

# SYLLABUS

## General Biology I (BIO K121<sup>+</sup>)

Lecture: (CRN 30022) MW 9:30 AM to 10:50 AM  
Room MOH 210

Lab: (CRN 30026) F 9:00 AM to 12:00 Noon  
Room MOH 205

Lecture: (CRN 30023) MW 12:30 PM to 1:50 PM  
Room MOH 210

Lab: (CRN 30027) T 9:00 AM to 12:00 Noon  
Lab: (CRN 30028) T 1:00 PM to 4:00 PM  
Room MOH 205

## **Three Rivers Community College Mohegan Campus Norwich, Connecticut 06360**

Tina Mendeloff, Associate Professor of Natural Science

Office: MOH 205  
Office Phone: 892-5706

Email: [tmendeloff@trcc.commnet.edu](mailto:tmendeloff@trcc.commnet.edu)

Office Hours:  
Mon. & Wed.: 2:00 PM – 3:30 PM  
And by appointment

Fall, 2006

## **Course Description**

An introduction to the major principles and concepts of modern biology; Topics to be covered include: molecular and cellular biology, cell division, cellular transport systems, cellular metabolism, the specialization and differentiation of both plant and animal cells and modern genetics.

## **General Course Rationale**

To aid the student in developing an understanding of:

1. The biological sciences as they may be related to other disciplines
2. The life processes and the interrelationships between man and other living organisms
3. The interdependence of all life forms and the natural laws operating that ensure the stability of these life forms
4. Current biological concerns such as pollution, chemical influences, overpopulation, energy, and genetic engineering

## **Objectives**

The student will:

1. be able to describe the requirements of life.
2. be able to describe the characteristics of life shared by living organisms.
3. be able to describe the scientific method through examples.
4. be able to identify the principle elements that make up the body, give their chemical symbols, and summarize the main functions of each.
5. demonstrate knowledge of atomic structure and its relationship to the interaction of atoms to form molecules.
6. demonstrate knowledge of ionic, covalent, and hydrogen bonds and give examples of each.
7. be able to describe the types of organic and inorganic compounds found in the body.
8. be able to define pH in terms of hydrogen ion concentration and be able to identify any given pH as acid, alkaline, or neutral; describe how pH changes are minimized by buffers.
9. demonstrate knowledge of cell organelles and their functions.
10. demonstrate knowledge of various mechanisms of active and passive transport relative to the plasma membrane.
11. demonstrate knowledge of mitosis and meiosis.
12. demonstrate knowledge of the classes of tissues and their functions in both plants and animals.
13. be able to define anabolic and catabolic metabolism.
14. be able to explain how chemical energy (ATP) is released by respiratory processes (anaerobic and aerobic).
15. be able to explain the photosynthesis process.
16. be able to define the term enzyme and explain the composition, classification, and function of enzymes.
17. be able to explain the role of genes in inheritance and how they are passed from one Generation to the next.
18. demonstrate knowledge of the Mendelian laws of genetics.
19. demonstrate knowledge of the various forms of gene interaction.
20. be able to discuss some common forms of human genetic disease.
21. be able to explain the role of DNA and RNA in inheritance.

## **Method of Evaluation**

1. Four lecture exams, maximum 100 questions, multiple choice/true-false format:

Wednesday September 27

Wednesday October 25

Wednesday November 29

Wednesday December 20

I use scantron forms. **PLEASE BRING 2 #2 PENCILS AND ERASERS** on exam days.

2. Four lecture quizzes, maximum 20 questions, multiple choice/true-false format:

Wednesday September 13

Wednesday October 11

Wednesday November 15

Wednesday December 13

The lowest quiz grade will be dropped. The remaining 3 will be averaged and count as one lecture exam. I use scantron forms. **PLEASE BRING 2 #2 PENCILS AND ERASERS** on quiz days.

3. Four Lab Practicals, maximum 50 questions, microscope and slide identifications when applicable and/or short answer/fill-ins:

Tuesday September 19, Friday September 22

Tuesday October 17, Friday October 20

Tuesday November 14, Friday November 17

Tuesday December 12, Friday December 15

## **Procedure**

Lectures will be based on text material. Bring your text to class. I encourage questions about lecture material at any time.

Labs will be either from your lab manual or a handout. Bring your text and lab manual and lab handouts to lab. I encourage questions about lab material at any time.

## **Makeups**

Make-ups will be determined on an individual basis.

## **Attendance**

Instructional staff assigned to all sections of credit bearing courses at Three Rivers are required to take attendance at each class meeting and retain records of attendance for at least three calendar years. The manner in which attendance is taken is determined at the professional discretion of the instructor. In certain instances, these records are furnished to the Financial Aid Office and the International Student Advisor.

## **Required Texts**

1. Customized *BIOLOGY* text by Sylvia Mader, McGraw-Hill, 2007, 9<sup>th</sup> edition
2. *BIOLOGY* Lab Manual by Sylvia Mader, McGraw-Hill, 2007, 9<sup>th</sup> edition

## **Course Outline**

### I. The Cell

- A. Basic Chemistry
- B. The Chemistry of Organic Molecules
- C. Cell Structure and Function
- D. Membrane Structure and Function
- E. Metabolism: Energy and Enzymes
- F. Photosynthesis
- G. Cellular Respiration

Readings: Mader Text, Chapters 2-8

### II. The Genetic Basis of Life

- A. The Cell Cycle and Cellular Reproduction
- B. Meiosis and Sexual Reproduction
- C. Mendelian Patterns of Inheritance
- D. Chromosomal Patterns of Inheritance
- E. DNA Structure and Functions
- F. Gene Activity: How Genes Work
- G. Regulation of Gene Activity and Gene Mutations
- H. Biotechnology and Genomics

Readings: Mader Text, Chapters 9 – 16

## **Course Evaluation**

The 5 lecture exam grades will be averaged and count as 75% of your grade for the course. The 4 lab practical grades will be averaged and count as 25% of your grade for the course.

<b><u>Grades</u></b>	<b><u>Equivalent</u></b>
A	92.56-100
A-	89.56-92.55
B+	85.56-89.55
B	82.56-84.56
B-	79.56-82.55
C+	75.56-79.55
C	72.56-75.55
C-	69.56-72.55
D+	65.56-69.55
D	62.56-65.55
D-	59.56-62.55
F	0.00-59.55

## **Academic Integrity Policy**

Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person's ability to succeed in the classroom and beyond. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the college. In this class and in the course of your academic career, present only your own best work; clearly document the sources of the material you use from others; and act at all times with honor. Please see Three River's catalog and/or website for a fuller explanation of the school's academic integrity policy.

## **College Withdrawal Policy**

Students have the option of withdrawing from a course prior to the 11<sup>th</sup> week of class without instructor signature and prior to the 14<sup>th</sup> week of class (by November 28, 2006) with instructor or advisor signature. A student must initiate the withdrawal by calling (892-5756) or submitting a withdrawal form to the registrar's office.

## **Disabilities Statement**

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact Disabilities Counseling Services at 383-5240. To avoid any delay in the receipt of accommodations, you should contact a counselor as soon as possible. Please note that I cannot provide accommodations based upon disability until I have received an accommodation letter from the disabilities counselor.

## **Cellular Phones and Beepers**

Cellular phones and beepers are allowed in class only if they are turned off or turned to a silent mode. Under no circumstances are phones to be answered in class. When there are extenuating circumstances that require a student be available by phone or beeper, the student should speak to the instructor prior to class so that together they can arrive at an agreement.

Text Web Page: <http://www.mhhe.com/maderbiology9>

My Web Page: <http://www.freewebs.com/threeriversbiology>