COURSE TITLE: Modern Biology I  
CATALOG NUMBER: BIO150

INSTRUCTOR: Staff  
SEMESTER: Fall 2017

TEXTBOOKS AND LABORATORY MATERIALS

(One-semester Connect Access with e-book packaged with BIO 150 Custom Lab Manual by Suffolk CC faculty)  This edition is unique for SCCC and it is the least expensive option that contains all necessary material for the course.

OR:

   * used books: see note below.


The laboratory manual is sold only at SCCC bookstores. Graph paper is required and can be printed from these web sites (PDF reader is needed):

www2.sunysuffolk.edu/jurukov/PDF/graphpaperB&W.pdf
www2.sunysuffolk.edu/jurukov/PDF/graphpaperGreen.pdf

Also required: a calculator, at a minimum one with square root capability; more elaborate ones are OK. Bring manual, graph paper, and calculator to all labs.

Put your name in all your books and manuals and on your calculator.

Optional Text: An Introduction to Chemistry for Biology Students, (9th edition) by George I. Sackheim; not in bookstore in the BIO 150 section – look in the non-majors BIO101 section.

PREREQUISITES

College chemistry or its equivalent (CHE100 at SCCC) is a minimum prerequisite for this course. If you did not do well in chemistry, or have forgotten some of it, purchase the optional chemistry review book and work through it. The topics covered in the review book are those you need for success in biology. Familiarity with use of calculators and possession of basic algebraic skills (at least MAT007 at SCCC) are also required for student success in BIO150.

*used texts will likely be the 10th edition. These are OK for the course.
OBJECTIVES OF THE COURSE

BIO150 is the first semester of a three semester course that provides an introduction to the various current fields of biology. The ideas of cell biology (including biochemistry and bioenergetics), genetics, and evolution will be stressed. The successful student will be able to:

1. Have an in-depth understanding of major biological concepts from a molecular perspective including how the Laws of Thermodynamics apply to living systems.
2. Understand and comprehend the concepts of metabolism and energy exchange in the processes of photosynthesis, cellular respiration, and fermentation.
3. Integrate the interrelationships of metabolism, genetics, and evolution to other scientific concepts.
4. Identify and apply the mechanisms of inheritance, reproduction and molecular genetics.
5. Apply biological concepts and the use of the scientific method, observations and data analysis to daily life.
6. Use techniques in accumulation and analysis of biological data as graphing, chromatography, spectrophotometry and gel electrophoresis.

The laboratory provides students with additional exposure to the important concepts of biology and provides experience in collecting and analyzing data.

PROCEDURES FOR ACCOMPLISHING COURSE OBJECTIVES

1. Lecturers will discuss the major concepts of biology, the important experiments leading to them, and the interpretation of their significance. Student discussion is strongly encouraged.
2. Students will perform laboratory experiments designed to introduce experimental techniques, data collection, and data analysis.
3. On-line resources are available on the publisher’s web site (registration code is provided with the textbook, a used textbook might not have valid code if the previous owner registered with it). Lecturers might give assignments that are part of the publisher’s Connect Learning web site (code with new textbooks only, separate purchase available) which include valuable learning moduli.

GENERAL INFORMATION

Welcome to BIO150. We hope you will learn a great deal during this semester and will be pleased with your accomplishment when you have completed the course. The information in this course outline is important to your success. Individual lectures might have additional information and requirements added to this outline. Please read it carefully and keep it for future reference.

College level science courses require a significant commitment from the students who take them. We expect you to attend all classes. In addition, you should plan to spend extensive study time outside of class. Your professors and Suffolk Community College stand ready to help you. Good luck!

OFFICE HOURS

Office hours are times that are available to you for help with your course work and we will be happy to work with you. Individual instructors will announce and post their office hours. Please stop in during the announced times, or make appointments as soon as you suspect you need help. Problems are more easily solved when they first start.
ATTENDANCE

1. All students are expected to attend every class session for which they are registered. Students are responsible for all class material whether or not you were in attendance. The College defines excessive absence or lateness as more than the equivalent of one week of class meetings during the semester. Excessive absence or lateness may result in failure in the course or your removal from the roster by the instructor.
2. If you decide to drop a course, you must do so officially to preserve your right to the grade of W. If you stop attending a class, that action does not constitute a formal drop, and your instructor may assign you a grade of F.
3. Laboratory attendance is mandatory. If you miss a lab for an essential reason, such as illness, you must make it up. If you miss more than ONE laboratory, you may be dropped from the course with a grade of either W or F, as your professor deems appropriate.

STUDENT REQUIREMENTS

1. Read laboratory and lecture assignments in advance and consult the outlines for topics yet to come.
2. Submit laboratory reports in proper form and all other written work that is assigned by your instructor.
3. Take all lecture and laboratory examinations. Lecture exams will be given during the course of the semester. The number, type, grading procedure, dates, and make-up policy will be announced by each instructor. A cumulative final exam will be given at the end of the semester and must be taken to complete the course. Two laboratory exams will be given; one at mid-term and one at the end; specifics will be provided by the lab instructor. Both exams must be taken. Additional lab quizzes may be given at the discretion of your instructor.

STUDENT RESPONSIBILITIES

You are expected to attend all classes. Please arrive on time and stay until the end. Careful notes should be taken in all classes and kept in an organized sequence. Thorough study of notes, textbook, and laboratory exercises is required. Group study is often a valuable supplement to individual study. Please come in during your instructor's office hours if you have any trouble mastering some portion of the course work and if you would like any extra information on a topic we have covered. The SCC learning centers, the library, and the biology tutoring center are additional sources of help that are available to you. Please make use of all these resources. We want you to succeed!

GRADING PRACTICES

You will receive one grade for BIO150. Two thirds of this grade is determined by your achievement in lecture and one third is determined by your performance in laboratory. Your instructor will provide you with detailed information as to how the lecture and lab portions of the course grades are calculated for your class.
TOPIC OUTLINE CHAPTERS

1. Introduction: Ch. 1
2. Basic Chemistry 2
3. Organic Molecules (Molecules of Life) 3
4. Energetics and Metabolism (Introduction) 6
5. Cells 4
6. Membranes and Cell Interactions 5
7. Photosynthesis 8
8. Cellular Respiration 7
9. Cell Reproduction, Mitosis and the Cell Cycle: Ch. 10
10. Meiosis and Sexual Reproduction 11
11. Patterns of Inheritance 12, 13
12. DNA 14
13. Gene Expression in prokaryotes 15,
14. Gene Expression in eukaryotes 16*, 18*
15. Gene Technology 17*

* Depending on time available and relevance to each instructor’s approaches to the material in them, only certain portions of these chapters maybe assigned.