



The College of Staten Island
Department of Biology
General Biology II Laboratory
Spring 2015

My Contact Information:

Alexander D. McKelvy

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Course Meeting Times:

Mondays, 7:25 PM to 10:00 PM

Room: 6S-148

Please pay special attention to the academic calendar for classes following a different schedule.



Required texts:

Biology Laboratory Manual by Vodopich & Moore, 9th or 10th edition;

ISBN #9780073532257 (10th ed.), Price at CSI Bookstore: \$114 - 152; Used on Amazon: ~\$114

ISBN #9780077389697 (9th ed.), Price online: ~\$40

You will be expected to:

- **Play an active role in your learning.** This is a laboratory course and not a lecture; you are expected to play an active role in your learning. Science is an active process, and you will be expected to think and not simply memorize facts and follow “recipes”.
- **Prepare for class by doing the assigned readings.** Since we will have several activities to complete during the lab period, it is expected that you prepare for class so that the lab period runs quickly and efficiently. To get the most out of this course, read the material before coming to class so you are familiar with the procedures and can apply your knowledge to the lab activities. If you have questions on the reading, email me and I will be happy to help you. In addition to the required readings for each week, you may find it helpful to read the corresponding chapter in the lecture textbook. Unfortunately, due to the different paces set by individual lecture professors, this class will not always correspond with your lecture.
- **Bring your lab manual to class every week.** You may also make a photocopy of the pages and bring that in; just have the lab for that week with you.
- **Complete each laboratory activity.** During laboratory activities, you are expected to follow the given protocol and answer any questions given in the manual. These questions may or may not be collected, but will help you determine if you are meeting your learning objectives.
- **Participate in laboratory activities.** You may work in groups of up to four people, but I expect all members of the group to contribute and be involved. Sitting and staring at your phone/tablet while your group does the lab is not acceptable. Everyone should be involved in each aspect of the lab evenly. This is so you are getting the most out of the lab.
- **Clean up properly before leaving.** This means everything should be as you found it and put away/disposed of correctly.

•Maintain academic integrity. Cheating and plagiarism are absolutely not tolerated and will be dealt with disciplinary action, including failure of the course. For more information about what constitutes cheating and plagiarism, see the academic integrity section at the end of the syllabus.

Grading:

Your grade breakdown will be as follows:

Assignments (Weekly quizzes, Class behavior): 67%

Final Exam: 33%

I follow the standard guidelines of the Biology Department. They are as follows:

Final Letter Grade	Quality Points Per Credit	Percent
A	4.0	90-100%
A-	3.7	88-89%
B+	3.3	85-87%
B	3.0	80-84%
B-	2.7	78-79%
C+	2.3	75-77%
C	2.0	70-74%
D	1.0	60-69%
F	0.0	0-59%



Behavior:

Distractions are not permitted. The goal of this lab is to learn introductory biological principles and connect them with your lecture. No cell phones, personal media players, food or drink in lab. In testing situations, I will stop handing out materials the moment anyone leaves the room, so it is in your best interest to be on time.

Absences:

According to CUNY policy, missing more than two labs unexcused (15% of credit hours) results in an automatic failure. There are no “make-up” labs. Please speak with me in advance about any conflicts.

Nothing less than a medical note stating that you were unable to attend will be accepted. Complaints of colds, headaches, sprains, strains, hangovers, late busses, abduction by aliens etc. will not be accepted.

Important note – I will not under any circumstances accept any note from a chiropractor. This field was founded in 1895 by Daniel David Palmer, a grocer and "magnetic healer" who believed that all diseases are the result of misplaced spinal bones that interfere with “innate intelligence”. Chiropractors are not physicians and are not qualified to diagnose, treat or otherwise attend to any disease or affliction.

Academic Honesty Policy:

You are here to further your own education. It is in your best interest that you do your own work.

Please review the Academic Integrity Policy of CUNY (Part of it follows below). No exceptions are made. Academic Dishonesty is prohibited in The City University of New York and is punishable by penalties, including failing grades, suspension and expulsion. I strongly encourage you not to test your luck.

http://www.csi.cuny.edu/privacy/cuny_academic_integrity.pdf

Cheating is the unauthorized use or attempted use of material, information, notes, study aids, devices or communication during an academic exercise.

