**BIOCHEMISTRY (PH.D.)**

https://colsa.unh.edu/mcbs/grad/biochemistry/biochemistry-phd

**Description**

The Biochemistry graduate program provides advanced knowledge, rigorous training, and analytical skills in the conduct of original research. Outstanding and diverse research opportunities are provided by nationally and internationally recognized faculty research programs in cellular structure and function, genome stability, protein structure/function, lipid metabolism, signal transduction, transcriptional and translational regulation, and mouse behavior analysis. Enabling technologies in genomics, proteomics, glycomics, neurobiology, and structural biology are available in dedicated core facilities and in individual research labs. The collaborative environment of the program fosters interdisciplinary approaches encompassing biology, chemistry, engineering and computer sciences.

**Requirements**

The Ph.D. in biochemistry requires the completion of significant, original independent research and preparation of a thesis for submission to the Graduate School. A minimum of two semesters of Doctoral Research (BCHM 999) is required. Graduate credits are earned for courses numbered 800-999. In most cases, it is expected that the Ph.D. degree will be completed within four to six years of admission to the graduate program. Demonstration of proficiency in physical chemistry and biochemistry will be assessed in the first year by examination or coursework.

**Guidance Committee:** During the first semester, the Graduate Program Coordinator will assist the student in choosing courses. Following selection of the thesis advisor, the student and the advisor jointly agree on the members of the Guidance Committee, and communicate this recommendation to the Biochemistry Graduate Program Coordinator. The Doctoral Guidance Committee Nomination Form must be completed and submitted to the Graduate School by the end of the first year. The Guidance Committee consists of five faculty members: the advisor (as chairperson), two other members of the biochemistry graduate faculty, and up to two faculty members from other graduate programs. However, only three members of the guidance committee are required for the second-year exam. The committee meets soon after selection of a thesis project to determine the student’s curriculum. Courses required by the guidance committee must be taken for credit and completed with a passing grade (at least a B–). Courses recommended by the committee may be audited or taken for credit, but in either case, the student is expected to be familiar with the subject matter of these courses. It is recommended that the Guidance Committee meet each semester thereafter to assess the student’s academic and research progress.

**Doctoral Dissertation Committee:** The Doctoral Committee is composed of the faculty advisor (as chairperson), two other faculty members in the graduate program in biochemistry, and up to two faculty members from other graduate programs. In most cases, the Guidance Committee constitutes the Doctoral Committee. The Doctoral Committee evaluates the dissertation and administers the final examination. The Doctoral Committee meets annually to assess the progress toward completion of the Ph.D. requirements.

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**Candidacy:** Candidacy is reached after passing:

1. **Qualifying Exam – Part 1**
   - The student will prepare and defend a written research proposal on a topic that is outside the thesis topic and approved by the Guidance Committee. To pass Part 1 of Qualifying Exam, the student is expected to demonstrate the ability to write a coherent proposal, and broad knowledge of biochemistry and molecular that ranges beyond the research project.

2. **Qualifying Exam – Part 2**
   - The student will submit to the Guidance Committee a written description of the thesis problem, summary of research progress to date, and outline of research goals yet to be attained. To pass Part 2 of Qualifying Exam, the student is expected to demonstrate ability to plan and conduct research, to think critically and creatively about questions in the student’s area of interest, and to be aware of current and recent research literature in these areas.

Further details can be found at http://colsa.unh.edu/mcbs/biochemistry/diagnostic-exams.

**Dissertation:** The student is required to prepare a written doctoral dissertation for submission to the Doctoral Committee. The dissertation must represent significant and original research written in a clear, comprehensible style. A copy of the complete thesis must be made available to the committee at least two weeks before the date of the final examination. Publication of the dissertation by ProQuest is required.

**Final Defense:** An oral examination of the doctoral dissertation consists of two parts: an oral presentation of the research that is open to the public, and an oral defense of the dissertation conducted by the doctoral committee. Final approval of the doctoral dissertation will be determined by a majority vote of the doctoral committee. The final examination must be completed by the date listed in the Graduate School calendar.

**Teaching Requirement:** Teaching assignments in the laboratory, in lectures, or in an individual instruction format are an essential part of the graduate academic programs of the department and are designed to give graduate students practical teaching experience. Normally, one year of part-time teaching will be required of each doctoral student.