

**UMBC UGC Program Changes & Other Request: Biological Sciences, B.A. degree: Elective 1**

Date Submitted: 9/16/2019

Proposed Effective Date: Fall 2020

	Name	Email	Phone	Dept
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UPD	David Eisenmann	<a href="mailto:eisenman@umbc.edu">eisenman@umbc.edu</a>	52256	BIOL
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**Specifics (see instructions):**

<b>Current Elective 1 Options</b> <i>(Students choose one)</i>		<b>Proposed Elective 1 Options</b> <i>(Students choose one)</i>	
BIOL 275	Microbiology	<del>BIOL 275</del>	<del>Microbiology</del>
BIOL 304	Plant Biology	BIOL 304	Plant Biology
BIOL 305	Comp. Animal Physiology	BIOL 305	Comp. Animal Physiology
BIOL 306	Molecular Biology	BIOL 306	Molecular Biology
BIOL 307	Human Physiology	BIOL 307	Human Physiology
BIOL 313	Bioinformatics Intro	BIOL 313	Bioinformatics Intro
BIOL 405	Adv Top Compar Physiolgy	<del>BIOL 375</del>	<del>General Microbiology</del>
BIOL 410	Modeling in the Life Sciences	BIOL 405	Adv Top Compar Physiolgy
BIOL 411	Bacterial Physiology	BIOL 410	Modeling in the Life Sciences
BIOL 412	Microbial Systems Biology	BIOL 411	Bacterial Physiology
BIOL 414	Eukaryotic Molecular Genetics	BIOL 412	Microbial Systems Biology
BIOL 415	Systems Biology	BIOL 414	Eukaryotic Molecular Genetics
BIOL 420	Adv Topics:Cell Biology	BIOL 415	Systems Biology
BIOL 421	Topics in Molecular Genetics	BIOL 420	Adv Topics:Cell Biology
BIOL 425	Immunology	BIOL 421	Topics in Molecular Genetics
BIOL 426	Appr To Molecular Biol	BIOL 425	Immunology
BIOL 428	Computer Appl Molec Biol	BIOL 426	Appr To Molecular Biol
BIOL 429	Topics in Molecular Biology	BIOL 428	Computer Appl Molec Biol
BIOL 430	Biological Chemistry	BIOL 429	Topics in Molecular Biology
BIOL 434	Microbial Molec Genetics	BIOL 430	Biological Chemistry
BIOL 442	Developmental Biology	BIOL 434	Microbial Molec Genetics
BIOL 444	Development And Cancer	BIOL 442	Developmental Biology
BIOL 445	Signal Transduction	BIOL 444	Development And Cancer
BIOL 451	Neurobiology	BIOL 445	Signal Transduction
BIOL 453	Physiol Bases Of Behavior	BIOL 451	Neurobiology
BIOL 454	Vision Science	BIOL 453	Physiol Bases Of Behavior
BIOL 456	Plant Molecular Biology	BIOL 454	Vision Science
BIOL 457	Phys:Marine/Est Animals	BIOL 456	Plant Molecular Biology
BIOL 463	Theor & Quant Biology	BIOL 457	Phys:Marine/Est Animals
BIOL 466	Population & Conservation Gen	BIOL 463	Theor & Quant Biology
BIOL 468	Ecology of Rivers and Streams	BIOL 466	Population & Conservation Gen
BIOL 470	General Virology	BIOL 468	Ecology of Rivers and Streams

BIOL 476	Antibiotics	BIOL 470	General Virology
BIOL 477	Appl of Biodetection Approach	BIOL 476	Antibiotics
BIOL 480	Animal Behavior	BIOL 477	Appl of Biodetection Approach
BIOL 481	Advanced Topics in Evolution	BIOL 480	Animal Behavior
BIOL 483	Evol: From Genes To Genomes	BIOL 481	Advanced Topics in Evolution
BIOL 486	Genome Science	BIOL 483	Evol: From Genes To Genomes
BIOL 487	Medical Case Studies	BIOL 486	Genome Science
BIOL 490	Chem.Comm. & Brain Disorders	BIOL 487	Medical Case Studies
BIOL 612	Microbial Systems Biology	BIOL 490	Chem.Comm. & Brain Disorders
BIOL 615	Systems Biology	BIOL 612	Microbial Systems Biology
BIOL 681	Advanced Topics in Evolution	BIOL 615	Systems Biology
GES 406	Aquatic Ecology	BIOL 681	Advanced Topics in Evolution
GES 408	Quantitative Field Ecology	GES 406	Aquatic Ecology
GES 413	Seminar In Biogeography	GES 408	Quantitative Field Ecology
BTEC 344	Epidemiology	GES 413	Seminar In Biogeography
BTEC 395	Translational Bioinformatics	BTEC 344	Epidemiology
BTEC 430	Translational Biochemistry & Molecular Biology	BTEC 395	Translational Bioinformatics
BTEC 444	Translational Cancer Biotechnology	BTEC 430	Translational Biochemistry & Molecular Biology
BTEC 453	Biochemical Engineering	BTEC 444	Translational Cancer Biotechnology
		BTEC 453	Biochemical Engineering
		MBIO 478	Marine and Environmental Biotechnology

**Rationale (see instructions):**

Pending the approval of the course change from BIOL 275 – Microbiology to BIOL 375 – General Microbiology, we would like to make BIOL 375 an option for the BIOL B.A. degree Elective 1. Since BIOL 275 will no longer be offered, we are deleting it from the elective options to avoid confusion for incoming students.

