COURSE SYLLABUS

LAST REVIEW	Spring 2021
COURSE TITLE	Life & the Environment and Lab
COURSE NUMBER	BIOL-0119
DIVISION	Math, Science, Business and Technology
DEPARTMENT	Biology
CIP CODE	24.0101
CREDIT HOURS	5
CONTACT HOURS/WEEK	Class: 4 Lab: 2
PREREQUISITES	None
COURSE PLACEMENT	None

COURSE DESCRIPTION
This course is an introduction to the structural organization and functional process of living systems. The basic concepts of biology at the cellular, organ system, and population levels are emphasized. Included are labs covering osmosis/diffusion and pulse rate. Environmental footprint, skeletal-muscular system, digestive system, respiratory system, stress management, and carbon calculator labs are covered as well. Students may not receive credit for both BIOL 119 and BIOL 121.

General Education Learning Outcome
☐ Basic Skills for Communication
☐ Mathematics
☐ Humanities
☒ Natural and Physical Sciences
☐ Social and Behavioral Sciences

Institutional Learning Outcomes
☒ Communication
☐ Computation and Financial Literacy
☐ Critical Reasoning
☐ Technology and Information Literacy
☒ Community and Civic Responsibility
☒ Personal and Interpersonal Skills

TEXTBOOKS
http://kckccbookstore.com/

METHODS OF INSTRUCTION

A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE

Videos**:**

I. Pattern of Life's Organization
II. Living Kingdoms: Diversity of Life
III. Populations, Communities and Ecosystems
IV. A Tour of the Cell: Structure and Function
V. The Power of Metabolism
VI. Photosynthesis
VII. Cellular Respiration
VIII. Cell Division and Reproduction
IX. Asexual Reproduction
X. Patterns of Inheritance
XI. Animal Structure
XII. Circulation: Blood and Organs of Circulation
XIII. Circulation: Heart and Blood Vessels
XIV. Immunity and Blood Cells
XV. Respiration
XVI. Digestion
XVII. Diabetes: Type 1 and Type 2
XVIII. Sickle Cell Anemia
XIX. Leukemias & Cancer
XX. Endocrine Control: Systems in Balance
XXI. Stress Management and High Blood Pressure
XXII. Animal Reproduction
XXIII. Animal Development
XXIV. Skeletal System
XXV. Muscular System
XXVI. The Human Factor

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

A. List and describe characteristic elements, processes, and features common toall life.
    1. The students will list and define and/or describe characteristic elements, processes, and features common to all life.
    2. The students will define elements, atoms, molecules, and cells.

3. The students will be able to name some of the organelles of a typical cell; and describe what life processes occur in each one.
4. The students will be able to define ATP, and discuss its role in energy metabolism.

B. Explain the life processes in animals and/or plants.

5. The students will summarize and write the photosynthesis reaction as an equation.
6. The students will describe what proteins are made from.
7. The students will describe where proteins are assembled in a cell.
8. The students will describe how proteins are modified once they are assembled in the cell.
9. The students will be able to recognize that bacteria, as prokaryotes, are the simplest of cells.
10. The students will be able to describe the functions of the cell nucleus and cytoplasmic organelles.
11. The students will be able to know and explain the significance of mitosis and meiosis.
12. The students will be able to describe the function of testosterone in the male.
13. The students will be able to describe the function of estrogen and progesterone in the female.
14. The students will be able to describe the significance of ovulation and know the day that it occurs in the female menstrual cycle.
15. The students will describe the fungi, plants, and animal types of nutrition.
16. The students will be able to discuss and explain the role of chloroplasts in photosynthesis.
17. The students will be able to write and summarize the equation for aerobic respiration.
18. The students will be able to discuss the differences between bacterial, plant, and animal cells.

C. Describe the basic anatomical and physiological features of the human body and/or other mammals.

19. The students will define and name the basic functions of two of an animal's four main tissues in the body.
20. The students will define the organs of the circulatory system. They will state the main functions of arteries, arterioles, capillaries, veins, and venules.
21. The students will define white blood cells. They will describe their role in immunity by phagocytosis and making antibodies.
22. The students will name the primary organs of the digestive system. They will define the key functions of these organs. They will name the kinds of breakdown products that are small enough to be absorbed across the intestinal lining and into the internal environment.
23. The students will name the main endocrine glands and state where each is located in the human body as well as in other mammals.

24. The students will able to label and state the function of each organ in mammalian male and female reproductive systems.
25. The students will define an organ system and name organs in the system chosen to describe.
26. The students will be able to define tissues, organs, and organ systems.
27. The students will be able to explain how sperm are released from the male and what are the components of semen.
28. The students will be able to explain why fertilization usually occurs in the fallopian tube.
29. The students will be able to discuss the events and the hormones involved in the female menstrual cycle.
30. The students will describe the features of the respiratory surface that are common to all respiratory systems.
31. The students will be able to know the functions and components of mammalian blood.
32. The students will be able to list the three types of muscle and their locations.

D. Summarize the principles of basic genetics with applications to various plants and animals.
33. The students will define the difference between dominant and recessive genes.
34. The students will define somatic cells and gametes.
35. The students will be able to define a DNA molecule and explain its role in inheritance.

E. Discuss the 5 Kingdoms of living organisms.
36. The students will describe the types of organisms classified in the Kingdom Protista.
37. The students will be able to describe the structure of prokaryotic and eukaryotic cells.
38. The students will be able to define what consumers, producers, and decomposers are and give examples of each.
39. The students will be able to define and give examples of populations, communities, ecosystems; and what the biosphere is.

F. Develop the ability to make informed decisions about their health and environment.
40. The students should be able to define what stress is and how it affects their lives.
41. The students will describe what occurs during a heart attack and bypass surgery.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook
https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf

College Catalog
https://www.kckcc.edu/academics/catalog/index.html

College Policies and Statements
https://www.kckcc.edu/about/policies-statements/index.html

Accessibility and Accommodations
https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html.