Biology 104 Syllabus
Summer, 2011

Quality Leadership University
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Class details:

Dates: August 4, 2014 to August 16, 2014
Schedule: Each lab section will meet on 4 different occasions for 4 hours each. The activities done during each meeting are given in the schedule below.
Room: Biology Lab at St. Augustine School
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)
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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, 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)

Grading: A student's grade will be determined from lab reports and class participation. The term "participation" means each student must be present and be involved in every activity scheduled for the class meetings. A students absence from any lab activity will result in a penalty on the grade for that activity.

The grading scale:

Percentage of points for Letter grades	A ≥ 90%	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
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

5	Catalase activity is various tissues
6	Gel diffusion assay: comparison of different sources of amylase
7	Starch production by photosynthesis
8	Measure $C0_2$ production in Humans and another organism
9	Fermentation by yeast