

BIOLOGY 101 LABORATORY for Principles of Biology

FALL 2018

Laboratory Director: Barbara Stegenga

Email: bstegenga@bio.unc.edu

LABORATORY REGULATIONS:

- **BIOLOGY 101 LABS BEGIN Monday, Aug 27 – Aug 30.** Labs meet simultaneously in 207, 208, 209 and 214 in Coker Hall, First Floor.
- Bring your lab manual to the first laboratory meeting. You will do a lab activity on this day. "Laboratory Exercises for Biology 101" is available in Student Stores. No check-in is required.
- Prompt attendance is imperative: Instructions and demonstrations begin on time, so plan to get to lab early. It is expected that you read through the lab activities in the lab manual before coming to lab so you are better prepared to work on the assignments and take the quizzes.
- You must be excused by your lab instructor within 48 hours of any absence. Permission to make up the lab missed is granted for:
 1. Your own illness, or illness or death in your family with a written note from you.
 2. Official university function with written excuse from the official in charge.
- If you know you have to miss a lab, you should immediately contact your TA (you should write down your TAs email as soon as you get it in lab). Do not assume an email has been received unless you receive a reply. You may only attend another lab to make up the one you missed if your TA has excused you. An **unexcused** lab deducts 10 points from your final grade and counts as a zero on any missed work.
- For safety reasons absolutely NO FOOD or DRINK is permitted in the laboratory rooms. Cell phones should be silenced during lab. Some lab exercises use dyes, stains and chemicals that might damage clothing. Pay attention to the lab you are doing each week so that you wear the appropriate clothing. You are encouraged to wear closed shoes. No visitors are allowed in the lab.
- All assignments should be written by you alone. **Collaboration outside of lab on any assignments is not permitted.** Lab reports, outlines and the essay should be written without referring to other students work whether it is on paper, through email, text, or any other social media. The Honor Code is strictly upheld in this course and violations will be reported. See the Biology 101 lab manual for a detailed description of the Honor Code and the pledge that is required to be on all written assignments before being graded.

LABORATORY SCHEDULE:

Day	LABORATORY EXERCISE
Aug 27 – Aug 30	1. Process of Science, Microbiology and Microscopy (Appendix)
Sept 3 – Sept 6	NO LABS – LABOR DAY
Sept 10 – Sept 13	2. Cells (Eukaryotes), Gram Stain (Appendix)
Sept 17 – Sept 20	3. Photosynthesis analysis (Procedures outline due, Quiz)
Sept 24 – Sept 27	4. Photosynthesis experiments (Draft of Intro, Materials & Methods due)
Oct 1 – Oct 4	5. MIDTERM
Oct 8 – Oct 11	6. Genetics: The Principles of Mendel ®
Oct 15 – Oct 18	NO LABS – FALL BREAK
Oct 22 – Oct 25	7. Natural Selection and Adaptation (Present Case Study)
Oct 29 – Nov 1	8. Enzymes (Procedures outline due, Essay due, Quiz)
Nov 5 – Nov 8	9. Mammalian Anatomy: I ®
Nov 12 – Nov 15	10. Mammalian Anatomy: II (Pig Part Quiz), Online Evaluation in lab
Nov 19 – Nov 22	NO LABS - THANKSGIVING
Nov 26 – Nov 29	11. FINAL EXAM ® LAB REPORTS WILL BE DUE ON THESE DATES

Biology 101 Laboratory Assignments Fall 2018

Topic	Assignment due
1. Scientific Method, Microbiology, Microscopy	
2. The Cell (Eukaryotes)	<ul style="list-style-type: none"> • Outline of Lab Report for Hand Washing Experiment - 4pts
3. Photosynthesis Analysis	<ul style="list-style-type: none"> • Quiz - 3pts • Procedures outline due – 2pts
4. Photosynthesis Experiments	<ul style="list-style-type: none"> • Draft of Intro and Materials & Methods section due, 2pts
5. Midterm	<ul style="list-style-type: none"> • Midterm - 30pts
6. Genetics	<ul style="list-style-type: none"> • Photosynthesis Lab Report due – 20pts
7. Natural Selection & Adaptation	<ul style="list-style-type: none"> • Present Case Study - 2pts
8. Enzymes	<ul style="list-style-type: none"> • Enzymes Procedures outline due - 2pts • Quiz – 3pts • Adaptation Essay due– 8pts
9. Mammalian Anatomy: I	<ul style="list-style-type: none"> • Enzymes Lab Report due - 20pts
10. Mammalian Anatomy: II	<ul style="list-style-type: none"> • Bring lap top to do online evaluation in lab • Pig Part Quiz (Oral) - 4pts
11. Final Test	<ul style="list-style-type: none"> • Final Test - 50pts

TOTAL

150pts

Lab Times: M,W – 9:05am -12:05pm, 1:25-4:25pm, 5:00-8:00pm
TTh – 9:30am -12:15pm, 1:00 – 4:00pm, 5:00-8:00pm

Lab TAs will provide their name and email address in lab and Sakai will be used for accessing slides and grades.

Goals and Learning Outcomes: The goal of this lab course is to reinforce topics covered in the lecture course and to expose students to collaboration and writing in the sciences. The lab course meets a Communication Intensive (CI) requirement and builds from writing outlines to lab reports and an essay. The course focuses on having students interpret data and think critically.

