person supervise?

c. Describe this person’s role in training, supervision and guidance of the student, including the

frequency of contact.

3. By sponsoring this application, you are agreeing to submit a grade (P/NP) for this student at the end of the quarter using the online eGrades system. How will you evaluate the student’s effort, accomplishments and knowledge to determine whether they have earned a passing grade? This should include evaluation of some type of report on the project created by the student (e.g. a paper or lab meeting presentation). **NOTE for marine biology major “lab elective” credit a research paper is required. This research paper MUST be graded according to the rubric at the end of this document. Due date for this paper is at the faculty advisor’s discretion.**

4. Please review the information regarding safety requirements that need to be met by all

undergraduates conducting laboratory research, prior to project initiation. Please confirm that you will ensure the requirements are met and indicate what research‐

dependent training will be completed by the student. If there are no safety training

requirements (i.e. if the project has no wet lab component and involves only computational or

other “dry lab” work), please indicate that here.

5. Please indicate the number of individuals in each category currently in the lab. Each category

must have a numeric value of 0‐99.

-PhDs

- Post Docs

-Masters students

- Undergraduates enrolled in BILD 98/99 and/or BISP 193/196/198/199

- Volunteers

- Research Scientists/Visiting Scholars

- Technicians

- Others

NAME:

PID:

SIO 199 Report Rubric

|  |  |  |  |
| --- | --- | --- | --- |
| Category | Excellent | Good | Fair |
| Title | Informative title that clearly reflects research question | Title does not adequately reflect research question | Does not include a title |
| *Points possible* | 1 | 0.5 | 0 |
| Abstract | Abstract clearly presents research question and hypothesis, summarizes methods and results, provides conclusion and significance | Abstract may not adequately present research question and hypothesis, does not/poorly summarizes methods, results **or** significance | Abstract incomplete, does not present research question and hypothesis, does not/ poorly summarizes methods, results and significance |
| *Points possible* | 2 | 1.5 | 0.5 |
| Introduction | Intro provides sufficient background and rationale for study, clearly describes the study objectives, cites references | Intro may not adequately describe study objectives or does not provide sufficient background and rationale or cite references | Intro does not/ poorly describes objectives, background and rationale, and does not cite references |
| *Points possible* | 5 | 3 | 1 |
| Materials and methods | M&M contain enough information evaluate and reproduce study, contains only necessary/relevant info | M&M may be missing some important info to evaluate or reproduce study, contains some unnecessary/irrelevant info | M&M too vague/missing too much info to evaluate or reproduce study |
| *Points possible* | 2 | 1.5 | 1 |
| Results | Results include a thorough written description of key results, properly formatted tables and labeled figures with figure legends | Results include only a partial written description, tables are improperly formatted, or figures are not labeled or given a legend | Results do not include a written description, tables are missing or improperly formatted and figures are missing or not labeled or given a legend |
| *Points possible* | 6 | 4 | 2 |
| Discussion | Discussion clearly interprets the results and uses them to address research question, relates findings to other published work, describes logical conclusions and their significance, cites references | Discussion inadequately interprets the results and/or relates them to the research question, inadequately connects results with other published work and/or does not properly cite references, provides inadequate conclusion and significance | Discussion does not interpret the results correctly or relate them to research question, provides poor or no conclusion and significance |
| *Points possible* | 7 | 5 | 3 |
| References | References are complete and in correct format in text and literature cited | References provide correct information but are in wrong format | References incomplete/missing important information |
| *Points possible* | 2 | 1.5 | 1 |
|  |  |  |  |

Total: / 25