Biology 124 Laboratory
Summer 2015

Instructor: Dr. Melanie Sanchez-Dinwiddie

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Office Hours: I am here for *you* to succeed. If you need to see me outside of class please stop by anytime or schedule an appointment.

Meeting Time and Place: Academics Building, A135.

Required lab manual: Thinking About Biology: An Introductory Laboratory Manual 4th ed. We will be using this lab manual extensively; you will need to have your own to do well in this course.

Course description: This is course will be a fun and stimulating way to learn biology. The hands on experience will provide you with further understanding of problems and concepts in basic biology. The laboratory course will also provide the student with skills needed to work in a laboratory setting.

Student Learning Objectives: At the completion of this course the student will be able to:

- Demonstrate the correlation of lecture concepts with laboratory exercises.
- Distinguish the difference between knowledge of biological concepts and the application and analysis of biological concepts.
- Use a compound and dissecting microscope to identify microscopic structures.
- Explain and illustrate concepts of cell biology including: function and properties of cells, diffusion and osmosis, organic molecules, enzyme structure and function, molecular genetics, mitosis and meiosis, and human genetics.
- Relate the structure of tissues and organs to its function.
- Identify gross anatomy of a fetal pig.

Grading policy: The course grade will be determined as follows:

Attendance	5%
Pre-lab Assignments	20%
In-lab Quizzes (3 of 4)	30%
Midterm Exam	20%
Final Exam	25%

Grades will be assigned based on the student's percentage as follows:

100 or higher – A+	80-82 – B-	Below 60 – F
94-99 – A	77-79 – C+	
90-93 – A-	73-76 – C	
87-89 – B+	70-72 – C-	
83-86 – B	60-69 – D	

Make-up Exams: There are no make-up exams in this course. Make-up quizzes are given at the instructor's discretion with a valid excuse.

UNM Learn: This course will use UNM Learn (learn.unm.edu) for a variety of materials. You are responsible for all material distributed here. The due dates and due times are strictly enforced.

Attendance: Each absence will result in a 10% loss of your *attendance* grade. Laboratory exercises cannot be made up under any circumstances.

Withdrawal: If a student drops the course after the deadline to drop without a grade a grade, Friday June 12th, a grade of W may be given. It will be at the instructor's discretion whether a W will be granted.

Safety: Absolutely no food or drink is allowed in the laboratory. Please store your personal items in cabinets. For good laboratory practice wear closed toe shoes.

Financial Assistance: It is the student's responsibility to know policies for funding their education. It is the student's responsibility to maintain funding for their education.

Cell phones: As a courtesy to the class, please turn off all cell phones or pagers. DO NOT TEXT MESSAGE DURING CLASS. It is disruptive to your classmates and the instructor "I can see you." Any sight of a cell phone during exams or quizzes will result in an automatic fail for that assignment.

Special Needs: Qualified students with disabilities needing appropriate academic adjustments should contact the instructor by the end of the 1st week of the semester to ensure that your needs are met in a timely manner.

Academic Dishonesty: Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet the standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course. Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

Bloom's Taxonomy: Dr. Benjamin Bloom was a psychologist who worked on theories of education and learning. He was one of the first to publish a system for the classification of learning objectives. The aim of "Bloom's Taxonomy" is to achieve a higher level of learning and thought process. As an instructor I will construct this course with Bloom's Taxonomy in mind. A current version is provided for you on the following page. You are NOT required to memorize this list in any way. However understanding the lists will improve your success in this course.

Cognitive Process	What the Learner Does	Action Verbs for Cognitive Process	Examples
Remember	Recalls or recognizes information: facts, definitions, generalizations.	List, describe (from memory), name, label, repeat, recall, identify, state, select, match, know, locate, recognize, observe, choose, who, what, where, when, cite, define, indicate, memorize, outline, record, relate, reproduce, sort	-List the four biological molecules. -Identify the muscles of the forearm.
Understand	Constructs meaning by interpretation, classification, comparing, explaining, summarizing.	Arrange, associate, clarify, compare, convert, demonstrate, diagram, discuss, estimate, explain, extend, generalize, illustrate, organize, outline, paraphrase, restate, review, relate, sketch, summarize, translate, transform, similarities and differences, give examples	-Illustrate the four biological molecules. -Explain the function of cellular respiration.
Apply	Use methods, concepts, principles and theories in new situations; solve realistic problems that require the identification of issues and use of appropriate generalizations and skills.	Apply, calculate, change, collect, compute, construct, demonstrate, develop, employ, graph, illustrate, interpret, investigate, manipulate, modify, operate, practice, predict, prepare, produce, schedule, sketch, solve, use	-Produce a chart of the presence of the four biological molecules in a food sample. -Predict the action of a forearm muscle.
Analyze	Identifies how parts relate to one another or to a larger structure or purpose; considers available evidence to reach a conclusion, inference or generalization.	Analyze, appraise, break down, criticize, debate, deduce, detect, deconstruct, determine evidence and conclusions, discriminate, dissect, distinguish, examine, experiment, focus, find coherence, interpret, investigate, infer, inspect, inventory, map, question, relate, research, select, separate, structure, survey, test	-Interpret the results of an experiment to identify the four biological molecules. -Relate the structure of a protein to its function.
Evaluate	Judges the value of something by setting up criteria, processes, or standards and then determining how closely the idea or object meets the standards.	Coordinate, judge, select/choose, decide, debate, evaluate, justify, recommend, verify, monitor, the best way, what worked, what could have been different, what is your opinion, appraise, assess, conclude, criticize, discriminate, estimate, grade, prioritize/rank, rate, revise, score, support, value	-Evaluate why bone is composed of mostly minerals and not biological molecules. -Support your answer.
Create	Brings together parts to form a new whole or solve a problem that requires new creative thinking (at least new to the learner).	Create, hypothesize, design, construct, invent, imagine, discover, develop, induce, bring together, compose, pretend, predict, organize, plan, modify, improve, suppose, produce, set up, propose, formulate, solve (more than one answer), arrange, assemble, combine, devise, generate, manage, perform, prepare, dramatize, paint, compose, rearrange, reconstruct, relate, reorganize, revise, argue for, speculate	-Design an experiment to investigate the presence of biological molecules in a food sample. -Construct an argument for the necessity of phospholipids in a cell membrane.

Biology 124 —Summer 2015 Schedule

Date	Exercise	Activity	Quiz
Mon 6/1	#1 Scientific Method	1, 2, 3, (5), 6	
Wed 6/3	#2 Microscopy & #3 Cells	1, 3, 4, 5, 6/1, 4	
Mon 6/8	#7 Organic Molecules	1, 2	Quiz #1
Wed 6/10	#4 Diffusion & Osmosis	1, 2, 3, 4	
Mon 6/15	#8 Enzymes	1, 3	Quiz #2
Wed 6/17	#9 Molecular Genetics	1, 2, 3, 4, 5	
Mon 6/22	#10 Mitosis	1, 2, 3	Quiz #3
Wed 6/24	#11 Connecting Meiosis & Genetics	1, 2, 3, 4, 5, 6, 7	
Mon 6/29	Midterm Exam		
Wed 7/1	#12 Human Genetics	1, 2, 3, 5	
Mon 7/6	*Off – 4th of July Holiday*		
Wed 7/8	#14 Functions of Tissues and Organs	1, 2, 3, 6, 7	
Mon 7/13	#15 Cardiovascular System	1, 2, 4	Quiz #4
Wed 7/15	#16 Fetal Pig I & II	1, 2, 3, 4, 5, 6	
Mon 7/20	Final Exam		