SEWARD COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS

I. TITLE OF COURSE: BI1505 - Biology I for Majors

II. COURSE DESCRIPTION: 5 credit hours
3 credit hours of lecture and 2 credit hours of lab per week.

Designed to fulfill the needs of the pre-medical and pre-veterinarian biology student, and the student who is going to enter the fields of biological related science, agriculture, physical education, or for the student who has a desire to learn more about the cell. A study of the cell structure and function. The course will deal with cellular organelles, cellular communication, and cellular metabolism, and division. Laboratory experiments will supplement the theory of lectures. For each unit of lecture credit, a minimum of three hours per week with one of the hours for class and two hours for studying/preparation outside of class is expected.

Pre-requisite:
Introduction to Chemistry, a strong high school chemistry background, or instructor approval.

III. PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:

The Science Program at Seward County Community College provides opportunities to improve and enhance each student's understanding and comprehension of the natural world through a variety of courses and experience to develop a scientifically literate citizen.

IV. TEXTBOOK AND MATERIALS:

1. Brooker, Widmaier, Grahm, Stiling, Biology Chemistry, Cells, and Genetics. McGraw Hill publishers. Second Edition. ISBN - 13: 978-0-07-740565-6
2. Laboratory Manual: Provided by the department.

V. SCCC OUTCOMES:

1: Read with comprehension, be critical of what they read, and apply knowledge gained to real life
2: Communicate ideas clearly and proficiently in writing, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.
3: Communicate their ideas clearly and proficiently in speaking, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.
4: Demonstrate mathematical skills using a variety of techniques and technologies.
5: Demonstrate the ability to think critically by gathering facts, generating insights, analyzing data, and evaluating information
6: Exhibit skills in information and technological literacy

VI. COURSE OUTCOMES:

Upon completion of this course the student will be able to:

1. Demonstrate an understanding of the nature of science, including scientific method and processes.
2. Demonstrate an understanding of the levels of organization and emergent properties of life, including basic biological chemistry, structure and function of biological molecules, and cellular structure and functions.
3. Demonstrate an understanding of bioenergetics, including enzyme activity, cellular respiration, and photosynthesis.
4. Demonstrate an understanding of cellular reproduction, including binary fission, mitosis, and meiosis.
5. Identify the basic principles of Mendelian and molecular genetics, and relate these to the basic principles of Natural Selection and evolution. Include: Classical genetics, molecular genetics (DNA replication, gene expression and regulation).
6. Design and perform experiments in a laboratory setting, including microscopy, quantitative measurement skills incorporating the metric system, analytical and statistical skills including presenting and/or interpreting graphs and tables, and experience with living organisms in the laboratory.

VII. COURSE OUTLINE:

1. Introduction to the cell (organelles and functions, cell junctions, mechanisms of development)
2. Evolution of the cell
3. Biosynthesis and energy of the cell
4. Metabolism of the cell
5. Mendelian and molecular genetics
6. Genetic mechanisms
7. Gene expression
8. Biotechnologies
9. Cell cycle
10. Cellular Differentiation (stem cells utility in regenerative medicine)
11. Cancer (causes and treatments)
12. Cellular reproduction (binary fission, mitosis, and meiosis)
13. Fertilization and development (introduce embryology)
14. Immunity

VIII. INSTRUCTIONAL METHODS:

Lecture, discussion, and laboratory exercises will be the prime means of class presentation. Prepared slides of tissue, models, charts, computer programs, video, and cellular "dissection" will be used. Class exams and lab work will be used at the appropriate times.

IX. INSTRUCTIONAL AND RESOURCE MATERIALS:

1. Commercially prepared slides
2. Student prepared slides
3. Models
4. Microscopes
5. Reference Materials
6. Internet resources
7. Videos
8. Charts
9. Centrifugation and separation apparatus

X. METHODS OF ASSESSMENT:

Methods of assessing the general outcomes and the specific course competencies:

1. Section Exams
2. Comprehensive Final Exam
3. Lab Technique
4. Lab Quizzes
5. Individual's attitude and effort
6. Research paper over appropriate topics
7. Individual's attitude and effort.
8. Laboratory report evaluation.
9. Section test results.
10. Comprehensive final test results
11. Research paper over appropriate topics and laboratory information.

SCCC Outcome #1 will be assessed and measured by class participation, written exams, and critical analysis of class assignments.
SCCC Outcome #2 will be assessed and measured by class and laboratory research interaction and communication, written exams and critical analysis of class assignments.
SCCC Outcome #3 will be assessed and measured mathematical analysis of class and laboratory research results through content specific applications.
SCCC Outcome #4 will be assessed and measured by class participation, written exams, projects and laboratory activities.
SCCC Outcome #5 will be assessed and measured by written exams, laboratory activities, and research project.
SCCC Outcome #6 will be assessed and measured by students using computers for instruction and analysis instrumentation of class
activity in the laboratory.

XI. ADA STATEMENT:

Under the Americans with Disabilities Act, Seward County Community College will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Dean of Students at 620-417-1106 or going to the Student Success Center in the Hobble Academic building, room 149 A.

XII. CORE OUTCOMES PROJECT:

The learning outcomes and competencies detailed in this course outline or syllabus meet, or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents
KRSN: BIO1020

Syllabus Reviewed: 11/20/2018 14:55:01