

# Alexandria Technical and Community College

## BIOL 1410: Introduction to Biology I

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 2

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

This course meets Minnesota Transfer Curriculum (MnTC) goal area 3. This course includes an understanding and evaluation of the scientific method, an understanding of body nourishment and the body's ability to transform nourishment into energy, and an evaluation of fat intake. Units of study include the science of genetics (including DNA structure), replication, and gene expression. The course also investigates the genetic relationship to cancer and genetically modified organisms. Units of study investigate the evidence for evolution and natural selection. Lab experience is included.

**B. COURSE EFFECTIVE DATES:** 05/31/2005 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Analyze advertized diet and food labels.
2. Analyze by experimentation the effects of over-the-counter drugs, such as aspirin.
3. Demonstrate and diagram the process of meiosis, the relationship between genes and proteins, the process of mutation and its relationship to cancer, and the production of unique alleles.
4. Demonstrate the scientific process and how the use of random assignment, placebos, control groups, and double-blind experiments are used to effectively influence bias on experimental results.
5. Evaluate the effect of sample size, data graphics, sampling error, primary and secondary resources, and anecdotes and testimonials to experimental results.
6. Gain knowledge of how DNA sequencing provides support for evolutionary relationships and the process of carbon dating to determine the age of fossils.
7. Gain knowledge of the structure and function of the metabolic functions of enzymes and the molecular structure of nutritional components and fat intake.
8. Outline the process of evolution, including the theories of common descent.
9. Perform by experimentation the process of the scientific method.

### D. LEARNING OUTCOMES (General)

1. The learner will demonstrate knowledge of evolution.
2. The learner will demonstrate knowledge of genetics.
3. The learner will demonstrate knowledge of the core concepts of nutrition.
4. The learner will demonstrate knowledge of the core concepts of the scientific method.

## **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

Goal 03 - Natural Science

1. Demonstrate understanding of scientific theories.
2. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.
4. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

## **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

## **G. SPECIAL INFORMATION**

None noted