Bachelor of Science in Biological Sciences (BIOL BS) – Minimum Requirements

69-77 credits (33-43 upper level credits)

See Important Notes on the back of this form!

	BIOL CORE COURSES	Pre-requisites	Cr.
	BIOL 141 – Foundations of Biology: Cells, Energy & Organisms	MATH 150 or higher or placement in MATH151	4
	BIOL 142 – Foundations of Biology: Ecology and Evolution	MATH 150 or higher or placement in MATH151, BIOL 141	4
	BIOL 302 – Molecular and General Genetics (see note 3)	MATH 150 or higher or placement in MATH151, BIOL 141, BIOL 142, CHEM 101/123, CHEM 102/124 (co-requisite)	4
	BIOL 303 – Cell Biology	MATH 150 or higher or placement in MATH151, BIOL 141, BIOL 142, BIOL 302, CHEM 102	4
	BIOL 300L – Experimental Biology Laboratory	MATH 150 or higher or placement in MATH151, BIOL 141, BIOL 142, BIOL 302, CHEM 102, CHEM 102L	2
	BIOL ELECTIVES		
	_____ Column A elective (listed on back)	See catalog	3-4
	_____ Column B elective (listed on back; see notes 4 - 6)	See catalog	3-4
	_____ Column A or B elective (see notes 4 - 6)	See catalog	3-4
	_____ Column B BIOL 4XX elective (see note 7)	See catalog	4
	_____ Upper Level Laboratory elective (not BIOL 300L)	See catalog	2-4
	_____ Upper Level Laboratory elective (not BIOL 300L)	See catalog	2-4
	OTHER COURSES		
	CHEM 101 - Principles of Chemistry I	MATH 106 or higher	4
	CHEM 102 - Principles of Chemistry II	CHEM 101	4
	CHEM 102L - Introductory Chemistry Lab I	CHEM 101, CHEM 102 (pre/co-requisite)	2
	CHEM 351 - Organic Chemistry I	CHEM 102	3
	CHEM 351L – Organic Chemistry Lab I	CHEM 102, CHEM 102L, CHEM 351 (pre/co-requisite)	2
	PHYS 111 – Basic Physics I (see note 8)	MATH 106, MATH 150, MATH 151, or MATH 155, or placement in Math 151	4
	PHYS 112 – Basic Physics II (see note 8)	PHYS 111	4
	MATH 151 – Calculus & Analytical Geometry I	MATH 150	4
	STAT 350 – Stats w/Applications in Biological Sciences OR STAT 355 – Intro Prob and Stats for Scientists/Engineers	MATH 150 or higher MATH 152	4
	_____ - MATH/STAT/CMSC elective (listed on back)	See catalog	3-4

Column A electives	Column B electives	Upper Level Laboratories	MATH/STAT/CMSC
BIOL 304 BIOL 305 (note 6 BIOL 306 BIOL 307 (note 6) BIOL 313 BIOL 375 BIOL 430 BIOL 442	Any BIOL 4XX course <u>except</u> BIOL 430, 442, 495, 497H, 499, 499H, 499L or any Lab course (see note 4 - 6)	Any BIOL 3XXL or 4XXL Lab course <u>except</u> BIOL 300L	MATH 152 MATH 221
	CHEM 352 and CHEM 352L CHEM 437 CHEM 438	Two semesters of BIOL 499 (total of 4 credits or more) and one semester of either BIOL 499L or BIOL 497H	STAT 414 STAT 420 STAT 454 (see note 9)
	STAT 414 STAT 419 STAT 420 STAT 454		CMSC 104 CMSC 201

<u>Important Notes</u>:

1) Students must earn a "C" or better in all major courses AND course prerequisites.
2) Residency requirement: <u>four of the required BIOL courses and electives must be completed at UMBC.</u>
3) BIOL 141, BIOL 142 and BIOL 302 are considered an academic sequence. Once you pass BIOL 302 you may not go back and repeat BIOL 141 or BIOL 142.
4) See the Undergraduate Catalog for additional non-BIOL course that may be used as electives for the major. Biologically relevant 4XX level courses from other departments may be acceptable as a 'Column B' elective for the BIOL BS degree. <u>Prior</u> approval from the Biological Sciences Department Undergraduate Committee is required, using the form indicated in note 12. Such courses may not be used for the BIOL 4XX requirement.
5) Students can substitute CHEM 352 and CHEM 352L (must take both) for <u>one</u> Column B course. If CHEM 352 and CHEM 352L are used for BIOL residency (note 2), both courses must be taken at UMBC in fulfillment of one residency course.
6) The following courses are similar in content and only one from each group may be used as a BIOL major elective: BIOL 305 and BIOL 307; BIOL 430, BTEC 430, CHEM 437 and CHEM 438; BIOL 444 and BTEC 444.
7) At least one BIOL 4XX lecture course must be taken at UMBC. BIOL 430, 442, 497H, 499 and Lab classes may NOT be used to satisfy this requirement.
8) Students may substitute PHYS121 for PHYS111, and PHYS122 for PHYS112, but should note that PHYS121/122 may not satisfy some professional school admission requirements.
9) Students using a STAT class as a Column B course may not use the same course to fulfill the MATH/STAT elective requirement.
10) The Biological Sciences Department evaluates completion of major requirements based on COURSES completed, not CREDITS completed, because equivalent courses taken elsewhere may not be the same number of credits as the UMBC course they replace.
11) Students who are Biochemistry and Molecular Biology (BIOC) majors who wish to also pursue a BIOL BS degree may use Core BIOL, CHEM, MATH/STAT and PHYS courses from the BIOC major towards the BIOL BS degree, but MUST take <u>separate electives for the two degrees</u> (ie., no 'double-dipping' for electives).
12) Under exceptional circumstances, the Department may waive or alter a BIOL major requirement. Students seeking to petition for a waiver must consult with their academic adviser, then may submit a 'Petition for Waiver/Substitution of Program Requirements' form, found here: https://biology.umbc.edu/undergrad/forms-links/.