Course Syllabus

Department: Science & Technology

Date: 2/1/12

I. Course Prefix and Number: BIO 118

   Course Name: Contemporary Biology I

   Credit Hours and Contact Hours: 4 credit hours – 5 contact hours

   Catalog Description including pre- and co-requisites:

   An introductory biology course with laboratory designed for non-science majors. Topics covered include: the scientific process, cells, biochemistry, cellular metabolism, genetics, and biotechnology. The emphasis is on application of basic biological principles to contemporary issues and problems. Students will achieve basic scientific literacy with a goal of improved critical thinking, writing, and problem-solving skills. Three hours of lecture and two hours of laboratory weekly. Prerequisite: successful completion of all required remedial courses.

II. Course Outcomes and Objectives

   Student Learning Outcomes:

   Students will demonstrate an understanding of the basic principles of biology in relation to contemporary issues.

   Students will apply the methods and process of science, and be able to critically evaluate scientific articles in the popular press.

   Students will demonstrate the ability to make informed scientific decisions as necessary in their personal life as well as their role as educated citizens.

   Students will be able to find and access additional information to inform these decisions.

   Students will show a basic understanding of biochemistry, the organization and energetics of the cell, genetics, and biotechnology.

   Students will be able to apply these basic concepts (biochemistry, the organization and energetics of the cell, genetics, and biotechnology) to solve problems as a team.

   Relationship to Academic Programs and Curriculum:

   This course is designed for non-science majors needing one or two semesters of a laboratory based science.
College Learning Outcomes Addressed by the Course:

- Writing
- Ethics/values
- Ethical citizenship
- Global concerns
- Reading
- Problem-solving
- Information resources
- Professional competency
- Mathematics
- Computer literacy

III. Instructional Materials and Methods

Types of Course Materials:

Textbook in general biology, laboratory manual developed and updated by FLCC faculty.

Methods of Instruction (e.g. Lecture, Lab, Seminar …):

Lecture, laboratories, team problem solving of case studies.

IV. Assessment Measures (Summarize how the college and student learning outcomes will be assessed):

Team work in both the lecture and laboratory setting will develop relational, communication, and problem-solving skills. Students will be assessed on their knowledge of lecture material and comprehension of reading through exams. Students will apply mathematics (specifically graphing) to solve biological problems in laboratories and case studies or readings. Students will be assessed on writing, computer literacy skills, and the ability to manage information resources through laboratory reports. Students will explore ethical issues related to contemporary biology through case studies and/or assignments based on current news.

V. General Outline of Topics Covered:

Theme 1: The Scientific Process

  a. The Scientific Method
  b. Pseudo-Science

Theme 2: Building Blocks of Life

  a. Characteristics of Life
  b. Cells
  c. Biological Macromolecules
d. Nutrition

Theme 3: Energy of Life
   a. Diffusion, Osmosis, and Active Transport
   b. Enzymes
   c. Photosynthesis & Cellular Respiration

Theme 4: Genetics
   a. DNA Structure
   b. Mitosis and Meiosis
   c. Cancer
   d. Classical Genetics
   e. Gene Expression

Theme 5: Biotechnology
   a. DNA Fingerprinting
   b. Genetically Modified Organisms
   c. Stem Cells