ABI 187: Animal Biology Seminar
The Practicum Proposal
(What it looks like, how to format it, etc.)

This usually constitutes a description of standard scientific inquiry with hypotheses that make predictions about future observations derived from experiment. The “Issues paper” option differs from an experimental biological research project only in that the observations come from the literature, interview, opinion surveys and the like. Both kinds of practicums use the process and principles of science in the same way. Thus, experimental biological research and issues paper proposals take the same form described herein.

I. Brief Outline of Practicum Proposal (each of these items is detailed on following pages)
   A. Signature page: (See Appendix 1 for the signature page)
   B. Cover page (Format in some attractive way)
      1. Descriptive title of proposed Senior Practicum (centered)
      2. Your name as on your UC documents
      3. Projected graduation date
      4. Descriptive title of proposed Restricted Electives coursework
      5. Name and departmental affiliation of Academic Advisor
      6. Name, affiliation, and addresses of mentor for the Senior Practicum
      7. Date
   C. Project Description including tentative timetable (see outline beginning on page 3)
   D. Academic Plan
      1. Academic Interest. Statement of broad areas of academic interest with regard to specialization (Written with mentor guidance)
      2. Restricted electives. (See appendix 2 for Restricted Electives page) Course list for restricted electives specialization including a brief justification of each course (Selected with, and approved by the mentor)
      3. Academic Schedule. Schedule for each remaining quarter (Organized with academic advisor guidance)
   E. Curriculum Vitae (Résumé) including short and long “statements of purpose”.
   F. Opportunities Related to the Practicum
Practicum Proposal

I. Signature Page (See Appendix 1 for the signature page)

Print out Appendix 1 and obtain the required signatures. Include in the proposal packet as the first page. Student and mentor signatures on the proposal indicate that both accept responsibility for the project. The specifics of the proposal, however, are tentative, and aspects may change as the project develops. This proposal becomes part of the student’s academic file. If major changes occur to the proposal, a mentor-signed revised-proposal must be submitted.

II. Cover page (Format in some attractive way)
   A. Practicum Title (Descriptive title of proposed Practicum)
   B. Name (Your name as on your UC documents)
   C. Projected graduation date
   D. Coursework Specialization Title (Descriptive title of proposed coursework specialization)
   E. Academic Advisor (Name and departmental affiliation)
   F. Mentor (Name, affiliation, and addresses of mentor for the Practicum)
   G. Date

III. Project Description

The project description should be a maximum of four single spaced pages of text. The student and mentor sign this document and submit it to an ABI 187 instructor (master advisor) for approval and inclusion in the student’s file. Format the proposal as outlined below. Refer to the style guide handout for the practicum report. Take care in the preparation and writing. Everything, including style, grammar, sentence structure, spelling and clarity is carefully evaluated.

Practicum Title (Same as on cover page. Probably the last part of the proposal you should formulate. Frame a title that reflects the goals of the proposed work, and not something like “The Effect of X on Y”.)

A. Background Information to the Question (Convince the reader with logical arguments that the hypotheses you formulate are the most reasonable and the work you propose is really significant. Essentially this section corresponds to the first two paragraphs of the introduction to a scientific paper you learned about in ABI50A)
   1. Introduce the broad context in which the problem you choose exists and then state the problem (paragraph one).
   2. Develop the arguments for your hypotheses and put them and your research objectives into a scientific context. Cite relevant literature when doing so.
End this set of arguments with a statement of the question (paragraph two and, potentially, one or two more).

B. **Goals Statement (Hypotheses)** *(State the hypotheses that you will test. We have spent lots of time in ABI 50 A and ABI 187 discussing the construction and testing of hypotheses. This corresponds to the third paragraph of the introduction to a scientific paper)*

1. State your hypotheses.
2. In sentence and paragraph form provide a brief list in logical sequence of the research objectives you must obtain to test your hypotheses.
3. State the critical datum or data you seek that could falsify either of your hypotheses.

Do not “test” well established fact or already established ideas, unless you can first convince the reader with sound arguments that such fact or ideas are wrong.

C. **Tentative protocol and timetable** *(This can be a timeline or in table form, but is not a strict schedule that you will absolutely have to follow. Rather, this section causes the student to accomplish several objectives.)*

1. From the list of research objectives you provide in your goals statement, set out the order in which experiments must be done, what should come first, second, third, etc., and think about how long each one of these steps might take.
2. Provide brief protocols for each experiment.
3. Choose reasonable goals for a project that should last about 2 quarters. For example, if you must replicate an experiment twice, and each time takes 4 months, then maybe you can only do it once, or do these replicates simultaneously, or alter the experiment somehow.
4. Be certain that you demonstrate you will learn something that you did not know before the work was done.

D. **Importance to self, society, and biology** *(This section includes a more personal take on the importance of your project than is the Introduction. Here, you can state what the project means to you as a student or as a person. Why do you want to do this project? What will you learn?)*

IV. Academic Plan

A. **Academic Interests.** Written with the guidance of the mentor, this constitutes a statement of the student’s broad areas of academic interest and particular area of specialization.

B. **Restricted Electives.** Selected with and approved by the mentor, the academic plan includes a list of courses that the student takes to fulfill the Restricted Electives requirement for graduation in the ABI major (See Appendix 2). This consists of 25 quarter hours of *upper division courses*; lower division courses
generally do not qualify. Independent Research (199 units) must be approved by the mentor together with a brief written explanation about how they fit into the academic plan. The courses should fulfill one of the following criteria:

1. Teach skills needed to complete the practicum. For example, if collecting numerical data needing analysis, take an advanced course in statistics.

