

# 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
<b>Required Courses</b>		
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
CHEM 502	Central Concepts in Chemistry - Structure	3
Graduate Seminar (5-11 Credits)		5-11
CHEM 510	Graduate Student Seminar <sup>1</sup>	
CHEM 520	Comprehensive Literature Review Seminar for Graduate Students <sup>2</sup>	1
BCHE 542	Biochemistry I	3
BCHE 545	Molecular and Biochemical Genetics	3
BCHE 546	Biochemistry II	3
BCHE 647	Physical Biochemistry	3
Additional Graduate-level courses <sup>3</sup>		3-9
Research Credits <sup>4</sup>		24-54
<b>Total Credits</b>		<b>51-93</b>

<sup>1</sup> 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 must be taken for a letter grade of B- or better. The remaining CHEM 510 credits may be taken as S/U.

<sup>2</sup> 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.

<sup>3</sup> Additional courses are chosen based on major emphasis area, through consultation with the thesis committee.

<sup>4</sup> 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.