

# BIOLOGY COMPREHENSIVE MAJOR: PRE-PHYSICAL THERAPY EMPHASIS

The Pre-Physical Therapy Emphasis requires a minimum of 74 credits, including the 26-credit Biology Nucleus, 10 additional credits in Biology, and 38 credits of supporting courses.

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
<b>Total Credits</b>		<b>26</b>

Code	Title	Credits
<b>Required Biology courses</b>		
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
At least two credits of Capstone Experience courses:		2-4
BIOL 495	Senior Seminar	
BIOL 496	Senior Thesis	
<b>Total Credits</b>		<b>10-12</b>

Code	Title	Credits
<b>Minimum supporting courses:</b>		
CHEM 331	Organic Chemistry I	3
CHEM 332	Organic Chemistry II	3
CHEM 334	Organic Chemistry Laboratory I	1
CHEM 335	Organic Chemistry Laboratory II	1
CHEM 471	Biochemistry I	3
ESS 185	Lifetime Wellness	3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1
ESS 380	Biomechanics	3
MATH 213	Probability and Statistics (GT-MA1)	3
PSY 100	General Psychology (GT-SS3)	3
At least one of the following:		3
PSY 270	Development Psychology	
PSY 368	Psychopathology	
Select one of the following pairs of courses:		8
PHYS 170 & PHYS 185	Principles of Physics I (GT-SC2) and Laboratory Physics I (GT-SC1)	

<b>AND</b>	
PHYS 171 & PHYS 186	Principles of Physics II (GT-SC2) and Laboratory Physics II (GT-SC1)
<b>OR</b>	
PHYS 190 & PHYS 185	General Physics I (GT-SC2) and Laboratory Physics I (GT-SC1)
<b>AND</b>	
PHYS 191 & PHYS 186	General Physics II (GT-SC2) and Laboratory Physics II (GT-SC1)
<b>Total Credits</b>	<b>38</b>

## Capstone Course Requirement

The following courses in the Biology Major fulfill the capstone course requirement: BIOL 495 Senior Seminar, BIOL 496 Senior Thesis or EDUC 409 Secondary Student Teaching.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (<https://catalog.western.edu/undergraduate/graduation-requirements/>).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
ENG 102	Writing and Rhetoric I (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
		<b>Credits</b>
		<b>15</b>
<b>Spring</b>		
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
ENG 103	Writing and Rhetoric II (GT-CO2)	3
ESS 185	Lifetime Wellness	3
PSY 100	General Psychology (GT-SS3)	3
		<b>Credits</b>
		<b>17</b>
<b>Year Two</b>		
<b>Fall</b>		
BIOL 310	Cell Biology	3
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
CHEM 331	Organic Chemistry I	3
CHEM 334	Organic Chemistry Laboratory I	1
MATH 141	Precalculus (GT-MA1)	4
		<b>Credits</b>
		<b>15</b>
<b>Spring</b>		
BIOL 301	General Ecology	3
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
CHEM 332	Organic Chemistry II	3
CHEM 335	Organic Chemistry Laboratory II	1

2 Biology Comprehensive Major: Pre-Physical Therapy Emphasis

General Education course		3
<b>Credits</b>		<b>14</b>
<b>Year Three</b>		
<b>Fall</b>		
BIOL 312	Genetics (with recitation)	4
CHEM 471	Biochemistry I	3
ESS 380	Biomechanics	3
PHYS 170 or PHYS 190	Principles of Physics I (GT-SC2) or General Physics I (GT-SC2)	3
PHYS 185	Laboratory Physics I (GT-SC1)	1
<b>Credits</b>		<b>14</b>
<b>Spring</b>		
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1
General Education courses		3
MATH 213	Probability and Statistics (GT-MA1)	3
PHYS 171 or PHYS 191	Principles of Physics II (GT-SC2) or General Physics II (GT-SC2)	3
PHYS 186	Laboratory Physics II (GT-SC1)	1
Psychology Elective course		3
<b>Credits</b>		<b>17</b>
<b>Year Four</b>		
<b>Fall</b>		
BIOL 495 or BIOL 496	Senior Seminar or Senior Thesis	1
General Education Courses		6
Elective	Elective	6
<b>Credits</b>		<b>13</b>
<b>Spring</b>		
BIOL 495 or BIOL 496	Senior Seminar or Senior Thesis	1
General Education Course		3
Elective	Elective	11
<b>Credits</b>		<b>15</b>
<b>Total Credits</b>		<b>120</b>