BIOL 1104 – Organismal Biology
Spring 2011 Course Syllabus – REVISIONS from snow days are highlighted

Welcome to Bio 1104! I would like to invite you on a journey into the land of biology, scientific study, and problem solving!

Are you ready? I sure hope so, because I want this to be the journey of your life! If you're intrigued and you're ready to work hard alongside me, then let's go! The following pages provide our roadmap. More details will be revealed as we go . . .

Meet Your Professor: Dr. Paula P. Lemons. I did my Ph.D. in Biochemistry from the University of Kentucky, was a postdoc and faculty member in Biology at Duke University for 9 years, and I've been on faculty at UGA since January 2009. I love to teach because of the potential to shape students' interests and lives and because I love to keep learning new things.

My research focuses on developing valid and reliable ways to measure students' problem-solving skills. I'm really an interdisciplinary researcher, studying biology and education at the same time. Contact info: **Office: 405 Biological Sciences Building; Facebook:** Paula Lemons (look for the picture of me and my kids with Hairy Dawg); **Email: plemons@uga.edu; Phone: 706-542-3340.**

I am available to meet with you by appointment. I check course email no more than once per day. If you email me, you can expect to hear back in 24-48 hours.

As your professor you can expect me to:

- Focus on fundamental concepts of biology, using the details of biology to provide evidence and illustrations of the concepts.
- Ask you to develop thinking skills like applying, analyzing, and evaluating.
- Encourage us all to keep our eyes wide open to the world around us!
- Be accessible as a guide and facilitator of your learning.
- Do my best to be well-prepared, organized, and fair.

How Will You Need to Prepare for this Course? One of the best ways you can prepare for this course is by being willing to get excited about learning biology. You may not love biology like me, but we will all learn something and enjoy it, if you can find the gumption to give it a shot. Who knows? Maybe you'll end up changing your major! Aside from an attitude of interest and enthusiasm, here are some additional ways you can prepare:

Come to class – I expect you to attend lecture and lab (if you're signed up for lab). Simply showing up is one of the most important things you can do in this course. We will talk about things in class that you will not be able to access from the textbook. Lecture attendance will be monitored using ***Clicker Questions***.

Use the Lecture Outlines – You will be tested on what we cover in lecture. That means you need a good set of notes. ***I will provide Lecture Outlines for each class with Learning Objectives and key powerpoint figures*** (e.g., diagrams and text that I don't want you to waste your time copying). **Your job is to add notes to the outline based on what we do in class and to use these notes to develop a study guide for exams.** I will post the Lecture Outline to eLC by 5 PM the day before each lecture.

Visit eLC Regularly - Class information will be available on our BIOL 1104 eLC site. Use your myID name and password to login. You should check the website daily, as it is used for announcements, exam information, and as a resource for class and studying.

Work with groups of your peers – Each class period you will have an opportunity to work with one or more of your classmates to answer questions about the material. Most days the questions will be *Clicker Questions*. Several times in the semester you will also work with a group of your peers on case studies that will include group quizzes or assignments. I strongly encourage you to also work with your classmates outside of class in study groups and to share lecture notes and study guides with each other.

Read the textbook and background readings – A reading list is provided with the course schedule in a separate document. One good way to use the readings is to read them before coming to class so that you are prepared to learn. Your readings will include selections from:

- **The course textbook, *Essential Biology with Physiology 3rd edition by Simon, Reece, and Dickey***.
- Pre-class readings for the Case Studies posted on eLC.
- NOTE: For some lectures I may provide you with additional reading resources (e.g., websites) that support the parts of lecture that go beyond the textbook. Stay tuned for these in lecture and be sure to look at them, as they can be a good source of information as you prepare for exams.

Study outside of class – You will need to invest time outside of class, reading the textbook and other readings, going over your notes to fill in gaps, asking me and your peers to look at your notes or respond to parts you don't understand, and asking yourself questions that force you to apply the material. We expect you to spend at least 4-6 hours per week for this course.

What will be the format of the course?

Learning goals. When you've completed this course, I expect you to:

- Be more interested in biology than you were when you started the course.
- Know what it means to do science.
- Know and comprehend key content in organismal biology.
- Demonstrate thinking skills that are frequently used to answer questions about biology, including applying your knowledge to problems that are new to you, seeing patterns and organization in new problems, and determining the quality of different pieces of information.