MBIO 478 is a recently approved course offered through the Department of Marine Biotechnology. This course would help to fill a need for our majors who have an interest in marine biology and its connection to the biotechnology area of study, so we would like to have it as a Column A elective option for students.

**Additional documentation:** Attaching checklist of the current BIOL BA's program requirements.

## Bachelor of Arts in Biological Sciences (BIOL BA) - Minimum Requirements

*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 & Evolution	MATH 150 or higher or placement in MATH151, BIOL 141	4
BIOL 302 - Molecular & 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		
<u>Elective 1 - Choose one</u> BIOL 275 - Microbiology BIOL 251+ BIOL252 - Human Anatomy & Phys. (see note 4) BIOL 304 - Plant Biology BIOL 305 - Animal Physiology BIOL 306 - Molecular Biology BIOL 307 - Human Physiology BIOL 313 - Introduction to Bioinformatics BIOL 430 - Biochemistry BIOL 442 - Developmental Biology BIOL 4XX - Any qualifying BIOL 4XX - (see note 5)	See catalog	3-4
<u>Elective 2</u> _____ - Any qualifying BIOL4XX lecture course (see note 5)	See catalog	4
<u>Laboratory Elective</u> _____ - Any BIOL 3XXL (not BIOL 300L or BIOL 422L)	BIOL 300L; See catalog for other prerequisites	2
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 Laboratory I	CHEM 101, CHEM 102 (pre- or co-requisite)	2
CHEM 351 - Organic Chemistry I	CHEM 102	3
PHYS 111 - Basic Physics I (see note 6)	None	4
PHYS 112 - Basic Physics II (see note 6)	PHYS 111	4
MATH 155 - Elementary Calculus I or MATH 151 - Calculus & Analytical Geometry I	Math 106 Math 150	4
STAT 350 - Stats w/Applications in Bio Sci or STAT 355 - Intro Prob and Stats for Scientists/Engineers	MATH 150 or higher MATH 152	4

## Important Notes:

- 1) Students must earn a "C" or better in all major courses AND course prerequisites.
- 2) At least half of the required BIOL courses and electives must be completed in residence: for the BIOL BA at least four of eight BIOL classes must be taken at UMBC.
- 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) Students using BIOL251 and BIOL252 to fulfill Elective 1 must take BOTH classes.
- 5) BIOL 442, 495, 497, 499, and Lab classes may NOT be used to fulfill Elective 2. The BIOL 4XX elective class must be taken at UMBC.
- 6) Students may substitute PHYS121 for PHYS111, and PHYS122 for PHYS112, but should note that PHYS121/122 may not satisfy some professional school admission requirements.
- 7) BIOL BA majors receive 23 - 27 Upper Level Credits (3XX/4XX) from BIOL BA courses that may be applied to the University requirement of 45 Upper Level credits for graduation, and 55 - 57 credits toward the 120 total credits needed for graduation.
- 8) 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.
- 9) Students who are BIOC (Biochemistry and Molecular Biology) majors who wish to also pursue a BIOL BA degree may use Core BIOL, CHEM, MATH and PHYS courses from the BIOC major towards the BIOL BA degree, but MUST take separate electives for the two degrees (ie., no 'double-dipping for the electives). Please note, the university requires students taking two different Bachelor's degrees (like the BA and BS) to take a total of 150 credits.
- 10) Students may not pursue both a BIOE and BIOL degree since the BIOE degree contains the BIOL BA curriculum within it.
- 11) 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/>.



Nichole Zang Do <nzang1@umbc.edu>

**Fwd: Emergency Course Approval for MBIO 478 - Marine and Environmental Biotechnology (Spring 2020)**

Philip Farabaugh <farabaug@umbc.edu>  
To: Nichole Zang Do <zang.do@umbc.edu>

Fri, Nov 22, 2019 at 10:57 AM

Message from Yoni Zohar about MBIO 478.

Phil  
----- Forwarded message -----  
From: <zohar@umbc.edu>  
Date: Thu, Nov 21, 2019 at 2:03 PM  
Subject: Re: Emergency Course Approval for MBIO 478 - Marine and Environmental Biotechnology (Spring 2020)  
To: Philip Farabaugh <farabaug@umbc.edu>  
Cc: Colleen Burge <colleenb@umbc.edu>

Dear Phil,

On behalf of the Department of Marine Biotechnology, I would like to extend my support of the Department of Biological Sciences using MBIO 478 for their BIOL BA and BIOL BS degree's course requirement.

Thank you for your help!

Yoni

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Yonathan Zohar  
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