

**HARFORD COMMUNITY COLLEGE- Biology A.S. Degree**  
**TOWSON UNIVERSITY- Molecular Biology, Biochemistry and Bioinformatics (MB3) B.S. Degree - Molecular Biology Concentration**

HARFORD COMMUNITY COLLEGE			TOWSON UNIVERSITY			
COURSE #	COURSE TITLE	CRS.	TU EQUIVALENCY	CORE	COMMENTS	COURSE ID#
ENG 101	English Composition (GE) (grade of C or better)	3	TSEM 102 (WAIVED)	1.	Towson Seminar	2348
MATH 109 OR MATH 203 *	Precalculus Mathematics (GM) OR Calculus I (GM)	4	MATH 119 MATH 273	2. 3.	English Composition Mathematics	4381 4407
GH	Arts & Humanities (GH)	3	Depends on choice.	4.	Creativity & Creative Development	
GB	Behavioral/Social Science (GB)	3	Depends on choice.	5.	Arts & Humanities	
CHEM 111	General Chemistry I (GL)	4	CHEM 131/131L	6.	Social & Behavioral Sciences	
CHEM 112	General Chemistry II A (GL)	4	CHEM 132/132L	7.	Biological & Physical Science w/Lab	13097/13098
				8.	Biological & Physical Science	13099/13100
				9.	Advanced Writing Seminar	
GB	Behavioral/Social Science (GB) **	3	Depends on choice.	10.	Metropolitan Perspectives	
				11.	The United States as a Nation	
GH	Arts & Humanities (GH) **	3	Depends on choice.	12.	Global Perspectives	
				13.	Diversity & Difference	
				14.	Ethical Issues & Perspectives	
<b>Total CORE in Transfer</b>		<b>27</b>				
MATH 203 OR BIO elect *	Calculus I (GM) OR BIOL program elective	3-4	MATH 273 Depends on Choice			4407
BIO 208	Genetics	4	BIOL T09 (309)		Transfers as lower level credit.	11379
BIO 120	General Biology I (GL)	4	BIOL 200/200L			13759/13760
BIO 121	General Biology II (GL)	4	BIOL 202			667
PHYS 101 OR PHYS200/203	Introductory Physics I (GL) OR Gen Phys: Mechanics & Particle Dynamics w/LAB (GL/GS)	4	PHYS 211 PHYS 241			6800 6805
PHYS 102 OR PHYS 204	Introductory Physics II (GL) OR Gen Phys: Vibrations, Waves, Heat, Electricity & Magnetism (GL)	4	PHYS 212 PHYS 242			6801 6806
CHEM 207	Organic Chemistry I	4	CHEM T31 (331)		Transfers as lower level credit.	10134
CHEM 208	Organic Chemistry II	4	CHEM T32 (332)		Transfers as lower level credit.	10135
PHYS ED ELECT	Physical Education Elective	1	PHEA TLL			10564
ELECT *	Elective	0-1	Depends on choice.			
<b>Program Requirements at Harford</b>		<b>32-33</b>				
<b>Total Program Requirements at Harford</b>		<b>60</b>				
<b>Maximum Credits in Transfer</b>		<b>64</b>				

**64 Credit Maximum.** 15 Core Curriculum units must be completed at Towson University: 4. Creativity; 9. Advanced Writing Seminar; 10. Metropolitan Perspectives; 12. Global Perspectives; 14. Ethical Issues.

\*Students must complete Calculus at Harford Community College. If MATH 109 (Pre-Calculus) is required, students should take MATH 203 (Calculus) as their Program Elective. If MATH 109 (Pre-Calculus) is not required, students should take MATH 203 as their General Education math and choose any course from the list to satisfy program elective for the A.S. Biology degree. Students opting to take the Calculus-based physics sequence (PHYS 200/203 and PHYS 204) should choose MATH 204 as their program elective to satisfy the prerequisite for PHYS 204. Students may need to take additional elective credits at HCC depending on choice of Calculus and Program Elective to meet A.S. degree requirements.

\*\* One GB or GH course must also satisfy Diversity requirement at HCC.

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**CORE REQUIREMENTS TO BE COMPLETED AT TOWSON 15 UNITS**

CORE 4:	Creativity and Creative Development	(3 UNITS)
CORE 9:	Advanced Writing Seminar	(3 UNITS)
CORE 10:	Metropolitan Studies	(3 UNITS)
CORE 12:	Global Perspectives	(3 UNITS)
CORE 14:	Ethical Issues and Perspectives	(3 UNITS)

**PROGRAM REQUIREMENTS TO BE COMPLETED AT TOWSON 32-33 UNITS**

**REQUIRED COURSES: 23 UNITS**

BIOL 409	MOLECULAR BIOLOGY	(4 UNITS)
CHEM 351	BIOCHEMISTRY I	(3 UNITS)
MATH 237	ELEMENTARY BIOSTATISTICS	(4 UNITS)
MBBB201	PROGRAMMING FOR BIOLOGISTS OR	(4 UNITS)
COSC 175	GEN COMPUTER SCIENCE	(4 UNITS)
MBBB 301	INTRO TO BIOINFORMATICS	(4 UNITS)
MBBB 493	SEMINAR IN BIOETHICS	(1 UNIT)

**SELECT ONE OF THE FOLLOWING:**

MBBB 495	CAPSTONE PROJECT*	(3 UNITS)
BIOL 491	ELECTIVE IN INDEPENDENT RESEARCH*	
CHEM 491	INTRODUCTION TO RESEARCH IN CHEMISTRY I*	
COSC 495	INDEPENDENT STUDY*	

\*COURSES MAY BE REPEATED FOR A TOTAL OF 6 UNITS TOWARD THE MAJOR

**COURSES FOR MOLECULAR BIOLOGY CONCENTRATION: 9-10 UNITS**

BIOL 408	CELL BIOLOGY	(4 UNITS)
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**SELECT ONE OF THE FOLLOWING LABORATORY COURSES: (2 UNITS)**

BIOL 312	GENETICS LABORATORY
BIOL 410	MOLECULAR BIOLOGY LABORATORY
BIOL 412	CELL BIOLOGY LABORATORY

**BIOLOGY UPPER LEVEL ELECTIVE (3-4 UNITS)**

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**Additional Bachelor Degree Requirements**

- A C (2.0) or higher is required in all major and minor courses
- A cumulative grade point average (GPA) of 2.0 is required
- 32 units of the bachelor's degree must be completed at the upper level (courses numbered 300 or above)

<b><u>Total Credits to B.S. Degree</u></b>	<b>(120)</b>
Harford Biology A.S. Degree	60
Completion of Core at TU	15
Completion of Major Requirements at TU	32-33
Elective Credits at TU	12-13

