

BIOCHEMISTRY AND MOLECULAR BIOLOGY (BACHELOR OF SCIENCE, B.S.)

Requirements

The Bachelor of Science Major in Biochemistry and Molecular Biology is an interdisciplinary program offered jointly by the departments of Biology and Chemistry. It is designed to prepare students for graduate level education or careers in biochemistry, cell and molecular biology, and related biotechnology fields.

Code	Title	Credit Hours
General Studies		
Students must complete General Studies courses (http://catalog.missouriwestern.edu/undergraduate/university-information/academic-standards-regulations/baccalaureate-degree/#bachelor-general-studies)		42-47
Major Requirements		
BIO 105	Principles of Organismal Biology	4
BIO 106	Principles of Cell Biology	4
BIO 205	Genetics	4
BIO 225	Ecology	4
BIO 310	Molecular Cell Biology	4
or BIO 430	Molecular Basis of Disease	4
CHE 111	General Chemistry I	5
CHE 120	General Chemistry II with Qualitative Analysis	5
CHE 310	Organic Chemistry I	3
CHE 311	Organic Chemistry Laboratory I	2
CHE 321	Quantitative Analysis	4
CHE 340	Physical Chemistry for the Biological Sciences	4-5
or CHE 383/384	Physical Chemistry: Thermodynamics and Kinetics	
CHE 370	Biochemistry I	4
CHE 470	Biochemistry II	3
CHE 495	Seminar in Chemistry	2
Select one of the following:		8-10
PHY 110 & PHY 111	College Physics I and College Physics II	
PHY 210 & PHY 211	University Physics I and University Physics II	
Select one of the following:		5-6
MAT 165 & MAT 166	Calculus with Analytic Geometry I: Differentiation and Calculus with Analytic Geometry I: Integration	
MAT 167	Calculus with Analytic Geometry I	
Electives		
Select a minimum of twelve credit hours from Biology or Chemistry courses numbered 300 or higher. ¹		12

¹ CHE 383 Physical Chemistry: Thermodynamics and Kinetics may not be used as an elective course if CHE 340 Physical Chemistry for the Biological Sciences is taken in the core requirements. CHE 426 Instrumental Methods may not be taken as an elective if CHE 326 Instrumental Analysis is taken.

ACS Certification in Biochemistry

Students are eligible to receive certification in the area of Biochemistry from the American Chemical Society (ACS) if the following course work is completed.

Code	Title	Credit Hours
Certification Requirements		
CHE 383 & CHE 384	Physical Chemistry: Thermodynamics and Kinetics and Physical Chemistry Laboratory: Thermodynamics and Kinetics	5
PHY 210 & PHY 211	University Physics I and University Physics II	10
CHE 312 & CHE 313	Organic Chemistry II and Organic Chemistry Laboratory II	5
CHE 381 & CHE 382	Physical Chemistry: Chemical Dynamics and Quantum Mechanics and Physical Chemistry Laboratory: Chemical Dynamics and Quantum Mechanics	4
CHE 326 or CHE 426	Instrumental Analysis or Instrumental Methods	4-5
CHE 441	Advanced Inorganic Chemistry	3
MAT 177	Calculus with Analytic Geometry II	3

Program Graduation Requirements

1. Earn an overall GPA of at least 2.0 and a major GPA of at least 2.0.

University Graduation Requirements

1. Earn a minimum of 120 credit hours (100 level and higher, maximum of 6 CED credit hours applicable).
2. Earn a minimum of 30 credit hours in upper-division courses. Lower-division transfer courses accepted as meeting upper-division departmental course requirements cannot be used to fulfill this requirement.
3. Earn 30 of the last 45 credit hours at MWSU in institutional coursework (exclusive of credit by examination).
4. Participate in required departmental and campus wide assessments.
5. Fulfill the Missouri Constitution requirement.
6. Successfully pass the Missouri Higher Education Civics Achievement exam.