

Name:

Campus ID:

Bachelor of Science in Bioinformatics and Computational Biology (BINF) - Requirements

85-87 credits

Last updated: 12/2025

Grade	Course	Name	Pre-requisites	Cr.
	Biology			22
	BIOL 140	Foundations of Biology: Ecology and Evolution	MATH 150 or higher or math placement	4
	BIOL 141	Foundations of Biology: Cells, Energy, & Organisms	MATH 150 or higher or math placement	4
	BIOL 302	Molecular & General Genetics	BIOL 140, 141 and CHEM 102 ^(Pre or Co-req)	4
	BIOL 303	Cell Biology	BIOL 302 and CHEM 102	4
	BIOL 300L	Experimental Biology Laboratory	BIOL 302, CHEM 102 and 102L	2
	BIOL 430	Biological Chemistry	BIOL 303 and CHEM 351	4
	Chemistry			13
	CHEM 101	Principles of Chemistry I	MATH 106 or higher or math placement	4
	CHEM 102	Principles of Chemistry II	CHEM 101	4
	CHEM 102L	Introductory Chemistry Lab I	CHEM 101 and 102 ^(Pre or Co-req)	2
	CHEM 351	Organic Chemistry I	CHEM 102	3
	Physics, Mathematics, and Statistics			19
	PHYS 111	Basic Physics I	MATH 106 or higher or math placement	4
	MATH 151	Calculus & Analytical Geometry I	MATH 150 or placement	4
	MATH 152	Calculus II	MATH 151	4
	MATH 221	Linear Algebra	MATH 151	3
	STAT 350	Stats with Applications in the Biological Sciences	MATH 150 or higher or math placement	4
	Computer Science			17
	CMSC 201	Computer Science I	MATH 150 or higher or math placement	4
	CMSC 202	Computer Science II	CMSC 201	4
	CMSC 203	Discrete Structures	MATH 140 or 151	3
	CMSC 341	Data Structures	CMSC 202 and 203	3
	CMSC 461	Database Management Systems	CMSC 341	3
	BINF Core			8
	BIOL 415	Systems Biology	BIOL 303 and (CMSC 201 or MATH 152)	4
	BIOL 416	Bioinformatics	BIOL 303 and (CMSC 201 or MATH 152)	4
	Electives			6-8
		List A Elective	See catalog	3-4
		List B Elective	See catalog	3-4

Notes

- Required grades: all required courses and their prerequisites must be completed with a grade of C or better.
- Residency requirement: at least six of the required BIOL and CMSC courses must be completed at UMBC.
- Academic sequence: after BIOL 302 is passed, BIOL 140 or BIOL 141 cannot be repeated.
- Allowed substitutions:
 - BIOL 430 by CHEM 437
 - PHYS 111 by PHYS 121
 - MATH 151 by MATH 155B
 - STAT 350 by STAT 355
 - Honors College (H) variants
- Electives:
 - List A Electives: BIOL and CHEM 4xx lecture courses of 3 or 4 credits approved by a BINF advisor (see catalog).
 - List B Electives: CMSC, IS, MATH, and STAT 4xx lecture courses of 3 or 4 credits approved by a BINF advisor (see catalog).