



Course Name: General Biology II

Course Number: BIO* E122

Credits: 4

Catalog description: An introduction to the principles and processes operating in living organisms. This course is designed to serve as the basis for further study in biology. This section of the two-semester sequence explores the anatomy and physiology of: bacteria, archaea, plants, fungi and animals. Interactions between organisms and their environment will be discussed. 3 hours lecture and 3 hours laboratory.

Prerequisite: BIO*121 OR BIO*105

General Education Competencies Satisfied:

HCC General Education Requirement Designated Competency Attribute Code(s):

SCKX Scientific Knowledge & Understanding

Additional CSCU General Education Requirements for CSCU Transfer Degree Programs:

SCRX Scientific Reasoning

Embedded Competency(ies):

ED Appreciation of the Ethical Dimensions of Humankind (Outcomes 1 2 3 4)

Discipline-Specific Attribute Code(s):

SCI Science elective

Course objectives:

General Education Goals and Outcomes:

Scientific Knowledge & Understanding: Students will gain a broad base of scientific knowledge and methodologies in the natural sciences. This will enable them to develop scientific literacy, the knowledge and understanding of scientific concepts and processes essential for personal decision making and understanding scientific issues.

Scientific Reasoning (for CSCU Transfer Degree Programs): Students will become familiar with science as a method of inquiry. Students will develop a habit of mind that uses quantitative skills to solve problems and make informed decisions.



Embedded Appreciation of the Ethical Dimensions of Humankind: Students will identify ethical principles that guide individual and collective actions and apply those principles to the analysis of contemporary social and political problems.

1. Respond critically to ethical issues.
2. Apply appropriate concepts and terminology in identifying ethical problems, proposing and defending solutions to them.
3. Apply standards and practices of scholarship, research, and documentation to defend positions and beliefs, including reevaluating beliefs in light of unforeseen implications or new evidence.
4. Recognize the value of creative, collaborative, and innovative approaches to problem-solving, including the ability to acknowledge differing points of view.

Course Specific Objectives:

1. Differentiate between the major kingdoms and phyla
2. Construct a flow chart of the organization in and among living things.
3. Explain the theories of the origins and evolution of life and how they have changed over time.
4. Describe the requirements for animal and plant growth
5. Describe structure and function in plant systems
6. Understand the importance of plants in our everyday lives
7. Describe structure and function in select animal systems
8. Illustrate the relationships between organisms and their environment using specific examples
9. Recognize, explain and critically reflect upon human impacts on the environment
10. Interpret the findings of the classical experiments in Biology using the scientific method
11. Interpret biological information and draw logical references from representations such as formulas, equations, graphs, tables, and schematics.

Laboratory Specific Objectives:

1. Demonstrate an ability to use the light microscope
2. Demonstrate an understanding of the differences between prokaryotic and eukaryotic organisms
3. Distinguish between basic eukaryotic groups such as protists, fungi, plants and animals
4. Describe the basic structures of plants
5. Identify basic animal tissues and organ systems and be able to describe their structure and function
6. Graph and chart data from laboratory exercises
7. Interpret the findings of experiments using the scientific method
8. Apply scientific methods to investigate biological phenomena, and routine and novel problems. This includes data acquisition and evaluation, and prediction.
9. Design an experiment, collect data, interpret, evaluate and apply the data to describe the impact of environmental disturbance on plant growth and development



10. Design an experiment, collect data, interpret, evaluate and apply the data to describe the impact of hormones on the growth and development of plants
11. Correct data for instrumental and personal error, both of which are inherent in the measurements of real quantities
12. Analyze the results of a biological experiment for accuracy precision and reasonableness

Course Content:

LECTURE:

1. Origins of Life
2. Prokaryotic Organisms
3. Eukaryotic Classification
4. Plant Anatomy and Physiology
5. Plant Growth and Nutrition
6. Animal Anatomy and Physiology
7. Animal Homeostasis
8. Ecology
9. Behavior

LABORATORY:

1. Diversity of Life
 - a. Bacteria
 - b. Protista
 - c. Fungi
 - d. Plants
 - e. Animals
2. Plant Anatomy and Physiology
3. Plant Development
4. Vertebrate Anatomy and Physiology
5. Environmental Biology

HCC Safety Standard

Instruction covering all safety rules and guidelines will be provided by the instructor during the first laboratory session. The safety features of the individual laboratory will also be highlighted by the instructor. Students are expected to read and understand the rules of the HCC Science Laboratory Student Safety Contract. The students will then sign this contract signifying that they have been instructed and understand the requirements for safety pertaining to their course. The student and instructor will each keep a copy of this contract. Students must come to the laboratory prepared for the laboratory



activity. Students must abide by the safety rules and guidelines which may include wearing personal protection equipment. Failure to do so may result in removal from the laboratory by the instructor.

Date Course Created:

Date of Last Revision: 02/27/2017