The table below and continued on the next page includes some of the major content pieces we will consider this semester along with some sample questions that illustrate how I'll ask you to think about that content. Study for this course by knowing and understanding the content and practicing answering questions like the ones below.

Content . . .	**Thinking about it . . .**
Evolution by natural selection	How does the problem of antibiotic resistance illustrate the concept of natural selection?
Phylogenetic systematics	A new organism is discovered. Based on the methods of phylogenetic systematics how could we determine where this organism belongs on the Tree of Life?

The three domain system of classifying organisms	A new microscopic organism has been found in the human mouth. It is unicellular and has no nucleus. Which of the three domains does it belong to?
Bacteria and archaea	One bacterial cell can survive in a deep see hydrothermal vent. Another one cannot. How can this be?
Plant evolution	On a walk in the woods, you come across a plant you've never seen before. Of the four major categories of plants, hypothesize which one it belongs to? What is the evidence for your hypothesis?
Fungi	A local forest has been treated with fungicide. Based on what you know about fungi, predict the consequences of this treatment to the fungi and the other organisms in the forest.
Animal evolution	Of several pieces of data provided, choose the piece that is most important in illustrating the fact that all animals share a single common ancestor?
Homeostasis	Although we've not studied kidney function this semester, it works according to the following model. In this model, which component is the system effector?
Neurons and action potentials	You are on a trip to the jungle and are bitten by a snake. You experience numbness and paralysis. How does the toxin that is making you sick work?
Models of population growth	What model of population growth is the human population mimicking?

Lecture description

Tues/Thurs, 9:30-10:45 AM Room 404E Biological Sciences Building.

Most days, lecture will be fairly traditional. I'll use Powerpoint presentations to present biological facts and concepts to you. ***You should use these presentations as a starting point to build your own set of notes based on what I say in class, the things I write on the screen/doc camera, and the questions and discussion that emerge***. Also, in class I will give you repeated opportunities to test your understanding of the material using ***Clicker Questions.***

Some days, we will do ***Case Studies*** during class time. You will complete the case study with a small group of your peers. ***I use Case Studies because they give us a chance to bring in some real-world issues that reveal the value of learning biology. We also use these exercises because research shows that working in groups improves your learning and your attitudes about science.***

Small Group Policy

I allow you to choose the people you work with on clicker questions, case studies, and group studying. You may change groups throughout the semester; you don't have to work with the same people all the time. I will not keep a record of who works with whom. I encourage you to take an active role in finding a group of peers to work with who will facilitate your learning in this course.

How will we know if this course is doing its job?

Ongoing feedback from you to us

I value your feedback and need it to make the course do its job. Please talk to me at any time, if you have something on your mind that you believe could help the course accomplish its goals more effectively.

Assessment of your learning

Assessment of your learning includes grading, as well as other ways I try to find out if you understand the material and can use it to solve problems. The following graded assessments are meant to support your progress toward the learning goals described. Those assignments are as follows:

Assignment	Total Points	Approximate % of overall grade
Exam Preparation Quiz (replacing Case Study #1 Group Quiz)	10	2
Case Study #2 Group Assignment	10	2
Case Study #3, Pre-Class Quiz (5 points), Group Summary (10 points), Group In-Class Assignment (10 points)	25	6
Case Study #4 Group Quiz	10	2
Case Study #5 Group Assignment	10	2
Documented Problem Solving Homework	5	1
Exam 1	100*	22
Exam 2	100*	22
Exam 3	100*	22
Final exam	125	28
Clicker Question participation	55	12
Total points	450*	100

*Since everyone's lowest midterm exam score will be dropped, the total number of possible points for the semester is 450, not 550.

- **Exam Preparation Quiz -** replaces Case Study #1 Group Quiz that would have been held on January 18 had the first week of classes not been cancelled. The purpose of this quiz is to provide you with experience in taking Exams in this course. The quiz will be held at the end of class on February 1 and will be worth 10 points.

