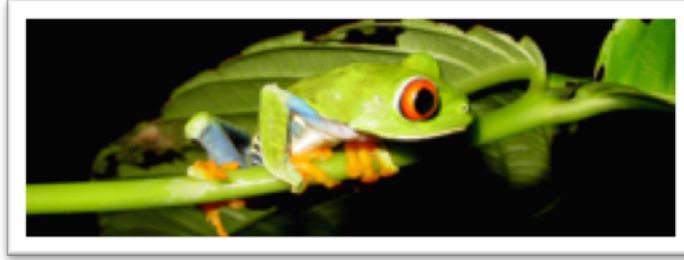


Biology 101: An Introduction to Biology

Autumn 2011



Lecturer: Dr. Kristin Smock

Center for Life Sciences Education

Email: smock.18@osu.edu

Office: 255A Jennings Hall

Office hours: Mondays, 12:00-1:00pm and by appointment

Course Coordinators: Adam Andrews; email – andrews.171@osu.edu; ph: 247-6345; office – 255B Jennings Hall
Jonathan Horn; email – horn.179@osu.edu; ph: 292-3929; office – 255D Jennings Hall

Class Meeting Schedule

Lecture: Mondays and Wednesdays, 1:30 – 2:48pm, 100 Independence Hall

Lab/Recitation: 3 hours per week; consult your schedule for time and place

Class Format

Each lecture will be a presentation of basic principles in biology, and will integrate current issues in science, technology, and the environment. Video interludes will be infused within the lectures, and collaborative partner and group work will be encouraged, despite our class size. Students will be asked to answer questions (with their clickers) during the lecture period that are designed to facilitate understanding of the concepts presented in class. These questions will model questions that will appear on your midterm and final exams.

Laptops are to be used in the lecture hall **exclusively for note taking purposes**. Using your laptops for other purposes, including checking Facebook, YouTube, email, etc. is distracting to those around you, and hinders the learning environment in the classroom. If the course staff observes computers being used for purposes other than taking notes, *you will lose participation points for that day*. This is meant to enhance your focus, and to improve the learning environment in the course. Notes will be posted to Carmen, if you prefer to not use your laptop.

The laboratory portion of the course is designed on the principle of inquiry-based science. Lab exercises require students to think like scientists and present the sorts of questions biologists ask and the methods they use to answer those questions. Many activities will not have pre-defined 'right' answers. Labs are designed to allow a kinesthetic (hands-on) approach to learning the concepts presented in lecture.

Students wanting to do well in the class should attend every lecture and lab, attend office hours, and use your textbook to buttress your understanding of lecture materials.

Lecture Participation: We will use clickers every time we meet in lecture to allow student to become active participants. You will be responsible for having your clicker, and making sure it works. No makeup opportunities will be available for missed lectures or non-responding clickers. For each *correctly answered* clicker question in lecture, you will earn one point. Once you earn 60 points, the next 10 correctly answered clicker questions will be worth 0.5 *bonus* points each. The subsequent 20 correctly answered clicker questions will be worth 0.25 bonus points each, for a total of 10 possible bonus points. It is therefore beneficial for you to come to lecture and participate, even after you have earned the 60 participation points!

**Please note that responding to clicker questions as a proxy for another student will result in BOTH students being reported to the Committee on Academic Misconduct and immediate loss of ALL Lecture Participation points for the course.*

Clicker Registration: At the beginning of the quarter, we will provide instructions on how to register your clickers so that we will be able to link your clicker number to your student number; this allows us to know who was in class, and who answered what.

Prerequisites

Required: Math 075, 104, or equiv. Background knowledge consistent with the standards established for high school science by the Ohio Department of Education will be required.

Course Materials

Highly Recommended: *What is life?* by Jay Phelan (1st ed) – ISBN: 1429277955

Required: Clicker

Clickers can be purchased in the bookstore and must be properly registered. See the course page on Carmen for more information. Proper registration is **required** after the first 2 weeks of class. **Check your grade on Carmen to verify you are earning points associated with clicker usage.**

Required: *Biology 101 Laboratory Manual 2011-2012 Edition*; ISBN: 978-0-7380-4489-7.

Required: Internet Access

Your access to Carmen is an integral and necessary part of this course. You must activate your OSU email account to have access to Carmen. The Carmen URL is <http://carmen.osu.edu> and Biology 101 should be listed under My Courses on your Carmen homepage. The username to log on is your OSU name.# and the password is the one you use with all OSU email and registration systems. If you have a problem logging in or using Carmen, contact 688-HELP or carmen@osu.edu. **IMPORTANT:** The CLSE and its course staff will send email **ONLY** to your official OSU email account.

