

MOLECULAR BIOLOGY AND BIOINFORMATICS MAJOR (BS)

Department website (<https://www.uwp.edu/learn/programs/molecularbiomajor.cfm>)

The major in molecular biology and bioinformatics consists of a minimum of 43 credits in biological sciences, with additional courses in mathematics, chemistry, computer science and physics.

Program Learning Outcomes

1. Knowledge of the Natural World: Breadth of scientific knowledge, specifically, the ability to think beyond one's area of concentration.
2. Critical and Creative Thinking Skills: Experiential and problem solving skills as well as higher order qualitative and quantitative reasoning.
3. Effective Communication Skills: Competence in speaking, reading, and writing abilities.
4. Individual, Social and Environmental Responsibility: Civic knowledge and engagement (both local and global), ethical reasoning, and action; ability to interact and work with people under standard civility and professional norm.

Requirements for the Molecular Biology and Bioinformatics Major

Within the major, a minimum of 15 credits in courses numbered 300 or above must be completed at UW-Parkside. Students must maintain a minimum UW-Parkside cumulative GPA of 2.50 in all courses required for the major to graduate.

Code	Title	Credits
College of Natural and Health Sciences requirement		
New entering students, and transfer students with less than 30 college credits, choosing a major in the College of Natural and Health Sciences are required to take this course.		
UWP 101	First Year Seminar: Natural and Health Sciences	1
Required Core Courses ¹		
BIOS 101	Bioscience	4
BIOS 102	Organismal Biology	4
BIOS 210	Biostatistics	4
BIOS 260	General Genetics	4
BIOS 309	Molecular Biology	3
BIOS 453	Molecular Biology and Bioinformatics of Nucleic Acids	4
BIOS 455	Protein Biochemistry and Bioinformatics	4
BIOS 489 must be taken twice		2
BIOS 489	Molecular Biology and Bioinformatics Senior Project	
BIOS 499	Independent Study (over two semesters)	4
Students are also required to complete a minimum of 6 credits from the following list of courses:		6
BIOS 301	Cell Biology	
BIOS 303	Microbiology	
BIOS 307	Biochemical Metabolism	
Required Core Courses Subtotal		40

Mathematics, Chemistry, Computer Science and Physics Courses ²

Mathematics Course

MATH 221	Calculus and Analytic Geometry I	5
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Chemistry Courses

CHEM 101	General Chemistry I	4
CHEM 102	General Chemistry II	4
CHEM 103	General Chemistry Lab I	1
CHEM 104	General Chemistry Lab II	1
CHEM 321	Organic Chemistry I	4
CHEM 322	Organic Chemistry II	4

Physics Courses

Select one of the following: 10

PHYS 105	College Physics I
& PHYS 106	and College Physics II
PHYS 201	General Physics I
& PHYS 202	and General Physics II

Mathematics, Chemistry, Computer Science and Physics Courses	33
Subtotal	

Elective Courses

Select two of the following: 6

BIOS 300-level through 600-level courses ³

CHEM 323 Organic Chemistry Lab ⁴

CHEM 620 Advanced Biochemistry

CSCI 241 Computer Science I

CSCI 242 Computer Science II

MATH 222 Calculus and Analytic Geometry II ⁴

MATH 231 Discrete Mathematics (Same As CSCI 231)

MATH 309 Probability and Statistics (Same As CSCI 309)

MIS 322 Business Programming II

MIS 328 Database Management Systems

Total Credits 79

¹ Students must complete core courses numbered in the 300s and below before they enroll in 400-level biological sciences courses. Exception from this prerequisite requires approval from the program faculty. Students should consult with their academic advisor before registration if such a situation arises.

² Students who plan to do graduate work are advised to also take MATH 222 Calculus and Analytic Geometry II Calculus and Analytic Geometry II; and CHEM 302 Physical Chemistry I & CHEM 303 Physical Chemistry II Physical Chemistry I and II.

³ excluding: BIOS 435 Experimental Methods/Biochemistry Laboratory; BIOS 495 Senior Seminar; BIOS 499 Independent Study

⁴ Recommended but not required. Some graduate and professional schools require a second semester calculus and professional schools require a second semester calculus and/or an organic chemistry course with a laboratory component. It is recommended that students who are thinking about graduate or professional schools consult with their advisor to discuss options.

General University Degree Requirements (Bachelor's Degree)

In addition to individual program requirements, students must also fulfill the following requirements:

Requirement	Credits
Skills	7-8
General Education	36
Foreign Language**	6-8
Ethnic Diversity	3
Total	52-55

** Transfer students in sustainable management, and health information management and technology collaborative, online degree-completion programs, the business management online degree-completion program, and the flexible option degree-completion program will be exempt from the university's foreign language requirement. See appropriate academic section for further information.

Skills Requirement (<https://catalog.uwp.edu/policies/#skills>)

Code	Title	Credits
Reading and Writing		
ENGL 101	Composition and Reading	3
Computational Skills		
Select one of the following:		4-5
MATH 102	Quantitative Reasoning	
MATH 103	Elementary Statistics	
MATH 104	College Mathematics with Applications	
MATH 111	College Algebra I	
Total Credits		7-8

General Education (<https://catalog.uwp.edu/policies/#general>)

- General Education Course List (<https://catalog.uwp.edu/programs/general-education-program/#coursestext>)

Foreign Language (<https://catalog.uwp.edu/policies/#language>)

Ethnic Diversity (<https://catalog.uwp.edu/policies/#ethnic>)

Degree Requirements

Requirement	Credits
Minimum Total Credits	120
Upper Level Credits (300 level or above)	36
Residency	30

Cumulative Degree GPA: 2.0 minimum