BIOC 492 Senior Thesis and Graduation With Distinction in Biochemistry

SCHOOL OF MOLECULAR & CELLULAR BIOLOGY

Biochemistry Specialized Curriculum

(217) 244-6601 | biocug@mcb.Illinois.edu | mcb.Illinois.edu/departments/biochemistry Updated 12/2023

BIOC 492: SENIOR THESIS

BIOC 492 provides the opportunity to work in a research laboratory during your senior year. Participation in the program is contingent upon completion of the biochemistry core courses MCB 354 and BIOC 455. Two semesters of BIOC 492 are required.

Students are expected to discuss the senior thesis project with their faculty research advisor to determine what should be included in the thesis. The research project must consist of original research, which should attempt to answer a specific scientific question. Simply learning to master a technique is not sufficient. The best approach to your project is to have a clear understanding of the questions you are asking and why you are asking those particular questions. This understanding is aided by a familiarity with the literature in your area. Faculty research advisors will assign an appropriate grade for MCB 492 based on their personal evaluation of the student's research.

REQUIREMENTS FOR CREDIT IN BIOC 492

- Register for a minimum of 4 credit hours (or more) of BIOC 492 in the final year before graduation.
- Submit a written senior thesis according to the format below to the Biochemistry Undergraduate Program (hantak@illinois.edu) and to the student's faculty research advisor by **May 1st, 2024, 5pm**.

ADDITIONAL REQUIREMENTS FOR GRADUATION WITH DEPARTMENTAL DISTINCTION

- Register for a minimum of 6 credit hours (or more) of BIOC 492 in the final year before graduation.
- Request letter of support from faculty research advisor emailed to the Biochemistry Undergraduate Program (hantak@illinois.edu). This letter should include recommended level of distinction (distinction, high distinction, or highest distinction) and comment on whether the data presented in the thesis were generated independently by the student or part of a collaboration.
- **Submit thesis and letter of support to the Biochemistry Undergraduate Program (hantak@illinois.edu) by March 8th, 2024, 5pm.**
- Earn a minimum cumulative GPA of 3.25 at the end of penultimate semester (next to last semester).
- Level of distinction (distinction, high distinction, or highest distinction) determined by the Distinction Committee based on GPA, faculty letter of support, and senior thesis quality.

THE SENIOR THESIS

The senior thesis is a formal report of your results and should follow accepted professional standards. Your faculty research advisor will be a valuable resource for details. An acceptable thesis should describe research discoveries of sufficient quantity and quality to constitute a body of work that presents a problem, addresses that problem through specific and well-defined experimental approaches, and interprets the results in the context of the relevant research field.

Recognize that communication of your results is the final step in scientific research. Therefore, your thesis should be as clear as you can make it. A well-written, concise thesis should be understandable to researchers in allied fields as well as to specialists in your own field. Since this is an undergraduate thesis, it is not expected that students will have the same depth and level of accomplishment that might be found for a master's or doctoral thesis. An unduly long thesis is discouraged. The goal is to have a thorough, clearly written, yet concise presentation of your research.

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SENIOR THESIS FORMAT

Your thesis should contain the elements listed below and should be double-spaced using a 12-point standard font with 1-inch margins.

Title page: The title page should include the following information

- Title of thesis
- Author's name
- BIOC 492: Undergraduate Senior Thesis
- Faculty advisor/mentor(s) name, title, and department
- Date of submission

Abstract: Provide a brief summary of the research project (500 words or less). The first sentence should give a broad introduction to the field of your research and should be followed up with a more detailed sentence providing specific background for your study. The next sentences should include a summary of your objectives and results. The final sentence should indicate your final conclusions.

Introduction: Introduce the thesis topic and state why it's important. Include background information about your research topic and state the hypothesis you are testing.

Materials and methods: Describe what experiments were conducted to test your hypothesis. Consult with your faculty advisor and previous publications from the lab to determine the level of detail appropriate for this section.

Results: Present your findings in written form and show your data in graph/figure format with adequate statistics. Place each figure on a separate page at the end of your thesis and label in the order they appear in your written results section (Figure 1, Figure 2, etc). Include a figure legend briefly describing what the figure is depicting. Be sure to reference the figure number in your written results. Remember, science doesn't always work the way we think it will, and negative results are still valuable!

Discussion/conclusion: Summarize your data, discuss how this work fits into a bigger picture, and how it moves the field forward. Be sure to discuss what should come next for this research topic (future directions).

Acknowledgements: You must fully credit any data, analyses, illustrations, etc., that are produced or obtained by or through collaboration with other individuals. This credit must include the names of those with whom you collaborated and an explanation of the nature of their assistance and/or collaboration. Failure to give proper credit may disqualify you from consideration for graduation with high or highest distinction.

References: Format references using the style used by ACS. See the ACS Publications website, source type: journal article for an example of proper formatting. Arrange and number your references by the order in which they appear in your thesis. Be sure to cite your references in-text using the corresponding number from your reference section.