- **Case Studies –** You'll be doing four case studies throughout the semester and will work on them in small groups during class. Each case study will have an assignment attached to it that is worth 10 points up to 25 points.

- **Documented Problem Solving Homework** – Early in the semester, I will introduce Documented Problem Solving to you as a study and test-taking strategy. Documented Problem Solving is a method of writing down all of the mental steps you go through in solving a problem. Experience suggests that this tool is very beneficial in learning to approach challenging problems of many types, including the multiple-choice scenario-based problems you will encounter regularly in this course. You will have a 5-point homework assignment to get you started using this technique.

- **Exams and Final Exam –** Three times during the semester I will give you an exam in class that will take the entire class period. The exams will be multiple-choice and machine graded. **You must bring a #2 pencil and a photo-ID to all exams.** The exams will test your knowledge of biological content and your ability to use that knowledge to solve problems that are new to you (i.e., that we have not discussed in class and that you've not read in the book). The dates for the midterm exams are included on the course schedule, and each one will be worth 100 points of your final grade. I will drop the lowest score among your three midterm exam grades. The Final Exam will follow the same format as the in-semester exams, will be cumulative, and will be worth 125 points of your final grade.

- **Clicker Question participation** – Clickers are handheld wireless response pads that you will use in class to answer questions. In addition to promoting attendance and participation, Clicker Questions will be used to give you practice answering the kinds of questions you will see on the exams. If you provide clicker question answers during 90% or more of the clicker class periods during the semester you will receive full credit (60 points). The clickers can be purchased at the campus bookstore (see coupon in textbook). For a brief tutorial on clickers please see: http://www.interwritelearning.com/support/tutorials/rfoverview.html

  For this class, you should enter your UGA myID as your clicker identification number.

  PLEASE NOTE: If you experience a technical problem with your clicker, you must come see me immediately after class and you must show me the error signal on your clicker (e.g., "answer not received'). Only in this circumstance will you receive credit for class attendance. I will not accept excuses for lost clickers, clickers left in your room, or clickers with dead batteries. Also, you may not share clickers with anyone in the class, and if you do, you forfeit the possibility of having me check your clicker data for accuracy.

Calculation of letter grades – Your letter grade for the course will be calculated at the end of the semester and will be based on your final percentage. Your final percentage will be determined by adding the total number of points you have earned, dividing it by the total number of points you could have earned (450 points), and multiplying by 100. I will use the following scale for determining letter grades: 100-93% A; 92-90% A-; 89-87% B+; 86-83% B; 82-80% B-; 79-77% C+:76-73% C: 72-70% C-; 69-60% D; <60% F. However, I reserve the right to alter this scale, in your favor, if the mean percentage for the course is lower than 80%, by setting the B-/C+ cutoff at the course mean.

Is there anything else?

Class etiquette - Please be on time for class and switch your cell phone off. Please do not leave class early (this is very disruptive), and treat each other with respect. Please keep the lecture hall clean; use the trashcans and recycling bins outside the lecture hall.

Missed Exams - If you miss an exam due to illness, authorized representation of the University, or extraordinary personal circumstances, you must notify me as soon as possible. For excused absences from an exam, make-up exams generally will not be given; rather the score on a missed exam will be based on the prorated scores of other components of the course. Unexcused absences will receive a score of zero.

More generally, requests for extensions on assignments due to illness, authorized representation of the University, or extraordinary personal circumstances must be requested in advance of the deadline or as soon as possible. Unexcused late submissions of assignments are not acceptable and will result in a score of zero (0) being entered for that assignment.

Appeals Process - If you feel that there has been a mistake in your grade on an exam or another assignment you should talk with me so that we can decide whether or not I should reconsider the score I gave you. I will not consider grading appeals beyond one week after I return an assignment to you.

Academic Honesty - As is expected of all UGA students, I expect you to know and accept the standards contained in "A Culture of Honesty" (http://www.uga.edu/honesty/ahpd/culture_honesty.htm). Among other things, this commitment and statement means that you agree not to cheat, lie, or plagiarize. If you have questions about an assignment and academic integrity please ask me. Students who violate this policy will be reported to the Office of the Vice President for disciplinary action, and are subject to severe disciplinary penalties including the possible failure of the course and/or dismissal from the University.

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.