

## Biology - Science with Biology Concentration

### Associate in Science

Minimum of 61-68 credit hours

Biology students strive to understand the fundamental processes of life. Their studies cover everything from plants and animals to fungi and bacteria. Courses cover a wide variety of subjects including microbiology, botany, ecological systems, comparative vertebrate anatomy, zoology, genetics and physiology. Within the biology concentration, students can focus on specialized areas such as environmental science, botany and zoology. A science degree with a concentration in biology gives a student the thorough academic background needed to pursue additional education at a four-year college or university. Once the student graduates with a bachelors degree, career opportunities become available in areas such as ecology, education, pollution control, medical technology, medicine, research, forestry, wildlife management, dentistry and pharmacology.

### Course Sequence

Course ID	Course Name	Credits	Type	Min Gd
<b>Suggested Freshman 1st Semester</b>				
SCL 1001	Success in College and Life	1	Life Skills	
ENGL 1113	English Composition I	3	Gen Ed	
HIST 1483	U.S. History to 1877	OR	Gen Ed	
HIST 1493	U.S. History 1877 to Present	3	Gen Ed	
BIO 1124	General Biology I (Majors)	4	Major	
MATH 1483	Functions and Modeling*	3	Gen Ed	
<b>Suggested Freshman 2nd Semester</b>				
ENGL 1213	English Composition II	3	Gen Ed	
POLSC 1113	American Federal Government	3	Gen Ed	
BIO 1134	General Biology II (Majors)	4	Gen Ed	
CHEM 1115	General Chemistry I	5	Major	
<b>Suggested Sophomore 1st Semester</b>				
PHYS 1114	College Physics I	4	Gen Ed	
HUM	Humanities Elective	3	Gen Ed	
FA BIO	Faculty Approved Biological Science Elective	4-5	Major	
CHEM 1215	General Chemistry II	5	Gen Ed	
<b>Suggested Sophomore 2nd Semester</b>				
HUM	Humanities Elective	3	Gen Ed	
PSY 1113	General Psychology	OR	Gen Ed	
SOC 1113	Introduction to Sociology	3	Gen Ed	
BIO SUPP ELEC	Biology Support Electives	10	Support	

### Course Grouping

Major Courses: (13 credit hours); Biology Core: BIO 1124; CHEM 1115; \*4-5 credits chosen from the following major electives: BIO 2114, BIO 2125, BIO 2234, BIO 2404, and CHEM 2114

General Education Courses: (37 credit hours) English: ENGL 1113; ENGL 1213; History: HIST 1483 or HIST 1493; Political Science: POLSC 1113; Biology: BIO 1134; Chemistry: CHEM 1215; Physics: PHYS 1114, Humanities: Six credit hours; \*Social Science: PSY 1113 or SOC 1113; Mathematics: MATH 1483

Life Skills Courses: (1 credit hour) Life Skills: SCL 1001

\*Support Courses: (10 credit hours) AHP 1013, ACCT 2113, BIO 1023, BIO 2203, BIO 2215, BIO 2404, CHEM 2114, CHEM 2111, COM 2213, CS 1103, MATH 1613, MATH 1743, MATH 2013, PHYS 1214, PSY 2403, or any 5 credit hour GRMN, FREN, or SPAN course.

\*Course choice depends on the specific program for which the student is applying. See course list of the receiving institution.

### Program Notes

Notes: This program is designed for students planning to continue their education at a four-year college or university. See the front general section for information and requirement about University Parallel/Transfer Programs.

This program is designed for students planning to continue their education at a four-year college or university.

## Degree Program Course Descriptions

**BIO 1124 - General Biology I (Majors)**

*Prerequisites: ENGL 0203 or adequate placement score or by meeting determined placement measures; MATH 0313 or adequate math placement.*

4 Credits An introductory course required for all biological science majors and pre-health profession students. The fundamental principles of biology are described using a cellular approach. Students gain knowledge regarding the chemical basis of life, structural characteristics of cells to include a discussion of energetics, metabolism and genetics. Evolution and ecology are also discussed in order to provide an understanding of both the diversity of living organisms and the living world. Students recognize, discuss and correctly apply fundamental biological principles influencing their personal relationship with other life forms. A discussion of the scientific method, logical (deductive) reasoning, hypothesis testing and some common fallacies and misconceptions that cloud scientific explanations of the natural world are included. Laboratory work, an integral and required part of the course, will enhance the student's understanding of fundamental biological concepts as well as scientific procedures, laboratory technical skills, dissection and statistical analysis.

**BIO 1134 - General Biology II (Majors)**

*Prerequisites: BIO 1124*

4 Credits This second course in the General Biology series for majors in the biological sciences and related fields, takes organismal approach to studying bacterial, plant and animal diversity, and relates how various morphological features function. A discussion of the scientific method, logical (deductive) reasoning, hypothesis testing and some common fallacies and misconceptions that cloud scientific explanations of the natural world are included. Students discuss Darwinian natural selection as a mechanism for evolutionary change with emphasis on systematics in order to understand evolutionary relationships between the major classes of plants and animals. Laboratory work, an integral and required part of the course, includes a variety of dissections and hypothesis testing exercises.

