

STRUCTURAL BIOLOGY AND BIOPHYSICS (BS)

This B.S. program is suitable for students with interests in the chemical and physical aspects of molecules, using biochemistry and biophysical chemistry to study the structure, function, and interactions of biological molecules such as viruses, RNA, DNA, and proteins. Many opportunities for independent research are available to undergraduates.

Requirements

A total of 36 credits at the 2000-level or above from the following courses are required for the major.

Prerequisites

The following courses at the 1000 level are prerequisites for the major:

Course	Title	Credits
BIOL 1107	Principles of Biology I	4
MATH 1131Q & MATH 1132Q	Calculus I and Calculus II	8
Select one of the following sequences:		8-10
CHEM 1127Q & CHEM 1128Q	General Chemistry I and General Chemistry II	
CHEM 1147Q & CHEM 1148Q	Honors General Chemistry I and Honors General Chemistry II	
CHEM 1124Q & CHEM 1125Q & CHEM 1126Q	Fundamentals of General Chemistry I and Fundamentals of General Chemistry II and Fundamentals of General Chemistry III	
Select one of the following sequences:		8
PHYS 1401Q & PHYS 1402Q	General Physics with Calculus I and General Physics with Calculus II	
PHYS 1501Q & PHYS 1502Q	Physics for Engineers I and Physics for Engineers II	
PHYS 1601Q & PHYS 1602Q	Fundamentals of Physics I and Fundamentals of Physics II	

Required Courses

Course	Title	Credits
MATH 2110Q or MATH 2130Q	Multivariable Calculus	4
MATH 2210Q or MATH 2410Q or MATH 2420Q	Applied Linear Algebra Elementary Differential Equations	3
CHEM 2445	Organic Chemistry Laboratory	3
MCB 3003	Biophysical Chemistry I	3
MCB 3004	Biophysical Chemistry II	3
MCB 3010 or MCB 2000 & MCB 4026W	Biochemistry Introduction to Biochemistry and Advanced Biochemistry Laboratory	5-8
MCB 4008	Techniques of Biophysical Chemistry	3
MCB 4009	Structure and Function of Biological Macromolecules	3

Recommended Courses

Course	Title	Credits
MCB 2210	Cell Biology	3
MCB 2410	Genetics	3
MCB 2610	Fundamentals of Microbiology	4
MCB 3201	Gene Expression	3
MCB 3412	Genetic Engineering and Functional Genomics	3
MCB 3413	Concepts of Genetic Analysis	4
MCB 3421	Introduction to Molecular Evolution and Bioinformatics	3
MCB 3617	Molecular Biology and Genetics of Prokaryotes	4
MCB 3899	Independent Study	1-6
MCB 4026W	Advanced Biochemistry Laboratory	4
MCB 4997W	Senior Honors Research Thesis	3
MCB 5035		3
CHEM 3332	Quantitative Analytical Chemistry	4
CHEM 4551	Introduction to Quantum Chemistry	3
MATH 3210	Abstract Linear Algebra	3

To satisfy the writing in the major and information literacy competency requirements, all students must take one of the following courses:

Course	Title	Credits
MCB 3841W	Research Literature in Molecular and Cell Biology	3
MCB 4026W	Advanced Biochemistry Laboratory	4
MCB 4997W	Senior Honors Research Thesis	3
CHEM 3170W	Technical Communications	3
CHEM 4196W	Thesis for Undergraduate Chemistry Majors	3
Any W course approved for this major		3

University General Education Requirements

Every student must meet a set of core requirements to earn a baccalaureate degree, in addition to those required by the student's major course of study and other requirements set by the student's school or college. For more information about these requirements, please see General Education Requirements (<https://catalog.uconn.edu/undergraduate/gen-ed-requirements/>).

College of Liberal Arts and Sciences Degree Requirements

Students must meet a set of requirements established by the college in addition to the University's General Education requirements. For more information, see the College of Liberal Arts and Sciences (<https://catalog.uconn.edu/undergraduate/liberal-arts-sciences/#requirementstext>) section of this catalog.