

# BIOLOGY: Biomedical Engineering

(3:2 Washington University – StL)

## MILLIKIN UNIVERSITY [B.S. Degree, Biology: Biomedical Engineering (3:2 WashU)] - 8 Semester Plan

Semester #1	Term: _____	Hours	Spg/Fall/Evry	Semester #2	Term: _____	Hours	Spg/Fall/Evry
BI 105/155: Ecology and Evolution & Lab		4		BI 205 Cellular Biology & Lab		4	
CH 121/151: Gen Chem & Intro Chem Lab I		4		CH 122/152: Gen Chem II & Intro Chem Lab II		4	
IN 140: University Seminar		3		MA 240: Calculus II		4	
EN 181: University Writing		3		CS 135: Intro to Computer Science		3	
MA 140: Calculus I		4		Creative Arts Requirement		3	
Semester Total		18		Semester Total		18	
<b>Cumulative Total</b>		<b>18</b>		<b>Cumulative Total</b>		<b>36</b>	
Semester #3	Term: _____	Hours	Spg/Fall/Evry	Semester #4	Term: _____	Hours	Spg/Fall/Evry
BI 200: Genetics With Lab		4		US Cultural Studies		3	
CH 301/251: Organic Chemstry and Lab		4		EN 281: Writing in the Disciplines		3	
PY 151/171 University Physics		4		CH 302/252: Organic Chemstry II and Lab		4	
MA 240: Calculus III		4		PY 152/172 University Physics		4	
				MA 305: Differential Equations		3	
Semester Total		16		Semester Total		17	
<b>Cumulative Total</b>		<b>52</b>		<b>Cumulative Total</b>		<b>69</b>	
Semester #5	Term: _____	Hours	Spg/Fall/Evry	Semester #6	Term: _____	Hours	Spg/Fall/Evry
International Cultures & Structures		3		BI ____ : Biology Content Category		4	
US Structural Studies		3		International Cultures & Structures		3	
BI ____ : Biology Content Category (or 3 credits)		4		BI ____ : Biology Content Category		3	
CO 200: Public Speaking		3		Global Studies		3	
CH 331: Biochemistry		3		BI 482: Senior Seminar		1	
BI 392 : Research		1		History or LIterature (If not met)		3	
Semester Total		17		Semester Total		17	
<b>Cumulative Total</b>		<b>86</b>		<b>Cumulative Total</b>		<b>103</b>	
Semester #7	Term: _____	Hours	Spg/Fall/Evry	Semester #8	Term: _____	Hours	Spg/Fall/Evry
FIRST YEAR DUAL DEGREE - WASH U				SECOND YEAR DUAL DEGREE - WASH U			
BI 3058: Physiological Control Systems (Systems Content Req)		2		BIE 301A - Quantitative Physiology		4	
BIE 301B: Quantitative Physiology (Systems Content Req.)		4		Second Year Degree Curriculum at Wash. U.		28	
First Year Dual Degree Curriculum at Wash U.		24					
Semester Total		30		Semester Total		32	
<b>Cumulative Total</b>		<b>133</b>		<b>Cumulative Total</b>		<b>165</b>	

## Major Requirements:

Core (12 Credits)	<ul style="list-style-type: none"> <li>• BI105/155 Ecology &amp; Evolution</li> <li>• BI205 Cell Biology</li> <li>• BI200 Genetics</li> </ul>
Research (1 credit)	<ul style="list-style-type: none"> <li>• BI391 or 392 Research</li> </ul>
Senior Seminar (1 credit)	<ul style="list-style-type: none"> <li>• BI481 or 482 Senior Seminar</li> </ul>
Upper-level Content Courses (15-16 credits) <i>Students must select at least 1 from each category</i>	<ul style="list-style-type: none"> <li>• Ecology Content</li> <li>• Cell/Molec Bio Content</li> <li>• Systems Content</li> <li>• + 1 additional content</li> </ul>
Chemistry (19 credits)	<ul style="list-style-type: none"> <li>• CH121/151 Gen Chem 1</li> <li>• CH122/152 Gen Chem 2</li> <li>• CH301/251 Organic Chemistry</li> <li>• CH302/252 Organic Chemistry 2</li> <li>• CH331 Biochemistry</li> </ul>
Mathematics (7 credits)	<ul style="list-style-type: none"> <li>• MA305 Differential Equations</li> <li>• MA340 Calculus III</li> </ul>
Physics (8 credits)	<ul style="list-style-type: none"> <li>• PY151/171 University Physics 1</li> <li>• PY152/172 University Physics 2</li> </ul>
Additional Courses	<ul style="list-style-type: none"> <li>• CS135 Computer Science 1</li> </ul>

**Content Courses:** *Students must select at least 1 from each category, for a total of 4. Must earn a C- or better*

Ecology	Cell/Molecular	Systems
BI 314 Ecology	BI 302 Histology	BI 301 Comparative Anatomy
BI 320 Field Ecology	BI 304 Developmental Biology	BI 303 Entomology
BI 323 Animal Behavior	BI 312 Immunology	BI 306 Comparative Animal Physiology
BI 335 Physiological Ecology	BI 330 Microbiology	BI 322 Neurobiology
BI 340 Conservation Biology	BI 407 Molecular Genetics	BI 325 Vertebrate Biology
BI 380 Ecological Journeys		BI 326 Plant Biology
BI 404 Evolution		BI 206 & BI 207 Human Anatomy & Physiology I & II # <i>(must take both to count as one Content Course)</i>

## General Education Requirements:

University Studies Courses (37-39 credits)	<ul style="list-style-type: none"> <li>• IN140 University Seminar</li> <li>• EN181 University Writing</li> <li>• EN281 Writing in the Disciplines</li> <li>• US Cultural Studies</li> <li>• US Structural Studies</li> <li>• Global Studies</li> <li>• International Cultures &amp; Structures <i>(must complete 2)</i></li> <li>• Creative Arts</li> <li>• Natural Science with a Lab Experience <i>(met through the major)</i></li> <li>• Public Speaking (CO 200)</li> <li>• Quantitative Reasoning <i>(met through math course for the major)</i></li> </ul>
College of Arts & Sciences Distribution (6 credits)	<ul style="list-style-type: none"> <li>• Literature course</li> <li>• History course</li> </ul>

### Additional Recommended Courses:

*Students may complete a 3:2 program with Washington University-St. Louis, in which case, one Biology Content Category course from the first year in the graduate program at Washington University will be transferred back to Millikin to complete the Content Category requirements.*

*Students wishing to complete the 3:2 program at Washington University must meet requirements for admission to the Washington University program. Students may choose the 3:2, dual B.S. option, or a 3:3, B.S. and M.S. option.*