

## **Troy University**

### **BIO 1100**

#### **1. Course Listing Number, Title, Number of Semester Hours:**

BIO 1100 Principles of Biology, 3 semester hours

#### **2. Accurate Course Description:**

Biological principles including chemistry of life, cell structure and function, bioenergetics, cell reproduction, heredity, and ecology. Credit for this course cannot be applied toward any curriculum in biology. Co-requisite: BIO L100

#### **3. Course Textbooks, Manuals, or Required Materials:**

Biology: Concepts & Connection, customized edition. 2008 copyright. Neil A. Campbell, Jane B. Reece, Martha R. Taylor, and Eric J. Simon. Pearson/Benjamin Cummings, ISBN 0536401152.

#### **4. Course Objectives:**

- a. The role of evolutionary theory as a unifying theme of biology
- b. The structure and function of cells and their organelles
- c. The principles of genetics, heredity, human reproduction, and development
- d. the impact of humans in shaping the world environment
- e. The complex interactions of organisms with each other and the environment
- f. The conservation of resources and organisms

#### **5. Course Outline of Topics:**

1. Biology: scope of biology, unifying principles evolution, process of science
2. Chemical basis of life, molecules, importance of water, chemical reactions
3. Molecules of cells: proteins, carbohydrates, lipids, and nucleic acids
4. Cells and their organelles
5. Harvesting energy
6. Photosynthesis
7. Cell reproduction and inheritance
8. Patterns of inheritance
9. Molecular biology, DNA technology
10. Evolution of populations
11. Evolutionary history, human evolution
12. Ecology,
13. Population dynamics, communities, and ecosystems
14. Conservation biology

# TROY UNIVERSITY

## BIO L100

### 1. Course Listing, Number, Title, Number of Semester Hours:

BIO L100 Principles of Biology Lab, 1 semester hour

### 2. Accurate Course Description:

Measurements, microscopy, ecology, cell structure, bioenergetics, cell reproduction, and heredity. Co-requisite: BIO 1100

### 3. Course Textbooks, Manuals, or Required Materials:

Lab Manual for Biology 1100, 5<sup>th</sup> ed. James W. Perry, David Morton, Joy B. Perry. Thomson/Brooks/Cole Publishers. ISBN: 0495407860

### 4. Course Objectives

To provide a hands-on experience for the theory/concepts covered in lecture. Students will be exposed to equipment and learn skills and techniques in the following:

1. The scientific method, measurements
2. Microscopy
3. Structure and function of living cells
4. Diffusion, osmosis, and biological membranes
5. Enzymes
6. Photosynthesis and respiration
7. Mitosis and meiosis
8. Heredity
9. Nucleic acids
10. Ecology

### 5. Course Outline of Topics

1. The scientific method, measurements
2. Microscopy
3. Structure and function of living cells
4. Diffusion, osmosis, and biological membranes
5. Enzymes
6. Photosynthesis and respiration
7. Mitosis and meiosis
8. Heredity
9. Nucleic acids
10. Ecology