

BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES

2023-2024 Degree Requirements

TOTAL CREDITS FOR DEGREE: 120-22

Name: _____

ID Number: _____

UNIVERSITY CORE CURRICULUM: 42 cr.

Required Fundamental Courses:

COMM 101	Oral Comm. & Pres.	3 credits	
ENGL 101	College Composition	3 credits	
UNIV 101	City-University Life	3 credits	
Senior Capstone	BIOL 449	3 credits	(Biology Seminar)

Choose Thematic Core courses in the following:

Explore the World - Choice 1		3 credits	
Explore the World - Choice 2		3 credits	
Investigate Science	CHEM 101	3 credits	(General Chemistry I)
Investigate Mathematics	MATH 180	3 credits	(College Algebra)
Interpret Creative Works		3 credits	
Understand People - Choice 1		3 credits	
Understand People - Choice 2		3 credits	
Succeed in Business		3 credits	
Appreciate & Apply the Arts		3 credits	
Discover Technology		3 credits	

MAJOR REQUIREMENTS: 60 cr.

BIOL 101	General Biology I (3)	CHEM 102	General Chemistry II (3)
BIOL 102	General Biology II (3)	CHEM 103	General Chemistry Laboratory I (1)
BIOL 103	General Biology Lab I (1)	CHEM 104	General Chemistry Laboratory II (1)
BIOL 104	General Biology Lab II (1)	CHEM 221	Organic Chemistry (3)
BIOL 205	Botany OR	CHEM 222	Organic Chem II(3)
BIOL 206	Zoology (3)	CHEM 223	Organic Chemistry Lab (2)
BIOL 210	Evolution OR	PHYS 101	Physics I (3)
BIOL 235	Ecology (3)	PHYS 102	Physics II (3)
BIOL 216	Intro to Microbiology (4)	PHYS 103	Physics Lab I (1)
BIOL 222	Intro to Genetics (4)	PHYS 104	Physics Lab II (1)
BIOL 350	Molecular/Cellular Biology (4)	MATH 175	Elementary Statistics (3)
		MATH 190	Calculus I (4)
		Choose 6 cr. of directed electives	

GENERAL ELECTIVES: 6 cr.

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CONCENTRATION: 12-14 cr.

Cellular/Molecular 12 credits

BIOL 320	Biochemistry (3)
BIOL 365	Developmental Biology (3)
BIOL 420	Immunology (3)
BIOL 300	Receptors, Sig Path, Cell Con (3)

Environmental 12 credits

BIOL 205	Botany (3)
BIOL 235	Ecology (3)
BIOL 341	Environmental Health (3)
BIOL 443	Applied Environmental Science (3)

Organismal 14 credits

BIOL 206	Zoology (3)
BIOL 225	Anatomy & Physiology I (4)
BIOL 226	Anatomy & Physiology II (4)
BIOL 410	Comparative Vertebrate An (3)

Bioinformatics 12 credits

ET 204	Programming for Eng Tech (3)
BIOL 300	Receptors, Sig Path, Cell Con (3)
BIOL 310	Bioinformatics (3)
BIOL 451	Drug Discovery and Development (3)

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PROGRAM OBJECTIVES

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

1. Recognize structure-function relationship in biological systems including membranes, nucleic acids, proteins, cells and organelles.
2. Relate the principles of cellular energetics.
3. Describe how mutation leads to evolution and species diversity.
4. Distinguish the processes involved in duplication, expression and inheritance of genetic material.
5. Compare and contrast major biological characteristics of prokaryotic and eukaryotic cells including: cell structures, replication, inheritance/recombination, expression and regulation of gene expression, and relate methods of microbial control, including physical, chemical and chemotherapeutic.
6. Evaluate, interpret and discuss scientific journal articles.
7. Plan, design and execute an experiment following the tenets of the scientific method.
8. Communicate effectively in both written and oral formats.
9. Demonstrate proficiency in the lab with the following: microscopy, basic analysis of DNA and proteins, field and environmental techniques, and lab safety.
10. Characterize the roles of humans in and on the environment.