BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES

2017-2018 Degree Requirements

TOTAL CREDITS FOR DEGREE: 120-22

UNIVERSITY CORE CURRICULUM — 42 credits

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		3 credits

Choose Thematic Core courses in the following:

Explore the World - Choice 1	3 credits
Explore the World - Choice 2	3 credits
Investigate Science	3 credits
Investigate Mathematics	3 credits
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 (**C**=taken in the Core) — 60 credits

BIOL 101	General Biology I	3
BIOL 102	General Biology II	3
BIOL 103	General Biology Lab I	1
BIOL 104	General Biology Lab II	1
BIOL 205	Botany OR	3
BIOL 206	Zoology	3
BIOL 210	Evolution OR	3
BIOL 235	Ecology	3
BIOL 216	Intro to Microbiology	4
BIOL 222	Intro to Genetics	4
BIOL 350	Molecular/Cellular Biology	4
BIOL 449	Biology Seminar (Senior Capstone)	**C**
CHEM 101	General Chemistry (Inv. Science)	**C**
CHEM 102	General Chemistry II	3
CHEM 103	General Chemistry Laboratory I	1
CHEM 104	General Chemistry Laboratory II	1
CHEM 221	Organic Chemistry	3
CHEM 222	Organic Chem/Biochemistry	3
CHEM 223	Organic Chemistry Lab	2
PHYS 101	Physics I	3
PHYS 102	Physics II	3
PHYS 103	Physics Lab I	1
PHYS 104	Physics Lab II	1
MATH 175	Elementary Statistics	3
MATH 180	College Algebra (Investigate Math)	**C**
MATH 190	Calculus I	4
Directed Electives		6

CONCENTRATION: — 12-14 credits

Cellular/Molecular — 12 credits

BIOL 320	Biochemistry	3
BIOL 365	Developmental Biology	3
BIOL 420	Immunology	3
BTEC 300	Receptors, Signaling Pathways, and Cellular Control Mechanisms	3

Environmental — 12 credits

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

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Organismal		**14 credits**
BIOL 206	Zoology	3
BIOL 225	Anatomy & Physiology I	4
BIOL 226	Anatomy & Physiology II	4
BIOL 410	Comparative Vertebrate Anatomy	3

Bioinformatics		**12 credits**
ET 204	Programming for Engineering Tech.	3
BTEC 300	Receptors, Signaling Pathways, and Cellular Control Mechanisms	3
BTEC 310	Bioinformatics	3
BTEC 450	Drug Discovery and Development	

GENERAL ELECTIVES

6 credits

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.