

# BIOLOGY (B.S.)

## Student Learning Outcomes

- Students will demonstrate knowledge of discipline- specific content related to macro- principles describing the 3 domains of biology and the molecular nature of life.
- Students will use critical thinking by demonstrating the ability to recognize the components of a problem, formulate a strategy to solve the problem, apply comprehensive scientific knowledge to execute a solution and then evaluate the effectiveness of the solution.
- Students will demonstrate communication skills reflective of professional standards consistent biology-related associations (i.e. FASEB).
- Students will demonstrate discipline- specific core laboratory and calculation- based skills related to the characterization and classification of life forms, their components and habitats and in the molecular analysis of living species.
- Students will demonstrate readiness for post-baccalaureate entry into a workforce or acceptance into graduate or professional programs in Biology and/or health professions.
- Students will demonstrate global perspective in their understanding of how biological factors affect economics, health, technology and the environment.

## Recommended

- A Global Learning (GL) experience (<http://catalog.walsh.edu/undergraduate/academic-services/#globallearning>)

## Required

- General Education Requirements (<http://catalog.walsh.edu/undergraduate/general-education-curriculum/>)
- Internship

Code	Title	Hours
<b>Biology</b>		
BIO 101	FD: T1:Principles of Biology I	3
BIO 101L	Principles of Biology I: Lab	1
BIO 102	Principles of Biology II	3
BIO 102L	Principles of Biology II: Lab	1
BIO 103	Intro Research Immersion	1
BIO 390	Biology Internship	1-3
BIO 436	Senior Capstone Experience	2

### Biology Electives

BIO Upper-Division Electives (11 hrs. at 300-level or higher).  
Only two credits max of BIO 411/ BIO 412 can be used toward electives.<sup>1</sup>

### Chemistry

CHEM 101	FD:T1:Princ of Chemistry I	3
CHEM 101L	Principles of Chemistry I: Lab	1
CHEM 102	Principles of Chemistry II	3
CHEM 102L	Principles of Chemistry II:Lab	1
CHEM 208 & CHEM 209 or CHEM 221	Organic Chemistry I and Organic Chemistry II Essentials of Organic Chemistry	4

### Physics

PHYS 101 or PHYS 201	Principles of Physics I Physics with Calculus I	3
PHYS 101L	Principles of Physics I: Lab	1
<b>Mathematics</b>		
6 hours from below		
MATH 155	Elementary Functions I	3
MATH 156	Elementary Functions II	3
MATH 210A	Calculus I	3
MATH 211	Calculus II	3
MATH 221	Statistics	3
<b>Total Hours</b>		<b>63-65</b>

<sup>1</sup> If BIO 209 & BIO 210 are taken, one may count as an upper division elective.

*All courses required in the major must be completed with a "C-" or better in order to satisfy the major. If a student places into MATH 156, then they only need to complete MATH 156 to fulfill the math requirement. If a student places into MATH 210A, then they have completed the Math requirement for this major. If MATH 221 is required, it must still be taken. Incoming students need to place into MATH 104 in order to enroll in BIO 101 and MATH 155 to enroll in CHEM 101.*

*Recommended for some graduate programs: PHYS 102 & PHYS 102L.*

During BIO 103 Introductory Research Immersion, students will work with a biology faculty member to design an individualized plan for their biology electives. This plan must be signed off by both student and biology faculty member. Changes to the plan must be approved by the student's biology content advisor.