



Biology: Concepts and Methods

Biology 210-010 Spring 2011

INSTRUCTOR: Dr. Patti Erickson

OFFICE HOURS: MW 10-12 or by appointment

OFFICE: HS 214

EMAIL: pterickson@salisbury.edu

PHONE: (410) 677-5325

TEXTS: Brooker et al., 2010. *Biology, 2nd edition*. McGraw-Hill (textbook)***
Biology 210 Course Packet.

Both are required and will be heavily utilized. The course packet should be brought to each class.

ONLINE MATERIAL: Requires access to MyClasses and McGraw-Hill Connect.

The access code to McGraw-Hill's Connect online material comes with newly purchased textbooks. Textbooks purchased new from the SU bookstore are customized with 4-year access to Connect, since the textbook will be used in several required biology courses at SU. Keeping the same book throughout your degree will save you a significant amount of money.

If you think you may drop this class, do **NOT** open the shrink wrap on the textbook, or it can't be returned unused to the bookstore. You can access McGraw-Hill's Connect online material during the first few weeks of class using a free, temporary password.

COURSE DESCRIPTION:

The course is intended to introduce you to the big topics of biology. The course is designed to be flexible, dynamic, and engaging. A large degree of the course work will be performed outside of class through research, readings and on-line assignments.

ATTENDANCE: Attendance is expected and will be monitored. Each student is allowed **one unexcused absence without penalty**. There will be NO excused absences. For the second and each subsequent absence, a student will lose 10 points. Coming to class late or leaving early WILL count as an absence! You are responsible for any material or assignments missed during an absence. There will be no makeup activities.

University Absence Notification Policy: "In the case of an extreme emergency or prolonged illness, the Student Affairs Office notifies class instructors of the dates of a student's absence from class. **Faculty establish their own attendance policy.** Notification of absence is a service to students and faculty; it is not an official excuse from classes and work missed." If a serious emergency arises, contact the Student Affairs Office so that they can alert your professors.

EXAMINATIONS (300pts): There are two term exams and a Final, each worth 100 points. The Final exam will focus on material from the last 1/3 portion of the course but will include material from throughout the course. Exams will consist of multiple choice, short answer, and essay questions. You will be expected to recall, synthesize, interpret and apply information acquired from class meetings, discussions, labs, assignments, and readings. Questions, problems, or challenges to exam questions must be presented to the instructor within one week of the day on which exams are returned. All grades will be considered final at that time. **NO MAKE-UP EXAMS WILL BE GIVEN FOR ANY REASON.**

DISCUSSIONS OF PRIMARY LITERATURE (30 pts):

Primary science articles are an important part in the life of a scientist. In Biol210 you will be reading and discussing original research articles. The goal is not 100% comprehension, but beginning to learn how to read scientific writing and how to interpret data. The papers will be posted in MyClasses. You will read and discuss 2 scientific papers (15 points each). There will be no make-up assignments for any of these components.

- 1) **On-line Discussion (5 points)**
- 2) **Questions (5 points)**
- 3) **In-class Discussion and/or quiz (5 points)**

MCGRAW-HILL CONNECT ACTIVITIES (75 pts):

McGraw-Hill Connect activities will be available online throughout the entire semester. These activities should be completed **BEFORE** taking your MyClasses Quiz at the end of each topic (module). This material will also be covered on your exams. All animations, interactive questions and web assignments must be submitted before each exam to receive credit (25 points for each section). You are allowed to take and retake the assignments as many times as you wish, with the highest grade counting towards your final total.

MYCLASSES ONLINE QUIZZES (120 PTS):

The online quiz questions will be completed in MyClasses. Each quiz is worth 10 points (13 total), and the lowest grade will be dropped. The questions will focus on the text readings, the study guide, and the online lessons in both MyClasses and Connect. The quiz needs to be completed prior to the first class meeting of the week. This should give a good indication of how you are doing. The deadline for each quiz is each Monday at 9:00 AM.

IN CLASS QUIZZES, POP QUIZZES, NOTEBOOK CHECKS, ETC... (100 pts):

Quizzes will be announced and unannounced and may include material from the textbook, class discussions, and lab activities. Always be prepared for a quiz. You will also keep a notebook of your work throughout the semester. This will primarily include answers to study guides posted in MyClasses and answers to pre-lab and post-lab questions in the Course Packet. Random unannounced notebook checks will occur, and material in your notebook will be reviewed and graded based on thoroughness and accuracy.