Goals and Objectives for the GEC Natural Science Category

Students gain understanding of the principles, theories, and methods of modern science, the relationship between science and technology, the implications of scientific discoveries and the potential of science and technology to address problems of the contemporary world.

Expected Learning Outcomes:

1. Students understand the basic facts, principles, theories and methods of modern science.
2. Students learn key events in the history of science.
3. Students provide examples of the inter-dependence of scientific and technological developments.
4. Students discuss social and philosophical implications of scientific discoveries and understand the potential of science and technology to address problems of the contemporary world.

In Biology 101, non-major Biology students meet the GEC Natural Science Learning Objectives in multiple ways. Students gain an understanding of the foundations of modern biology by studying organismal diversity, evolution, ecology, energetics, genetics, reproduction, and cell structure and function. The students will perform inquiry-based laboratory activities that provide insight into scientific methods and habits of mind. Lectures and labs will include references to the development of scientific concepts to help students understand the history and nature of science. The interactions among science, technology, and society are interwoven throughout the course, and assignments give students opportunities to personally consider the interactions. Biology 101 is designed to help prepare students to make intelligent, informed decisions on the biological and technological decisions that they will face in life. The following are specific learning outcomes for Biology 101.

- Students will recall current and historical aspects of energetics, genetics, evolution, ecology, and cellular structure and function.
- Students will describe biological processes related to energetics, genetics, evolution, ecology, and cellular structure and function.
- Students will analyze the current and future significance of energetics, genetics, evolution, ecology, and cellular structure and function on society.
- Students will apply skills that demonstrate their scientific literacy by communicating about the content and validity of articles related to science in the popular press.
- Students will value the study of biology.

- Students will demonstrate an understanding of the nature of science. This includes (1) the way that scientist develop and evaluate explanations of natural phenomena using criteria fundamental to scientific inquiry and (2) the understanding that science is a human endeavor.
- Students will work productively and effectively in a group.

Grading and Evaluation

Evaluation	Grading Scale
Midterm: 100 points	A = 93 - 100%
Field Trip: 25 points	A- = 90 - 92%
Evolution Paper Draft: 25 points	B+ = 87 - 89%
Evolution Paper: 75 points	B = 83 - 86%
Lecture Participation: 60 points	B- = 80 - 82%
Article Assignment: 25 points	C+ = 77 - 79%
Lab Exercises (10x20): 200 points	C = 73 - 76%
TA points: 30 points	C- = 70 - 72%
Final exam: 125 points	D+ = 67 - 69%
SALG: 5 points	D = 60 - 66%
	E = 0 - 59%
TOTAL POINTS = 670	

Total Possible Course Points: 670

Your final grade will be based on the percentage of the 670 points that you earn during the course of the quarter, as indicated above. Please note that we do not grade the course on a curve and *Carmen* does not round averages up to the next nearest percentage point, so 92.11% and 92.97% both earn the grade of A-.

Posting Of Grades: All grades will be posted on *Carmen*. After grades are posted you have 10 working days to challenge any grade or inquire regarding an unposted or missing grade. **After that time, grades are final.** To challenge or inquire about a missing lab grade or lab in-class activity, contact your laboratory TA. To challenge or inquire about exam grades, contact Jonathan Horn (horn.179@osu.edu) to set up an appointment to find your scantron.

****IMPORTANT**:** Make sure that all of your grades are properly posted on *Carmen* as you receive them. Challenges about grades, particularly after the end of the quarter, cannot be entertained after the 10-day grace period.

Absences: If you must miss an exam for a university-sanctioned event, you must supply appropriate documentation to your TA, no less than one week before the event. If you are too ill to take an exam, please contact Adam Andrews (andrews.171@osu.edu) within 24 hours of the class period in which the exam was taken. You must be seen by and receive written documentation from a professional health care practitioner on the day of the exam in order for a make up to be given. Persons arriving late for exams will not be offered an exam after the first person has finished. Other serious personal problems will be considered, in advance, but on an individual basis. In all instances, documentation supporting the excused absence will be required. Lack of transportation, loss of electricity, travel plans, etc. will not be considered as valid excuses and you will receive a "0". The format for makeup assignments is at the discretion of Dr. Smock.

Check the date and time of the final examination on the schedule below now and make sure that this time does not conflict with your future plans. No early final exams will be given.

The laboratory portion of this course is an integral part of the learning experience. You are expected to come prepared to all lab sessions. This includes wearing appropriate clothing and footwear, having completed the pre-lab assignment, and read and understood the lab you will be conducting that day – **this is critical**. (See the schedule below.) **Missing more than two labs will result in the student being automatically assigned a failing grade for the course.** Students must contact their TA within two days of the original missed lab date. There is no opportunity for a make-up assignment if a student contacts her/his TA on the third day or later. As part of this goal, some form of written verification is required for all make-up work to show that a valid reason prevented a student from attending lab or an exam. Attending a lab section other than your regularly scheduled lab is not permitted.