2. Teach procedures required in the laboratory. For example, take 199 research credit with the mentor before the practicum begins to learn highly technical processes where training is unlikely to be available elsewhere.

3. Provide background adding depth and breadth to knowledge about the practicum project.

C. Academic Schedule. Organized with academic advisor guidance, this constitutes a schedule of classes the student will take during each remaining quarter.

V. Curriculum Vitae (CV, Résumé) (Limit this to two pages. Format it in an attractive way. Go to one of the meetings at the Resume Clinic 12:00-1:00 pm any weekday at the Internship and Career Center, South Hall, for guidance on how to write an effective Résumé)

A. Personal information

1. Name; Citizenship; Birthdate (optional but not a bad idea to include)

2. Contact information (Address and phone number, either home, work, e-mail, or webpage address, whichever reliably reaches the student)

B. Statement of Interests (One objective paragraph statement of interests and most likely career goal and alternates, i.e., an expanded statement of purpose)

C. Education (Junior colleges attended; current university, college, major, minor, expected graduation date; list of “important” classes; current GPA)

D. Motis Operandi (What you do to make best use of resources available to you)

E. Work and Volunteer Experience (Demonstrate good work ethic and technical and other skills. Include dates, position titles, employing organizations, supervisors, duties and skills demonstrated, reason for leaving if not obvious)

F. Special skills (Relevant skills, be explicit)

G. Awards and Accomplishments (Relevant special awards and accomplishments)

H. References (Names and addresses of 3 people who can write substantive letters of recommendation. Annotate the list to explain what each writer can contribute (e.g., how you demonstrate your intellect, communications skills, creativity, work ethic, humanity. Before listing a referee ask their permission.)

VI. Opportunities Related to the ABI Practicum
UCD has a number of opportunities for undergraduate student to present and fund their work. While no requirement for ABI students to participate in any of these opportunities exists, they can be rewarding in a number of ways. Not exhaustive, this list should make you think about how to make the most of your research experience.

A. **Internships**

Under the guidance of a faculty or staff member, a campus department or off-campus organization, students may frequently undertake specific tasks in order to learn a technical skill or a particular set of procedures relevant to animal biology. There are numerous state, federal and industry organizations that have such internships, and these can have the added advantage of positioning a student for employment upon graduation. In some fields internships are essential for later employment - forensics for example.

B. **President's Undergraduate Fellowship.**


The President's Undergraduate Fellowship Program (PUF) supports undergraduate students doing research or creative projects under the guidance of UC Davis faculty members. Students from all discipline areas are eligible to apply. Past projects have involved laboratory research, field studies, survey research, film production, design and creation of art elements, music composition, fine arts performances, travel to library or research collections, and many other endeavors. Group projects are not appropriate; separate, but linked, projects may be. The maximum award is $2000.

C. **Annual Undergraduate Research, Scholarship and Creative Activities Conference at UC Davis.**

The conference is described below. This conference along with many other types of opportunities for undergraduate research funding and organizations is listed at the following website:


UC Davis undergraduates in all academic fields are invited to submit an abstract and registration information to participate in the annual Undergraduate Research, Scholarship and Creative Activities Conference. Research projects must have been conducted under the supervision of a faculty member or professional in the field. The conference is designed to acquaint undergraduates with the process and academic rigors of presenting research in a scholarly manner.

Additionally, the conference will stimulate interaction between students and faculty, while encouraging undergraduates to pursue advanced degrees toward the goal of research and college teaching.

Students will present their research projects to faculty, staff and other conference participants in either an oral or poster format. The oral presentation will allow students to give a 15-minute presentation of their topic and includes...
time for questions. Each oral session will be moderated by a faculty member. In
the poster session, students will have designed a visual poster representing their
research and will be presenting their work to individual conference participants.

Look for the annual announcement in January of each year.

VII. General expectations of the Practicum

A. It should be consistent with the above format.

B. It should take approximately two academic quarters to complete, from the start of
the work to the submission of the project report. It is not an open-ended mini-
master's thesis.

C. It must provide the student opportunities to demonstrate critical thinking, develop
practical skills, communicate, and be creative in an animal biology and scientific
environment.

D. Practicum quality must reflect the expected development of general admissions
undergraduates. We expect students to do their very best and extend
themselves. Mentors assure quality of work.
**ABI Restricted Electives**

The student’s academic plan includes a list of courses that he or she will take to fulfill the restricted electives requirement for graduation in the ABI major. This consists of 25 quarter hours of upper division courses; lower division courses generally do not qualify. Independent Research (199 units) must be approved by the mentor together with a brief written explanation about how they fit into the academic plan. The courses should fulfill one of the following criteria:

1. Teach skills needed to complete the practicum. For example, if collecting numerical data needing analysis, consider an advanced course in statistics.

2. Teach procedures required in the laboratory. For example, consider 199 research units with the mentor before the practicum begins to learn highly technical processes where training opportunities are unavailable elsewhere.

3. Provide background adding depth and breadth to the student’s knowledge about the subject area of the practicum project.

<table>
<thead>
<tr>
<th>Course Name</th>
<th># of Units</th>
<th>Quarter Offered</th>
<th>Justification.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mentor Signature  
Printed name  
Date