

CHEMISTRY (BIOCHEMISTRY) - DOCTOR OF PHILOSOPHY

The Doctor of Philosophy in Chemistry with a concentration in Biochemistry is designed to teach students modern approaches to chemistry and biochemistry (courses), experimental methods to problem-solving (research), and communication skills in the discipline (seminars and colloquia). Ph.D. candidates are required to complete the courses below, pass a qualifying exam after the first year, pass both a written and oral comprehensive exam before the fourth year, and prepare a written thesis and pass a final oral examination.

Prefix	Title	Credits
Required Courses		
CHEM 475	Central Concepts in Chemistry - Safety	1
CHEM 476	Central Concepts in Chemistry - Research Ethics	1
CHEM 477	Central Concepts in Chemistry - Professional Development (Required Courses)	1
Graduate Seminar (5-11 Credits)		5-11
CHEM 510	Graduate Student Seminar ¹	
CHEM 520	Comprehensive Literature Review Seminar for Graduate Students ²	1
BCHE 542	Biochemistry I	3
BCHE 545	Molecular and Biochemical Genetics	3
BCHE 546	Biochemistry II: Central and Intermediary Metabolism	3
BCHE 647	Physical Biochemistry	3
<i>Additional Graduate-level courses</i> ³		3-9
Research Credits ⁴		24-54
Total Credits		48-90

¹ Beginning in the second semester, all Ph.D. students must enroll in 1 credit of CHEM 510 Graduate Student Seminar attending each semester. At least two credits of CHEM 510 Graduate Student Seminar must be taken for a letter grade of B- or better. The remaining CHEM 510 Graduate Student Seminar credits may be taken as S/U.

² CHEM 520 Comprehensive Literature Review Seminar for Graduate Students is given on a topic of the student's choice as part of the Comprehensive Exam and will be assigned a letter grade. A grade of C+ or lower will require the student to repeat the course a maximum of once.

³ Additional courses in subsequent years are chosen based on major emphasis area, through consultation with the thesis committee. These courses may include any course numbered 450 or above in the following subject areas: CHEM, BCHE, PHYS, MATH, CSCI, BIOL, A ST, CHME, GENE, MOLB, SOCI, EDUC, EPWS, ENVS, ANSC.

⁴ At least 18 credits must be either CHEM 700 Doctoral Dissertation or BCHE 700 Doctoral Dissertation. 700-level research credits are taken after the completion of the comprehensive exam. Remaining credits can be CHEM 600 Research or BCHE 600 Research.