SEMINAR ATTENDANCE (20 pts):

You must attend at least two seminars presented in the Biological Sciences Department. The seminars occur on Thursdays from 4:00-5:00 in HS 243. The topics can be found on the departmental website.

http://faculty.salisbury.edu/~rlgutberlet/biology_seminars.html. If you have a conflict that prevents attendance, see me as soon possible. To earn credit for attendance, you must email me a well-written, grammatically correct paragraph (No more than 300 words, double spaced, and 10 point font) summary of the presentation with the subject "210 SEMINAR" **within one week of the seminar. No late submissions accepted.**

ASSIGNMENTS (40 pts):

There will be four assignments throughout the semester, and each is worth 10 pts. The assignments will be done outside of class and turned in at the beginning of class. Students turning in identical assignments will be given a grade of 0. Late assignments lose 10% of their original value for each day they are late, up to four days. Assignments will not be accepted after four days past the due date.

1. Assignment #1 - Protein Standard Curve is due February 15.

You will create a standard curve based on the data from the "Determining an Unknown Protein Concentration" activity in your course packet. You will turn in an Excel graph of the standard curve by cutting and pasting the graph into Word. You will need to produce a clear Figure description that will be under the graph. We will go over the criteria for the graph in the class. However, remember the basics: Axes labeled correctly with units, no title, and a detailed figure legend. The graph will be turned in during class. The concentration of the unknown should be calculated using the equation of a line that you generate.

Figure 1. Then describe the graph. It should NOT say absorbance vs. protein concentration. It should also give the concentration of your unknown (A, B, or C). This should be detailed enough so that you can understand the graph.

2. Assignment #2 – Organelle Worksheet is due February 22.

The goal of this assignment is to understand the connection between structure and function in cellular organelles. In addition, you should learn something new or modern about each organelle. You must *describe* the structure and function of each organelle listed in your course handbook. Include a downloaded picture or diagram of the organelle. If you acquire the images from the internet you must list the URL for each image. Try to include interesting details. The format can be a table in Excel or Word, or it can be just a Word document. The assignment should be a functional study guide for Exam #1. **The assignment must be typed. In addition, make sure you use your own words to describe the figure. Do not cut and paste words; this is plagiarism.**

3. Assignment #3 – Genetics Problems are due April 5.

Do the genetics problems in the course book on pp. 104-106. Make sure to show your work and turn the problems in at the beginning of class.

4. Assignment #4 – Hardy Weinberg Problems are due April 26.

Do the Hardy Weinberg Problems in the course book pp. 128-129. Make sure to show your work and turn in at the beginning of class.

SEEDLING GROWTH, OBSERVATION and Relay Walk/Interview (50 pts total)

You will grow, observe, and measure seedlings in the greenhouse. An Excel graph (25 pts) of your plants' growth will be due. The remaining 25 points will be earned by volunteering to sell the plants at SU's Earth Day Celebration in April, walking in the SU Relay for Life, or interviewing 5 professors about their research interests.

FIELD TRIP (20pts): Assateague Field Trip is Saturday, April 16th.

The field trip will be worth 20 points of your final grade. Further instructions will be given during the semester. Attendance and participation will be considered when determining your grade. Plan ahead and dress appropriately, wearing layers and preparing for inclement weather. It is a great experience when you get involved.

WRITING ACROSS THE CURRICULUM:

At the University Writing Center at Herb's Place (Guerrieri University Center, Room 206), trained consultants are ready to help you at any stage of the writing process. It is often helpful for writers to share their work with an attentive reader, and consultations allow writers to test and refine their ideas before having to hand papers in or to release documents to the public. In addition to the important writing instruction that occurs in the classroom and during teachers' office hours, the center offers another site for learning about writing. **All undergraduates are encouraged to make use of this important student service.** For more information about the writing center's hours and policies, visit the writing center or its website at <http://www.salisbury.edu/uwc/>.

CLASSROOM ETIQUETTE:

Cell phones and pagers must be silenced during class, and no texting is permitted in class. Violation will result in removal from the class. No eating or drinking will be allowed in the laboratory classroom. Laboratory computers will be used for course-related activities only and must not be used for reading email or playing games. If you are found violating these rules, 10 points will be deducted from your total point value.

ACADEMIC INTEGRITY:

The University guidelines concerning academic honesty, as explained in the Undergraduate Catalog and Student Handbook, will be strictly enforced. Any student found engaging in academic misconduct (cheating, plagiarizing, etc.) will be given a 0 for the assignment, reported to the appropriate University authorities, and dealt with as described in the student handbook. Some circumstances may involve receiving an F and expulsion from the course. **Be careful NOT to plagiarize when completing notebook activities and on-line assignments!** If you are unsure of what – exactly – comprises plagiarism, see http://turnitin.com/research_site/e_what_is_plagiarism.html for a simple explanation and some examples.