Written Assignments: All written assignments (The Outline of Hand Washing Experiment, Procedures Outline of Photosynthesis Experiment, Draft of Introduction and Materials and Methods Section of the Photosynthesis Lab Report, Photosynthesis Lab Report, Adaptation Essay, Procedures Outline of Enzymes Experiment and Enzyme Lab Report) are turned in to and graded by the TAs. Students do a peer review of the Photosynthesis draft that the TA then collects and grades. Drafts that are revised and graded are handed back to the student for use in writing the lab reports. Lab reports are to be no more than 10 pages of text in length and no less than 5 pages of text. The outlines should be 1-2 pages in length and the draft should be 2-3 pages in length. All written assignments are typed and include the Honor Code Pledge. The lab TAs grade lab reports from other sections to rule out any biasness.

Laboratory Grading: The honor code is strictly upheld in this course. Your grade will be determined by tests, daily grades, grades on lab reports and on cleanup/group participation. Each of these written assignments is to be your own creative work and no collaboration outside of lab in writing these is allowed. Your pledge must be included on all written work turned in to your instructor. All tests are cumulative. Any grading concerns (appeals) must be submitted within a week after the assignment is handed back in lab. The appeal must be typed and attached to the original assignment when turned in to the TA. Extra credit assignments are not allowed. If you are having trouble with assignments during lab, talk to your instructor first. You may also use tutoring services on campus for understanding concepts and the Writing Center for help with your written assignments.

All assignments you submit for this class should be written by you alone. Even if a group worked collaboratively or if data were collected with a partner, the written product must be done on an individual basis without referring to the reports of other students. The statement "I pledge that I have neither given nor received unauthorized assistance on this assignment and it is entirely my own creative work" reflects in spirit and in letter the Honor Code that is upheld at this university. It should be included on all written work.

Copyright Information: All materials used in this course including notes and assignments are covered by copyrights and the University's Copyright Policy, which can be found at <http://www.unc.edu/campus/policies/copyright%20policy%2000008319.pdf>

"STUDENT WORKS THAT CONSTITUTE NOTES OF CLASSROOM AND LABORATORY LECTURES AND EXERCISES SHALL NOT BE USED FOR COMMERCIAL PURPOSES BY THE STUDENT GENERATING SUCH NOTES."

In addition to two tests, a quiz on Photosynthesis and Enzymes will be given before each of these labs begins. The quizzes are worth two points each and cover any material in the lab manual on the topic. The purpose of the quizzes is to make sure you have read and prepared for the scheduled experiment. The oral quiz given during the Mammalian Anatomy lab is worth eight points and requires students to identify internal anatomy of a dissected pig. This is an oral quiz with two minutes to identify four parts. The other assignments due during the semester are written assignments. Any assignment that is turned in late will have 10% of the value deducted for each day it is late. Grading concerns must be submitted within a week of receiving the graded work. Grades are no longer negotiable as of the final exam day. Computer problems are not acceptable excuses for late work, therefore, you should always save your work frequently and in more than one location. Do not wait until the last minute to print your work.

Grades are determined based on the combined averages of all sections. The grade seen on Sakai is not accurate as it does not factor in the section averages.

Lab Reports: Lab reports are based on experiments performed in lab and should be written completely in your own words. Quotations should be cited. Reports should be comprehensive descriptions of the hypotheses of interest, experimental methods designed to test those hypotheses, results of the experiments, and interpretations of the results. Guidelines for writing a lab report are in the laboratory manual and include:

- Limitation of 10 pages of text exclusive of title page and graphs, charts and tables. Lab reports should not be less than 5 pages of text.
- All text should be double-spaced
- All margins should be 1 inch
- Written in past tense and in paragraph form with the following sections: Introduction, Materials and Methods, Results and Discussion.

To help you write a full scientific lab report, Biology 101 requires students to write an outline (1-2 pages long), a partial draft (2-3 pages long and typed) and critique another student's draft report of the photosynthesis experiment. An outline of the experimental procedure for the enzyme experiment is also required and should be 2-3 pages in length and typed. The outline should be written in standard hierarchical outline format using numbers and letters to identify sections and major points. The partial rough draft of the photosynthesis lab report should include the Introduction and Materials and Methods sections. The partial rough draft will then be critiqued in lab by your lab partners.

Genetics Case Study Presentation: You will work as a group with your lab partners to prepare and present a genetics case study from the lab manual. The assignment requires working outside of lab. Research on the genetic disorder assigned is done by all members of the group and is then presented in lab. Presentations are no longer than ten minutes and require participation by all students in the group.

Adaptation Essay: The writing assignment at the end of the Natural Selection and Adaptation laboratory is to demonstrate your understanding of the mechanisms of adaptation by mutation and natural selection, using examples from the lab. You will explore evolutionary mechanisms in this assignment and turn it in at the end of lab.

Exams: Biology 101L has two exams: a midterm and final. The midterm is one hour and covers material from the first lab through the photosynthesis lab. The final covers material from the entire semester, however, more emphasis is on the material after the midterm. Leaving the lab during an exam is not permitted unless excused by the TA. Cell phones must remain in the lab if leaving to use the restroom. Exams are practical and the format includes short answer, true/false, multiple choice and calculations.

Studying for the exams: In addition to studying terms throughout the manual and understanding the Learning Outcomes for each lab, it is important to know what you did in lab and why it is important. Ask yourself what was the goal of today's lab? How does it relate to what you studied in lecture? What was the purpose of using specific equipment?

For students who register through **Accessibility Resources and Service (ARS)** for different types of disabilities, you will be given accommodations such as extended time on exams or help in the lab if needed. Please note that lab exams can only be taken in the lab and not at a specific testing location through ARS. The lab exams have a practical component to them which ARS cannot provide.

The Department of Biology values the perspectives of individuals from all backgrounds reflecting the diversity of our students. We broadly define diversity to include race, gender identity, national origin, ethnicity, religion, social class, age, sexual orientation, political background, and physical and learning ability. We strive to make this lab and this department an inclusive space for all students.