The following are some examples of cheating, but by no means is it an exhaustive list:

- Copying from another student during an examination or allowing another to copy your work.
- Unauthorized collaboration on a take home assignment or examination.
- Using notes during a closed book examination.
- Taking an examination for another student, or asking or allowing another student to take an examination for you.
- Changing a graded exam and returning it for more credit. Submitting substantial portions of the same paper to more than one course without consulting with each instructor.
- Preparing answers or writing notes in a blue book (exam booklet) before an examination. Allowing others to research and write assigned papers or do assigned projects, including use of commercial term paper services.
- Giving assistance to acts of academic misconduct/ dishonesty.
- Fabricating data (all or in part).
- Submitting someone else's work as your own.
- Unauthorized use during an examination of any electronic devices such as cell phones, palm pilots, computers or other technologies to retrieve or send information.

Plagiarism is the act of presenting another person's ideas, research or writings as your own.

The following are some examples of plagiarism, but by no means is it an exhaustive list:

- Copying another person's actual words without the use of quotation marks and footnotes attributing the words to their source.
- Presenting another person's ideas or theories in your own words without acknowledging the source.
- Using information that is not common knowledge without acknowledging the source.
- Failing to acknowledge collaborators on homework and laboratory assignments.

Internet plagiarism includes submitting downloaded term papers or parts of term papers, paraphrasing or copying information from the internet without citing the source, and "cutting & pasting" from various sources without proper attribution.

References for Biology:

Biology Tutoring Center at College of Staten Island:

Room: 1A-108A

Bring your book, notes, and syllabus with you to the tutoring center.

NATURE Education:

