

Minor in Quantitative Biology - Minimum Requirements

BIOL CORE COURSES (30 credits; 7 upper-level)		Pre-requisites/Co-requisites	credit
	BIOL 141 - Foundations of Biology: Cells, Energy & Organisms	MATH 150 or higher or placement in MATH 151	4
	BIOL 142 - Foundations of Biology: Ecology & Evolution	MATH 150 or higher or placement in MATH 151, BIOL 141	4
	BIOL 302 - Molecular & General Genetics	MATH 150 or higher or placement in MATH 151, BIOL 142, CHEM 101/123, CHEM 102/124 (co-req)	4
	STAT 350 Statistics with Applications in the Biological Sciences OR STAT 355 - Introduction to Probability and Statistics for Scientists and Engineers	MATH 150 or higher MATH 152	4
	MATH 151 - Calculus and Analytic Geometry I	MATH 150	4
	MATH 152 - Calculus and Analytic Geometry II	MATH151 or MATH141 or MATH155B	4
	MATH 221 - Introduction to Linear Algebra	MATH141 or MATH151 or MATH380	3
	MATH 355 - Biomathematics	MATH152 and MATH 221	3
ELECTIVES (Choose any combination of courses for 6 credits)		Pre-requisites/Co-requisites	credit
	BIOL 312L - Modeling in the Life Sciences	BIOL 300L, STAT 350 or MATH 151 or MATH 155	2
	BIOL 303 - Cell Biology	BIOL302 & CHEM102 &(MATH150 or151 or 155)or have equivalent AP credit, or have Math test placement into MATH 151.	3
	BIOL 313 - Introduction to Bioinformatics and Computational Biology	MATH 151 and either BIOL 141 or CMSC 104	3
	BIOL 442 - Developmental Biology	You must have completed BIOL 302 and BIOL 303	3
	BIOL 445 - Signal Transduction	You must have completed BIOL 302 and BIOL 303	4
	BIOL 483 - Evolution: From Genes to Genomes	You must have completed BIOL 142, BIOL 302 and STAT 350	4
	Biol 495 - Seminar in Bioinformatics	Permission of Instructor; Junior standing. You must complete BIOL313 and BIOL430; and CMSC341. CMSC341 can be taken concurrently.	2 - 4

Important Notes:

- 1) The Quantitative Biology minor may NOT be taken with a major in Biological Sciences (BIOL BA or BS), Biochemistry & Molecular Biology (BIOC), or Bioinformatics and Computational Biology (BINF) because of substantial overlap in requirements.
- 2) At least two of the courses used to fulfill the Quantitative Biology minor must not be used to fulfill course the requirements of another major, minor or certificate.
- 3) Students must earn a “C” or better in all required courses. A course taken on a P/F basis will not count toward the minor.
- 4) At least half of the courses required for the minor must be completed at UMBC.
- 5) The Biological Sciences Department evaluates completion of minor 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.
- 6) Under exceptional circumstances, the Department may waive or alter a 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: <http://www.umbc.edu/biosci/undergrad/forms.php>.