

BIOLOGICAL SCIENCES, CERTIFICATE OF ACHIEVEMENT

Course ID	Title	Units/ Hours
Required Courses		
BIOL V03	Introduction to Organismal Biology and Ecology	5
BIOL V04	Introduction to Cell and Molecular Biology	5
CHEM V01A	General Chemistry I	3
CHEM V01AL	General Chemistry I Laboratory	2
CHEM V01B	General Chemistry II	3
CHEM V01BL	General Chemistry II Laboratory	2
Required Additional Courses		
MATH V20	Precalculus Mathematics	5
or MATH V21A	Calculus with Analytic Geometry I	
Select one of the following groups:		10
Group A:		
PHYS V02A	General Physics I: Algebra/Trigonometry-Based	
PHYS V02AL	General Physics I Laboratory: Algebra/Trigonometry-Based	
PHYS V02B	General Physics II: Algebra/Trigonometry-Based	
PHYS V02BL	General Physics II Laboratory: Algebra/Trigonometry-Based	
Group B:		
PHYS V03A	General Physics I: Calculus-Based	
PHYS V03AL	General Physics I Laboratory: Calculus-Based	
PHYS V03B	General Physics II: Calculus-Based	
PHYS V03BL	General Physics II Laboratory: Calculus-Based	
Total Units		35

Recommended Courses

In addition to the required courses listed, it is recommended that students who seek to obtain additional insight into the field of study consider taking one or more of the following courses: ANAT V01 Human Anatomy (Units: 4); CHEM V12A General Organic Chemistry I (Units: 3)-CHEM V12AL General Organic Chemistry I Laboratory (Units: 2), CHEM V12B General Organic Chemistry II (Units: 3)-CHEM V12BL General Organic Chemistry II Laboratory (Units: 2); MATH V21B Calculus with Analytic Geometry II (Units: 5), MATH V21C Multivariable Calculus (Units: 5), MATH V24 (Units:); MATH V44 Elementary Statistics (Units: 4) or PSY V04 Introductory Statistics for the Social and Behavioral Sciences (Units: 4); MICR V01 General Microbiology (Units: 4); PHSO V01 Human Physiology (Units: 4). Although these supplemental courses may be of value to the student, please note that they do **not** satisfy the requirements for this degree.

Upon successful completion of this program, students will be able to:

- By using appropriate tools and techniques, collect, organize, analyze, and interpret data using the scientific method and contrast ideas resulting from this method with non-scientific ideas.
- Demonstrate a coherent understanding of the characteristic themes and concepts that pervade and/or unify the discipline of biology, specifically evolution, information transfer, and energetics.
- Locate, identify, evaluate, and discuss information from current primary and secondary literature on biological topics.
- Identify, explain, and evaluate in an analytical manner the hierarchical structure of biological organization.