

Biology 121 – Biological Concepts Laboratory: Cells, Metabolism, and Genetics

Course Location: Snell Hall 2102

Faculty Supervisor: Dr. Cheryl D. Davis (TCNW 207; Cheryl.davis@wku.edu)

Office Hours: Monday/Wednesday – 2:00pm to 4:00pm (or by appointment)

Laboratory Coordinator: Mr. Mark Clauson (SH 2103)

Lab Instructor: TBA

Lab Manual: Laboratory manuals (**Biological Concepts – Spring 2013**) can be purchased at the WKU Store or University Text Book and Supply the week before classes begin.

Course Description:

Biology 121 is an introductory laboratory that emphasizes the experimental aspects of cellular organization and processes, metabolism, DNA structure and replication, and Mendelian genetics. Since lab investigations illustrate, complement, and supplement material presented in Biology 120 lecture, this lab course should be taken concurrently with the lecture. Emphasis in this lab course is on learning-by-doing.

General Education Statement: This course fulfills the D-1 (DL). (Science/Mathematics) general education requirement. It will help you attain this general education goal and its corresponding objective: An understanding of the scientific method and knowledge of natural science and its relevance in our lives.

Specifically: - *how scientific knowledge is created, developed, and changed through experimentation and reasoning, and* - *demonstration of knowledge in one or more of the sciences including theories, concepts, and principles that explain observations and make predictions.*

Course Objectives: Upon completion of the course you should be able to:

- ❖ Explain the process of scientific inquiry and the importance of using controls in scientific experiments.
- ❖ Use common laboratory equipment successfully.
- ❖ Perform common laboratory techniques, appreciate the limitations of the techniques, and explain the purpose of each of the techniques.
- ❖ Record experimental data, represent data, analyze and interpret data, and draw appropriate conclusions based upon data.
- ❖ Demonstrate an understanding of the characteristics of living organisms including their chemical composition, cellular structure, cellular division, genetics, and metabolism.

Activities by Which You Will Learn Objectives

- ❖ Attending and actively participating in the laboratory each week.
- ❖ Completing all pre-lab exercises and reading/reviewing laboratory instructions detailed in your laboratory manual.
- ❖ Completing all laboratory experiments and assignments.

Preparation for lab:

You must read the lab manual before coming to class each week. Reading the lab beforehand will allow you to spend your time in lab focusing on the results of the experiments instead of trying to figure out how to do the experiments. Reading the manual before lab will also be necessary for the weekly quiz (see below). In addition, there are "Prelab" exercises at <http://bioweb.wku.edu/courses/biol121/prelabs.htm>. Your lab instructor will demonstrate how to access and complete the PreLab assignments during the first lab period of the semester.

GRADING:

Lab Attendance: (40pts)

Laboratory attendance is mandatory and you must arrive on time. Quizzes are given at the beginning of the lab, and you will not be allowed to take the quiz if you arrive after the quiz has been completed. In addition, if you leave the classroom before the laboratory has been completed, you will lose attendance points for that lab period. Perfect attendance will be awarded 40 points. One un-excused absence will result in a deduction of 20 points, a second absence will result in an additional deduction of 10 points, and a third absence will leave you with 0 attendance points. If you miss your regularly scheduled lab with an excused absence, you may arrange with your instructor to attend one of the other lab sections. The lab materials are only available for one week so the lab must be made up during the week in which you could not attend our regular meeting.

Assignments (50pts): There will be assignments given throughout the semester by your TA – the total value of the laboratory assignments will be 50. The value of each individual assignment will be determined by your lab instructor.

Weekly Quizzes (10 x 10 =100 pts): There will be a short, 10-point quiz given in the first 10 minutes of each lab (with the exception of the first lab, the day of the midterm, and the day of the final).

Exams (100pts X 2): There will be two exams covering the laboratory material from the first and second halves of the semester. Each exam will be worth a total of 100 points. The exams will consist of a 20pt practical plus an 80pt written portion. Make-up examinations will be given at the discretion of the instructor, usually only in the case of serious illness or death in the family.

Total Possible Pts: 390

Final grades are based on the percentage of the total points you **earn** in the lab.

The grade scale is as follows and is non-negotiable:

A = 90-100% B = 80-89.9% C = 70-79.9% D = 60-69.9% F = < 60%

ACADEMIC INTEGRITY: It is expected that each student will do his/her own work at all times. Therefore cheating/academic dishonesty in any form (plagiarism, altering exams, copying, etc.) will not be tolerated – violators will be reported to Judicial Affairs and the **minimum** penalty will be a grade of zero for the exam or assignment. The WKU student conduct code can be seen at:

http://wku.edu/judicialaffairs/?page_id=70

ADDITIONAL LABORATORY RULES:

Goggles are required for all labs involving liquids that could splash in your eyes. Please have goggles by the second week of lab.

No gum, food, drinks, or tobacco products are allowed in the laboratory at any time.

Cell phones, laptops, IPODS, and other electronic devices must be turned off and stowed away for the ENTIRE duration of the lab.

STUDENT DISABILITIES SERVICES: In compliance with university policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Office for Student Disability Services in Downing University Center, A-200. The phone number is 270 745 5004. Please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from the Office for Student Disability Services.

THE LEARNING CENTER: The Learning Center (DUC A330) provides free supplemental education programs for all currently enrolled WKU students. TLC offers CRLA Certified, one-on-one tutoring in over 100 general education subjects by appointment or walk in and also hosts a branch of the English Department's Writing Center. TLC is also a quiet study area, with side rooms designated for peer to peer tutoring, and offers a thirty two machine computer lab. Additionally, TLC has two satellite locations, one each in Douglas Keen Hall and in Pearce Ford Tower that provide computer and print service, tutoring, and quiet study areas. For more information, or to schedule a tutoring appointment, please call TLC at (270) 745 - 6254 or log on to the website at (<http://www.wku.edu/advising/index.php?page=the-learning-center/>)

Table of Lab Sections / Times

MONDAY	TUESDAY	WEDNESDAY	THURSDAY
002 10:20 – 12:20	005 11:10-1:10pm	008 10:20-12:20pm	011 11:10-1:10pm
003 12:40-2:40pm	006 2:20-4:20pm	009 12:40-2:40pm	012 2:20-4:20pm
004 3:00-5:00pm	501 4:40-6:40pm	010 3:00-5:00pm	503 4:40-6:40pm

LABORATORY SCHEDULE SPRING 2013

Week of: Laboratory: Prelab Exercises - Topics:

1-21-2013		NO LAB MEETING
1-28-2013	1	Introduction to Lab
2-04-2013	2	Metric system, Measurements, Graphing, Data Analysis
2-11-2013	3	Biological Molecules - I. Chemical Analysis of Food
2-18-2013	4	Biological Molecules - II. Proteins and Nucleic Acids
2-25-2013	5	Biological Membranes - Diffusion/Osmosis
3-04-2013	6	Properties of Enzymes - Biological Catalysts
3-11-2013		SPRING BREAK – NO LABS
3-18-2013		MIDTERM EXAM (100pts)
3-25-2013	7	Cellular Respiration
4-01-2013	8	Photosynthesis
4-08-2013	9	Cell Cycle, Mitosis, Cancer
4-15-2013	10	Mendelian Genetics
4-22-2013	11	Polymerase Chain Reaction / Agarose Gel Electrophoresis
4-22-2013	12	PCR continued / Review for Final

4-29-2013

FINAL EXAM (100pts)