STUDENTS WITH DISABILITIES: Any student who feels that s/he may require an accommodation in this course, based on the impact of a disability, should contact me as soon as possible to arrange for a meeting to coordinate any and all accommodations. Any student who wishes to contact the Office of Student Disability Support Service for further information should do so by calling 410-548-4503 or by visiting the office in Guerrieri University Center, Room 256.

CLOSING DUE TO INCLEMENT WEATHER: Information concerning University closure will be given to all local radio and television stations. Students can receive information concerning cancellations by listening to local stations or by calling the Gull Line at 410-546-6426. Students must exercise their best judgment about whether they attend class.

Graded course components	Point value	Percentage	Points	Final Grade
Three exams at 100 pts each	300	90 – 100	680 - 755	A
Assignments (4 for 10 pts each)	40	80 – 89	604 - 679	B
Discussions (2 for 15 pts each)	30	70 – 79	529 - 603	C
Seminars – Attend 2 (10 pts each)	20	60 – 69	453 - 528	D
McGraw Hill Connect Activities	75	0 – 59	0 - 452	F
Online Quiz (13@10 pts each, drop one)	120			
In-Class Quizzes and Notebook Checks	100			
Seedling growth and walk/interview	50			
Field Trip (Assateague – 20 pts)	20			
Total	755			

Final Exam: Thursday 1:30-4:00 pm



Spring 2011: Tentative Schedule

WEEK	Work to Complete Before Class	Activities in Class	Online Assignments
Wk-1 Jan. 24	MyClasses Set Up Pre-Lab Scientific Method before the second day of classes	Introduction to Department Scientific Method: Termite Activity Scientific Literature	Topic 1: Introduction to Macromolecules
Wk-2 Jan. 31	Pre-Lab Molecules of Life Pre-Lab Graphing data	Molecules of Life Macromolecule Chemistry	Topic 2: Cellular Chemistry
Wk-3 Feb. 7	Pre-Lab BSA standard curve	Pipette Use BSA Standard Curve	Topic 3: Cell Biology **Begin on-line Discussion 1
Wk 4 Feb. 14	Pre-Lab Microscope and Cells Standard Curve Assignment 1 (Feb. 15) Discussion Paper 1 Questions Due	Microscope and Cells Discuss Paper 1	Topic 4: Energy and Enzymes
Wk 5 Feb. 21	Pre-Lab Enzyme Assay Organelle Assignment 2 (Feb. 22)	Enzyme Assay Exam I (Feb. 24)	Topic 5: Cellular Respiration
Wk-6 Feb. 28		Respiration/Photosynthesis activity	Topic 6: Photosynthesis
Wk-7 March 7	Pre-Lab Photosynthesis	Photosynthesis Activity	Topic 7: Mitosis and Meiosis
Wk-8 March 14	Pre-Lab Mitosis/Meiosis	Mitosis and Meiosis Activity Human Karyotyping Activity	Topic 8: Genetics
SPRING BREAK – No Classes (March 21 – 25)			
Wk-9 March 28	Pre-Lab Genetics	Solving Genetics problems	Topic 9: DNA Replication and Protein Synthesis **Begin on-line Discussion 2
Wk-10 April 4	Genetics Assignment 3 (April 5) Discussion Paper 2 Questions Due	Discuss Paper 2 Exam II (April 7)	Topic 10: Introduction to Evolution
Wk-11 April 11	Pre-Lab Principles of PCR	PCR technology and DNA Replication	Topic 11: Population Genetics
ASSATEAGUE FILED TRIP – Saturday April 16th			
Wk-12 April 18	Pre-Lab Taxonomy and Classification Pre-Lab Population Genetics and Hardy Weinberg Pre-Lab Antibiotic Resistance	Taxonomy and Classification Hardy Weinberg Problems Set up Kirby Bauer Method	Topic 12: Ecology and Biomes
Wk-13 April 25	HW Assignment 4 (April 26)	Complete Kirby Bauer Method	Topic 13: Population Ecology
Wk-14 May 2	Pre-Lab Mark Recapture	Mark Recapture Activity Ecology: Assateague	Topic 14: Ecosystem Ecology
Wk-15 May 9	Pre-Lab Techniques in Ecology: Field Sampling	Field Sampling Nutrient Cycling	
Final Exam III Thursday, May 12 ,1:30-4:00 pm			