



BIOL 104 BIOL APPLICATIONS - SL

Summer

Quality Leadership University
dba Universidad de Louisville
Calle 45, Bella Vista
Panama City, Panama
Phone: +507-264-0777

Class details:

Schedule: See Below

Room: Biology Lab at University Americana

Pre-requisites: none

Hours of Credit: 1

Instructor: Dr. Gary Cobbs

Office: Life Science Building (LF) room 224

University of Louisville

Louisville, KY 40292

Phone: (502) 852-5937 (Biology Dept. office: 852-6771)

e-mail: gacobb01@louisville.edu

Text: None: A laboratory manual will be distributed by the instructor.

Course Objectives: This course is designed as an introductory laboratory course for students to gain experience in the experimental aspects of science and to introduce students to the scientific method and its applications. Students will learn how to interpret experiments with positive and negative controls and to organize and interpret qualitative and quantitative information obtained from experiments performed in class. Data analytic methods to be used include graphing, computation of slopes, means, standard deviations and standard errors.

Course Description: Concepts and techniques that will be used in the laboratory exercises include: concentration, dilution, serial dilution, diffusion, qualitative chemical test, quantitative chemical assay, and enzyme assay. Laboratory exercises that will be performed in class are listed below. Detailed description of each of these exercises are given in the laboratory manual.

- Measuring the osmotic strength of potato tuber tissue
- Effect of saliva on starch
- Demonstrating catalase activity in various tissues
- Plasmolysis of Elodea leaves
- Comparing amylase activity in saliva of different humans using the gel diffusion assay
- Comparing amylase activity in various tissues using the diffusion assay
- Demonstrating photosynthesis in plant leaves

- Carbon dioxide production by humans and yeast
- Hardy-Weinberg and genetic drift simulation (if time allows)

Grading: Since this course is taught concurrently with BIOL102 in a very short semester there is not sufficient time for students to produce lab reports after performing the lab activities. During the lab meetings students will perform the lab activities and record the results for all the experiments as well as collect notes on the details of the activities. After the end of both BIOL102 and BIOL104 each student will then use their notes and data to create a lab report for the entire semester. A lab report form will be supplied at the end of the semester to guide the creation of the lab report. A student's grade will be determined from lab report and class participation. The term "participation" means each student must be present and be involved in every activity scheduled for the class meetings. Each student is responsible for collecting their own data during the lab meetings and using that data in lab reports that will be written and submitted after the course is over. A student's absence from any lab activity will result in a penalty on the grade for that activity. Simply attending the lab meetings without submitting a lab report will not earn a passing grade in the course.

The grading scale:

Percentage of pointsA \$ 90% for Letter grades	90%> B \$80%80%> C \$70%	70%> D \$60%
---	--------------------------	--------------

The above cut off points for letter grades **may** be lowered at the end of the semester but they will not be raised.

Attendance: Attendance will be taken at the beginning and end of each class meeting and may also be taken at other times as well. If a student is late, it is the student's responsibility to make sure the lab instructor records his/her partial attendance for that day. Note: If a student misses a lab, it is the student's responsibility to arrange to make up the missed lab in another laboratory section if possible.

Schedule

	Activity Number									
day	1	2	3	4	5	6	7	8	9	10
1	y	y								
2	y	y		y	y					0
3				y	y	y	y			0
4						y		y	y	0

Activity Number	Description
1	Determining osmotic strength of potato tuber tissue
2	Gel diffusion assay: Dose response analysis
3	Elodea plasmolysis
4	Effect of saliva on starch
5	Measure catalase activity in various tissues
6	Gel diffusion assay: Comparison of different sources of amylase
7	Starch production by photosynthesis
8	Demonstrate respiration rate in Humans
9	Fermentation by yeast
10	Bean seedlings