

UNIVERSITY OF LOUISVILLE

BIOL 104 **Introduction to Biological Systems Laboratory** **Sample Course Outline** **Panama Program**

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, 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
- Measuring amylase activity in saliva and other tissues with the gel diffusion assay
- Detecting photosynthesis in plant leaves
- Measuring Carbon dioxide production by humans and other organisms
- Computing respiration rate in Humans and other organisms
- Hardy-Weinberg and genetic drift simulation (if time allows)

Schedule

	Activity Number								
day	1	2	3	4	5	6	7	8	9
1	*	*	*						
2	*	*		*	*				
3						*	*		
4						*		*	*

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