<http://www.nature.com/scitable>

Week	Topic	Reading:	Learning Objectives
Feb 2	Mendelian Genetics	Exercise 17 pp 181 - 194	-Describe simple genetic dominance, incomplete dominance, and lethal inheritance. -Describe possible genotypes for some of your personal traits inherited as dominant and recessive genes. -Explain the importance of Mendel's Law of Segregation and Law of Independent Assortment -Distinguish between an organism's phenotype and genotype.
Feb 9	Bacterial Transformation	Exercise 16 & Handout pp 173 -180	-Understand how DNA is isolated from bacterium. -Understand how temperature and pH affect DNA. -Understand how a gene for resistance to ampicillin is inserted into a bacterium.
Feb 18	Embryology	Exercise 50 pp 569 -579	--Describe the early stages of embryological development common to "advanced" invertebrates and vertebrates. -Understand the formation of a three-layered embryo with ectoderm, endoderm, mesoderm, and a presumptive digestive cavity. -Relate the major structures of early embryos to the environment in which they develop.
Feb 23	Evolution <i>Natural Selection and Morphological Change in Green Algae</i>	Exercise 18 pp 195 - 206	-Give a working definition of evolution, fitness, selection pressure, and natural selection. -Determine the genotypic and phenotypic frequency of a population while properly using the terms allele, dominant, recessive, homozygous, and heterozygous. -Explain the Hardy-Weinberg Principle and use it to demonstrate negative selection pressures on a population. -Describe the significance of the Volvocine line, particularly in the areas of cellular specialization and colonial complexity. -Describe examples of how a mutation affecting the plane of cellular division could result in the evolution of morphologically different body plans.
March 2	Bacteria, Autotrophic Protists	Exercises 24, 25 pp 255 - 284	-Describe distinguishing features of members of kingdoms Archaeobacteria and Bacteria. -Describe the major differences between bacteria and cyanobacteria. -Identify representative examples of archaeobacterial, bacteria, and cyanobacteria. -Understand how to perform a gram stain and how it is used to identify between organisms. -Identify distinguishing features of different groups of algae. -Describe the "alternation of generations" in green algae. -Understand the economic importance of algae.
March 9	Heterotrophic Protists and Fungi <i>Protozoa and Slime Molds Molds, Sac Fungi, Mushrooms, and Lichens</i>	Exercises 26, 27 pp 285 - 309	-Describe the features characterizing each protozoan phylum, including slime molds. -List examples, habitats, reproductive methods, and unique features of the protozoan phyla, including slime molds. -Become familiar with phylum representatives. -Describe the characteristic features of the kingdom Fungi. -Discuss variation in structures and sequence of events of sexual and asexual reproduction for the major phyla of the kingdom Fungi.
March 16	Non-vascular Plants, Seedless Vascular Plants <i>Survey of the Plant Kingdom: Liverworts, Mosses, and Hornworts of Phyla Hepaticophyta, Bryophyta, and Anthoceroophyta; Seedless Vascular Plants of Phyla Pterophyta and Lycopphyta</i>	Exercises 28, 29 pp 311 - 332	-Describe the life histories and related reproductive structures of bryophytes. -Describe the distinguishing features of liverworts, mosses, and hornworts. -Describe some of the key adaptations that allow liverworts, mosses, and hornworts to live on land. -Describe the role of bryophytes in the environment. -Discuss similarities and differences between ferns and other plants you have studied in the lab. -Describe the life cycles of ferns and their allies. -Describe the distinguishing features of true ferns, club mosses, whisk ferns, and horsetails. -Name some roles of ferns and fern allies.
March 23	Seed Plants <i>Survey of the Plant Kingdom: Gymnosperms of Phyla Cycadophyta, Ginkgophyta, Coniferophyta, and Gnetophyta; Angiosperms</i>	Exercises 30, 31 pp 333 - 357	-Identify a plant as a gymnosperm using distinguishing features. -Understand the lifecycle of pine, a representative gymnosperm. -Understand the evolutionary significance of pollen and seeds. -Identify the parts and understand the function of a cone. -Identify the parts and understand the function of a seed. -Relate the life cycle of angiosperms to the other phyla of the plant kingdom. -Discuss the events associated with development of microspores, megaspores, gametophytes, gametes, seeds, and fruit.
March 30	Phyla Porifera, Cnidaria, Platyhelminthes, Nematoda <i>Survey of the Animal Kingdom</i>	Exercises 36, 37 pp 399 - 427	-Describe how structures specific to proiferans and cnidarians help them survive and reproduce in their environment. -Identify members of phylum Porifera and phylum Cnidaria by fundamental characteristics. -Recognize members of the three major classes of cnidarians. -Describe the body forms of cnidarians and describe reproduction of those species alternating between polyps and medusa. -Discuss characteristics likely to promote long-term evolutionary success of sponges and cnidarians. -Describe how the prominent characteristics of platyhelminths and rematodes promote their survival and reproduction. -Identify flatworms, in the phylum Platyhelminthes and roundworms in phylum Nematoda by morphological characteristics. -Understand the difference between acoelomate, pseudocoelomate, and coelomate and know which phyla are associated with each.
April 13	Annelida, Mollusca, Arthropoda <i>Survey of the Animal Kingdom</i>	Exercises 38, 39 pp 429 - 456	-Describe how structures specific to mollusks and annelids help them survive in their environment and promote evolutionary persistence. -Identify organisms in of the phyla Mollusca and Annelida by morphology. -Discuss character tics of that phyla Mollusca and Annelida have in common with phyla Platyhelminthes and Nematoda and discuss traits that are newly derived. -Identify examples of major classes of mollusks and annelids. -Describe the structures that contribute to the survival of arthropods in their environment. -Describe the general morphology of organisms of phylum Arthropoda. -Identify major classes of arthropods by morphological characteristics. -Describe modificatins of the exoskeleton and paired appendages of arthropods.
April 20	Deuterostomes <i>Survey of the Animal Kingdom: Phyla Echinodermata and Chordata</i>	Exercise 40 pp 457 - 476	-Connect echinoderm and chordate characteristics with successful food gathering and survival. -Identify organism of phyla Eninodermata, Hemichordata, and Chordata by describing morphology. -Discuss embryological characteristics that distinguish deuterostomes from protostomes. -Understand which phyla are protostomes and which are deuterostomes.
April 27	Population Growth: Logarithmic and Exponential Functions	Handout	To be determined
May 4	Seed Dispersal: Gaussian Distributions and Randomness Review for Final Exam	Handout	To be determined
May 11	FINAL PRACTICAL EXAM - COVERS ENTIRE SEMESTER		