Course Information

Division: Science
Course Number: BIO 100
Title: Biology Concepts
Credits: 4
Developed by: Michael McCarthy
Lecture/Lab Ratio: 3 Lecture/3 Lab
Transfer Status:

<table>
<thead>
<tr>
<th>ASU</th>
<th>NAU</th>
<th>UA</th>
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<tbody>
<tr>
<td>BIO 100, Natural Science - Quantitative (SQ)</td>
<td>BIO 100L also satisfies: Lab Science [LAB] --and-- BIO 100 also satisfies: Science &amp; Applied Science [SAS]</td>
<td>MCB 170C1 also satisfies: Tier 1 Natural Sciences (NATS)</td>
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Activity Course: No
CIP Code: 26.0100
Assessment Mode: Pre/Post Test (50 Questions/100 Points)
Semester Taught: Fall and Spring
GE Category: Lab Science
Separate Lab: Yes
Awareness Course: No
Intensive Writing Course: No

Prerequisites
ENG 091 with a grade of “C” or higher or reading placement test score as established by District policy

Educational Value
The value of general biology concepts is to provide a student not majoring in the biological sciences with a basic background in the area of biology. It will also help prepare students who are majoring in biology with a fundamental background in biology. This course along with other courses offered in other areas, will provide the student with a broader and better developed background which the institution tries to attain by requiring graduates to take the required amount of hours in general education. This course has definite aims and objectives. We attempt to make the student acquainted with such concepts as (1) energy flow that occurs between living organisms, (2) the interrelationships between plants and animals, and (3) in particular, the relationship between man and the environment.
Description
An integrated course dealing with both plants and animals, related to our environment from molecule to biosphere. A liberal studies course for non-science majors with an emphasis on contemporary issues.

Supplies
None

Competencies and Performance Standards
1. Adopt principles of cellular life.
   
   **Learning objectives**
   
   What you will learn as you master the competency:
   a. Examine chemical foundations for cells and carbon compound in cells.
   b. Identify cell structure and function.
   c. Acquire knowledge of the ground rules of metabolism.
   d. Acquaint self with how cells acquire energy.
   e. Acquaint self with how cells release stored energy.

   **Performance Standards**
   
   You will demonstrate your competence:
   o in completion of the tests
   o by completion of course assignments

   Your performance will be successful when:
   o learner participates in class discussions and activities
   o learner participates in the laboratory activities
   o learner adheres to the stipulated time schedule

2. Discuss principles of inheritance.

   **Learning objectives**
   
   What you will learn as you master the competency:
   a. Discuss cell division and mitosis.
   b. Explain meiosis.
   c. Acknowledge the observable patterns of inheritance.
   d. Explore chromosomes and human genetics.
   e. Analyze DNA structure and function.
   f. Extrapolate from DNA to proteins.
   g. Acquire knowledge on control over genes.
   h. Discuss genetic engineering.

   **Performance Standards**
   
   You will demonstrate your competence:
   o in completion of the tests
   o by completion of course assignments

   Your performance will be successful when:
   o learner participates in class discussions and activities
3. Outline principles of evolution.

**Learning objectives**

*What you will learn as you master the competency:*

a. Examine theories of life on earth.

b. Describe microevolution.

c. Examine evidences of evolution.

**Performance Standards**

*You will demonstrate your competence:*

- in completion of the tests
- by completion of course assignments

*Your performance will be successful when:*

- learner participates in class discussions and activities
- learner participates in the laboratory activities
- learner adheres to the stipulated time schedule

4. Review diversity of life.

**Learning objectives**

*What you will learn as you master the competency:*

a. Recognize characteristics of life domains

b. Identify the five kingdoms of life

c. Classify organisms using the principles of taxonomy

**Performance Standards**

*You will demonstrate your competence:*

- in completion of the tests
- by completion of course assignments

*Your performance will be successful when:*

- learner participates in class discussions and activities
- learner participates in the laboratory activities
- learner adheres to the stipulated time schedule

5. Explain plant structure and function.

**Learning objectives**

*What you will learn as you master the competency:*

a. Examine plant communities.

b. Acquaint self with plant nutrition and transport.

c. Recognize plant reproduction and development.
Performance Standards

You will demonstrate your competence:

- in completion of the tests
- participate in field trips

Your performance will be successful when:

- learner participates in class discussions and activities
- learner participates in the laboratory activities
- learner adheres to the stipulated time schedule

6. Characterize animal structure and function.

Learning objectives

What you will learn as you master the competency:

a. Identify tissues, organs, and homeostasis.
b. Discuss the integration and control: Nervous systems.
c. Identify sensory reception.
d. Discuss protection, support, and movement.
e. Identify the components of the cardiovascular system.
f. Picture graphically the respiratory system.
g. Diagram the digestive system.
h. Outline reproduction.

Performance Standards

You will demonstrate your competence:

- in completion of the tests
- by completion of course assignments

Your performance will be successful when:

- learner participates in class discussions and activities
- learner participates in the laboratory activities
- learner adheres to the stipulated time schedule

7. Recognize ecology and behavior.

Learning objectives

What you will learn as you master the competency:

a. Acquire knowledge on population ecology.
b. Appreciate community interaction.
c. Discuss ecosystems.
d. Identify the biosphere.
e. Describe human impact on the biosphere.

Performance Standards

You will demonstrate your competence:

- in completion of the tests
- by completion of course assignments
Your performance will be successful when:

- learner participates in class discussions and activities
- learner participates in the laboratory activities
- learner adheres to the stipulated time schedule

Types of Instruction
Classroom Presentation
On Campus Laboratory and field trips

Grading Information
Grading Rationale
Each student is required to participate actively in the class discussion and activities. Perfect attendance in the fifteen labs is required. Many of the labs are field trips. Pretest/Posttest assessment will be given. Post test/final will count as 10% of the course grade.

Grading Scale
A 90 - 100%
B 80 - 89%
C 70 - 79%
D 60 - 69%
F 59% or less