Biochemistry Senior Thesis Guidelines

The biochemistry thesis is the capstone experience for biochemistry majors. The thesis is to be completed during the senior year. Students are expected to write an approximately 20-page paper (double-spaced, not including the references) focused on a topic within the domain of biochemistry.

There are several different ways in which students can complete this requirement:

- as an extension of a 300 or 400 level course taught by a biochemistry faculty
- as part of an independent study conducted with biochemistry faculty
- as a writing project proposed by a biochemistry faculty (this option does not involve any specific course)

Note: Students who pursue and complete an honors thesis with a biochemical emphasis do not have to write an additional thesis.

A committee of three biochemistry faculty will oversee the writing and assessment of the senior thesis. The committee will consist of a faculty advisor (either department) and two other biochemistry faculty (one from each department). Students must seek an advisor among the biochemistry faculty. The faculty advisor will provide guidance in all aspects of the process. The other committee members will be responsible for reviewing and assessing proposals as well as final drafts. Final approval of senior thesis requires consensus of the committee members.

Once the committee has been established, the student will generate two documents with guidance from the faculty advisor:

a) A schedule for completion of the project.
b) A proposal that explains the objectives of the senior thesis project. This proposal should be 1-2 pages in length and must include TEN references (full citations).

The two documents (the schedule and proposal) must be reviewed and approved by the faculty committee. Once approved by the committee, students will commence with the writing of the thesis. Students will submit final drafts according to the approved timeline. Feedback will be provided from the committee by a designated date and any necessary revisions will be completed in a timely manner. Students will be notified of the final approval of the senior thesis by the faculty advisor.

**Thesis**

The senior thesis is a review of scientific evidence relating to a specific topic in biochemistry. Within the context of the paper, a student should evaluate data critically and synthesize new ideas. The structure of the paper must include each of the following:

1. **Introduction**: The introduction will provide the background for the topic. This section is expected to be approximately 3-4 pages.
2. **Paper Analysis**: Two to three subsections required.
i. Each subsection will described in detail your evaluation of 1 or 2 primary research articles.

ii. Each subsection should include figures (maximum of two figures per paper) to help the reader understand key experimental evidence. Figures should be selected with care.

3. **Summary**: The section will provide a synthesis, supported by a model, of the ideas generated from the analyses of articles. The author must present a model that encompasses the connections drawn from their analyses (the model should be illustrated by a figure).

4. **Proposal for a new research direction**: This new direction should be based on, and supported by, experimental evidence included with the proposed model. An experimental paradigm must be articulated with clear outcomes defined by potential interpretations.

5. **Literature Cited** (use format appropriate to discipline)