MOLECULAR BIOPHYSICS MINOR

MINOR DESCRIPTION

The Minor in Molecular Biophysics provides students with interdisciplinary training at the intersection of molecular biology, chemistry, chemical biology, physical chemistry, and molecular physics. Students are strongly encouraged to gain foundational knowledge for the minor by pursuing a major in MB&B, Chemistry or Physics. Molecular biophysics is distinguished by an emphasis on analytical, structural and quantitative research investigations of biomolecular and macromolecular systems. The Molecular Biophysics Minor requires seven credits, including an introductory course, advanced laboratory course, journal club, independent research, physical chemistry, and advanced electives. Students can choose from a selection of courses each semester to satisfy requirements. Topics of active research include protein design, structure and folding, molecular models of enzyme mechanisms, protein-DNA interactions, biofilm formation, molecular pores, and other membrane proteins.

ADMISSION TO THE MINOR

As Molecular Biophysics is an interdisciplinary minor, it is strongly recommended that undergraduate students gain foundational knowledge by majoring in one of these three areas: Molecular Biology and Biochemistry, Chemistry, or Physics.

MINOR REQUIREMENTS

The Molecular Biophysics Minor requires a total of seven credits:

Code	Title	Hours
Introductory Course		
PHYS207	Introduction to Biophysics (Introductory Course)	1
or CHEM309	Molecular and Cellular Biophysics	
or CHEM325	Introduction to Biomolecular Structure	
Advanced Laboratory Course		
MB&B/CHEM395	Structural Biology Laboratory	1
Journal Club		
MB&B307 & MB&B308	Molecular Biophysics Journal Club I and Molecular Biophysics Journal Club II	1
Independent Research		
CHEM423 & CHEM424	Advanced Research Seminar, Undergraduate and Advanced Research Seminar, Undergraduate	1
or MB&B423 & MB&B424	Advanced Research Seminar, Undergraduate and Advanced Research Seminar, Undergraduate	
or PHYS423 & PHYS424	Advanced Research Seminar, Undergraduate and Advanced Research Seminar, Undergraduate	
Physical Chemistry Course(s)		
MB&B381	Physical Chemistry for the Life Sciences	1,2
or CHEM337 & CHEM338	Physical Chemistry I and Physical Chemistry II	
or PHYS316 & PHYS213	Thermal and Statistical Physics and Waves and Oscillations	
Advanced Elective Course(s)		
Select one or two elective courses from the list below.		1,2

Advanced Elective courses can be chosen from:, BIOL265, BIOL266, BIOL310,BIOL322, CHEM321, CHEM342, CHEM382, CHEM383, CHEM386, CHEM387, CHEM396, MB&B237, MB&B340,MB&B516, MB&B520, MB&B523, MB&B535, PHYS214, and PHYS524.

Independent research must be conducted with or in collaboration with a Molecular Biophysics faculty member (https://www.wesleyan.edu/molbiophys/people/). Senior thesis research may be used to complete this requirement.

ADDITIONAL INFORMATION

At Wesleyan, students participating in the molecular biophysics program have the opportunity to select research projects with varying degrees of emphasis on biophysics, biochemistry, biological chemistry, bioinformatics, and/or molecular biology. The common element among participants is an emphasis on a quantitative, molecular-based mode of inquiry in research.

All Molecular Biophysics minors complete independent research projects with affiliated faculty and participate regularly in weekly meetings of the Molecular Biophysics Journal Club (MB&B507 and MB&B508), in which research papers from the current literature are presented and discussed. Journal club students also meet regularly with seminar visitors in the area of molecular biophysics. The program hosts an annual retreat where undergraduate and graduate students are expected to present their research either orally or in poster format. (https://www.wesleyan.edu/molbiophys/activities/retreat.html) Students are also encouraged to present their work at an international scientific meeting, and the program typically provides some financial support for their expenses.