

**AMERICAN UNIVERSITY OF PUERTO RICO  
METRO CAMPUS  
FACULTY OF SCIENCE AND TECHNOLOGY  
Department of Natural Sciences**

**SYLLABUS**

**I. General Information**

Title of the course	: <b>Skills Laboratory I</b>
Code and number	: BIOL 1103
Credits	: one (1)
Académic term	:
Professor	:
Office Hours	:
Office telephone	:
Electronic mail	:

**II. Course Description**

Development of basic skills and laboratory techniques. Emphasis is given to the safety rules, measurement systems, statistical methods and the proper use of laboratory equipment and electronic information resources. The scientific method is used to solve problems in the area of biology. Required to submit laboratory reports following established scientific formats. Requires 45 hours of lab.

**III. Objectives**

After finishing the course, it is expected that the student can:

1. Apply safety rules when working in the laboratory.
2. Apply the skills of teamwork in laboratory experiments.
3. Enhancing the utility of scientific thinking in solving problems.
4. Organize scientific information using statistical analysis.
5. Solve problems involving the application of measurement systems.
6. Select materials and equipment that are required to develop an experiment.
7. Use the database to search for and interpretation of scientific information.

#### IV. SKILLS PROFILE OF THE GRADUATE THAT ARE CONSIDERED IN THIS COURSE

1. To communicate effectively in writing.
2. Students will develop the skills to handle materials and equipment to apply of using laboratory techniques and for analysis and interpretation of generated data.

#### V. Content

- A. Security; How to prepare a lab report
- B. Applying scientific thinking
- C. Handling and interpreting data
- D. Using measurement systems
- E. Using the microscope
- F. Management of pipettes and balances
- G. Preparation and management solutions
- H. Identification of organic macromolecules
- I. Chromatography
- J. spectrophotometry
- K. Changes in pH by metabolic activity
- L. Use of electronic information resources
- M. Oral Presentations

#### V. Activities

- Pre and Post tests
- Quizzes
- Questionnaire on meeting objectives

#### VI. Assessment

A. Instruments of evaluation		
Laboratory reports	100 points	34%
Attendance/notebook	100	33%
Final exam	<u>100</u>	<u>33%</u>
	<b>Total 300 points</b>	<b>100</b>

#### B. Curve:

90 – 100%	A
80 – 89	B
70 – 79	C
60 – 69	D
less than 60	F

## **VII. Special Notes**

### **1. Assistance or Special Needs**

Students who require special assistance or auxiliary services should apply them to the course or as soon as acquire knowledge of need, through the corresponding record in the Office of Professional Counselor, Mr. Jose Rodriguez, located in the Program University Orientation.

### **1. Honesty, Fraud and Plagiarism**

Dishonesty, fraud, plagiarism and other inappropriate behavior in relation to academic work constitute major infractions sanctioned by General Student Regulations. Major infractions, as provided in General Student Regulations may result in suspension from the University for a definite time over one year or permanent expulsion from the University, among other sanctions.

### **1. Use of Electronic Devices**

Cell phones and other electronic devices that could interrupt the teaching and learning process or disrupt a milieu for academic excellence will be deactivated. Critical situations will be addressed as appropriate. The use of electronic devices that allow access, store or send data during tests or examinations is prohibited.

## **VIII. Educational Resources**

### **Laboratory Manual**

González, Livier I., Oquendo, C., Arias, W.A., et. al. *Manual de Laboratorio Biol.* 1103. 3ra ed. Universidad Interamericana de Puerto Rico. San Juan, PR. 2007.

### **Texts**

Campbell, NA, Reece JB. *Biology*. 2008. 8<sup>th</sup> ed. Benjamin Cummings. Menlo Park, CA, USA.

Solomon, EP, Berg LR, Martin DW. *Biology*. 2005. 8<sup>th</sup> ed. Brooks/Cole Thomson Learning. Belmont, CA

Tillery, BW, Enger ED, Ross FC. 2001. *Integrated Science*. McGraw-Hill Higher Education. New York, NY.

Urry L, Cain ML, Wasserman SA, Minorsky PV, Jackson RB, Reece JB. 2014. *Campbell Biology in Focus*. Pearson, NY.

## **IX. Audio visual Resources**

Scientific Method- Jaguar Educational 2002 (20 min.)

The Big Picture: Distributions, Variations and Experiments – Insight Media

Measuring Up: An Introduction to Research – Insight Media

Basic Laboratory Skills- Crown 1996 (34 min.)

Introduction to the Microscope Series: How to use the compound -microscope – Clearwe 1991 (19:40 min.)

## **X. Electronic Resources**

AMA Citation Style. Long Island University Website. 2008. Available at: <http://www.liunet.edu/cwis/cwp/library/workshop/citation.htm>. Accessed November 05, 2009.

Heidcamp, WH. 1995. *Cell Biology Laboratory Manual*. Gustavus Adolphus College Web site. 1995. Available at: <http://homepages.gac.edu/~cellab/index-1.html>. Accessed November 05, 2009.

## **XI. Bibliography**

Eberhard, C. *General Biology Laboratory Manual*. Saunders College Publishing. Fort Worth, TX. 1985.

Lawson, AE. *Exploring the living World: A Laboratory Manual*. McGraw-Hill, Inc. NY. 1995.

Morgan, JG and Brown-Carter ME. *Investigating Biology*. Benjamin Cummings. Menlo park, CA. 2002.

Seidman, LA and Moore CJ. *Basic Laboratory Methods for Biotechnology: Textbook and Laboratory Reference*. Prentice-Hall, Inc. Upper Saddle River, NJ. 1999.

Vodopich, DS and Moore R. *Biology Laboratory Manual*. McGraw-Hill. Boston, MA. 2002.

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