**BIO SUPP ELEC - Biology Support Electives**

10 Credits 10 credit hours of support electives from the following: AHP 1013, ACCT 2113, BIO 1023, BIO 2203, BIO 2215, BIO 2404, CHEM 2114, CHEM 2111, COM 2213, CS 1103, MATH 1613, MATH 1743, MATH 2013, PHYS 1214, PSY 2403, or any 5 credit hour GRMN, FREN, or SPAN course.

**CHEM 1115 - General Chemistry I**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 1483 or MATH 1533, or both MATH 0313 and High School Chemistry or CHEM 1123.*

5 Credits This course is designed for science and engineering majors. The course covers nomenclature, atomic and molecular structure, stoichiometry, acid/base and other aqueous reactions, states of matter, phase changes, gas laws, and an introduction to thermochemistry. Laboratory experience is an integral part of the course.

**CHEM 1215 - General Chemistry II**

*Prerequisites: CHEM 1115 with a grade of "C" or better; MATH 1483 or MATH 1533 with a grade of "C" or better.*

5 Credits This course is a continuation of CHEM 1115 with emphasis on thermochemistry, intermolecular forces, properties of solutions, acid/base properties, kinetics, equilibrium, thermodynamics, electrochemistry, and organic chemistry. Laboratory is an integral part of the course.

**ENGL 1113 - English Composition I**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits The student will write well-developed compositions which demonstrate the principles of unity, coherence, and organization and which contain specific details and vivid language. The students will locate library material and incorporate researched materials into compositions.

**ENGL 1213 - English Composition II**

*Prerequisites: ENGL 1103 or ENGL 1113 taken within the last year, with strong encouragement for immediate continuation.*

3 Credits In this advanced writing course, students will create essays that explore and evaluate a variety of issues and perspectives suggested by fiction, poetry, drama, essays, and other types of cultural texts. Students will refine and augment the writing techniques they learned in ENGL 1113 or ENGL 1103 to develop well-reasoned, well-structured arguments in a clear, fluid, and engaging prose style.

**FA BIO - Faculty Approved Biological Science Elective**

3 Credits Faculty approved Biological Science elective

**HIST 1483 - U.S. History to 1877**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits After analyzing events in American history from 1400 to 1877 in such areas as revolution, geographic and social mobility, political reform, government precedents and war, students will be able to identify patterns of present day mobility, describe governmental operations in their society and help resolve conflict in society based on the student's search for change, precedents, and conflict in the American past. A general education requirement.

**HIST 1493 - U.S. History 1877 to Present**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits After analyzing events in American history from 1877 to the present in such areas as geographic and social mobility, political reform, government precedents and war, students will be able to identify patterns of present day mobility, describe governmental operations in their society and help resolve conflict in society based on the student's search for change, precedents, and conflict in the American past. A general education requirement.

**HUM - Humanities Elective**

3 Credits Humanities elective

**MATH 1483 - Functions and Modeling\***

*Prerequisites: MATH 0313 or adequate math placement; ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits The student will demonstrate: an understanding of the general concepts of relation and function and specifically of polynomial, rational, exponential and logarithmic functions; the ability to solve systems of equations by utilizing matrices and determinants; and, the ability to solve practical problems using algebraic and digital techniques. \*Pending OSRHE approval

**PHYS 1114 - College Physics I**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures and MATH 1483 or higher or APPM 1223, within the last two years or by evaluation. § Criteria for evaluation is in division office.*

4 Credits Students will demonstrate their understanding of useful concepts of kinematics and dynamics, energy and momentum, waves and sound, fluids and thermodynamics by (1) developing numerical and graphical descriptions of physical phenomena, (2) numerically predicting the results of physical occurrences, and (3) applying laboratory skills to analyze real

situations. Numerical computations will utilize algebra and basic trigonometry where appropriate.

## **POLSC 1113 - American Federal Government**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits A study of the principles, structure, processes and functions of the United States federal government.

## **PSY 1113 - General Psychology**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits A survey of the major areas of study in psychology such as motivation, learning, physiology, personality, social psychology, abnormal behavior, perception, memory, cognition/thought, and treatment.

## **SCL 1001 - Success in College and Life**

*Prerequisites: ENGL 0106 or adequate reading/writing assessment scores*

1 Credit Students will learn best practices for academic, career, and personal success. Students will discover their individual strengths, interests, and values to create a personalized plan; select and utilize resources that are applicable to their growth and success; and engage as active and responsible members of the academic community. This course should be taken during a student's first semester of college work at Oklahoma City Community College and is a required course in degree plans to satisfy the Life Skills requirement.

## **SOC 1113 - Introduction to Sociology**

*Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures*

3 Credits The student will identify the sociological dimensions of human behavior by analyzing the concepts of society, culture, socialization, institutions, social stratification and social change.