Late Assignments: All assignments are due by the time and date assigned. Late assignments (except exams) may be submitted within 24 hours for a maximum of 50% credit. After that 24-hour period, 10% will be deducted for each additional day the assignment is late. Contact your TA to determine the best way to submit a late assignment.

Section Changes: All section changes and adds are done at the Center for Life Sciences Education office between 8:00 AM and 5:00 PM. The office is located in 260 Jennings Hall, 1735 Neil Avenue. The lecturer and lab instructors are not authorized to sign change or add forms; these can only be obtained through the Course Coordinator or Center for Life Sciences Education office.

Other:

- Treat your colleagues with respect
- Children/guests are not allowed in the laboratory
- No food or drink in lab
- Please come with a good attitude – we are here to learn and have a good time! ☺

Academic Misconduct: OSU has a strict code of academic misconduct that requires us to report any and all cases of suspected misconduct (e.g., cheating on an exam, plagiarism in written assignments, using an exam proxy, etc.) to the OSU Committee on Academic Misconduct for adjudication. We will adhere to this policy.

Accommodation Of Special Needs: Any students registered with the Office of Disability Services needing accommodation should make an appointment with Adam Andrews to discuss those needs. Please do this within the first two weeks of the quarter. Only Mr. Andrews is authorized to sign ODS forms. Please fill out those parts of the proctor sheet forms that are to be completed by the student before bringing the form for signature. This will help us ensure that your individual needs will be met appropriately and fairly.

Sexual Harassment: OSU and the Center for Life Sciences Education consider sexual harassment offenses to be unacceptable behaviors that disrupt opportunities for learning. While all members of the staff involved in this course have been trained in the OSU sexual harassment policies and procedures, this is not true for all OSU students. Please report any concerns about questionable or unwanted behavior to Dr. Smock, Mr. Horn, or Mr. Andrews.

Issue Resolution: The CLSE believes that student concerns are usually most effectively addressed by the staff closest to the situation. Therefore, students are ordinarily expected to address issues or concerns with their TAs first. If the issue cannot be resolved by your TA, or for some reason you feel that you absolutely cannot address your concern with your TA, please feel free to contact Adam Andrews (andrews.171@osu.edu) or Assistant Director Matt Misicka.

101 Lab and Lecture Schedule*

Week # and Date	Lecture topic	Textbook Reading	Lab Exercise (Lab Week Runs Wednesday through Tuesday)	Assignment Due
Week 1 21 Sept	Introduction to Biology	Ch 1	Exercise 2: How does science work?	
Week 2 26 Sept	Molecules of Life Cell Structure and Function	Ch 2: p. 50-70 Ch 3: p. 78-84	Exercise 12: What are these macromolecules we're eating for dinner?	
Week 3 3 Oct	Metabolism Photosynthesis Cellular Respiration	Ch 4	Exercise 11: How do plants and yeast function?	
Week 4 10 Oct	Cell Cycle Mitosis Meiosis	Ch 6: p. 217-237	Exercise 6: How do organisms grow?	Field Trip Assignment Due in Lab
Week 5 17 Oct	DNA Structure & Replication Protein Synthesis	Ch 5: p. 158-178	Exercise 8: How do you get from a gene to a protein?	
Week 6 24 Oct	<i>MIDTERM: Monday, Oct 24</i> Genetics	Ch 7	Exercise 9: How are human genetic traits inherited?	
Week 7 31 Oct	Evolution: Mechanisms and Evidence	Ch 8 Ch 10: p. 374-395	Exercise 3: How does the environment select for characteristics of organisms?	Paper Draft Due to TA by Friday @ 5pm via DropBox
Week 8 7 Nov	Diversity of Life: Prokaryotes Protists Fungi Plants	Ch. 13: p. 484-509 Ch 10: p. 396-401 Ch 12: p. 448-465, 468-477	Exercise 1: How do we categorize living things?	
Week 9 14 Nov	Invertebrates & Vertebrates	Ch 11	Exercise 14: How do we define the diversity of plants?	Evolution Paper Due to TA Wed. 11/16 in Lecture
Week 10 21 Nov	Ecology	Ch 14: p. 516-528, 538-543 Ch 15	No Labs Wednesday-Friday (November 23-25)	
Week 11 28 Nov	Conservation Biology Restoration Ecology	Ch. 16	Exercise 13: How do pollutants affect the environment? (Lab Week runs Monday through Friday this week only)	SALG
Finals Week	FINAL EXAM: Tuesday, December 6, 2011 1:30-3:18 PM Independence Hall 100			

* This schedule is a "working" document and subject to change with sufficient notice