

**INTER-AMERICAN UNIVERSITY OF PUERTO RICO**  
**METROPOLITAN CAMPUS**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**DEPARTMENT OF COMPUTER AND MATHEMATICS SCIENCES**  
**SYLLABUS**

**I. GENERAL INFORMATION**

Course title : STATISTICS 2  
Code and number : STAT 1202  
Credits : three (3)  
Requirements : STAT 1201  
Academic term :  
Teacher :  
Office hours :  
Phone : 787-250-1912 ext. 2230  
Email :

**II. DESCRIPTION OF THE COURSE**

Statistical inference, Intervals of reliability and validity. Test hypothesis, correlation and regression. Use of the calculator and computer programs.

**III. OBJECTIVES OF THE COURSE**

At the end of the course the student will be able to:

1. Understand the basic concepts of inferential statistics.
2. Estimate confidence intervals for averages and proportions
3. Use hypothesis tests to estimate the mean, variance and proportions based on one and two different samples.

4. Describe and apply regression models and simple correlation to simulated situations.
5. Apply the concepts of inferential statistics in solving problems.
6. Communicate appropriately using the relevant statistical language.
7. Integrate the use of technology in a relevant way.
8. Appreciate the importance of statistics and probability in the context of daily life.

#### **IV. COURSE CONTENT**

##### A. Statistical Inference

1. Estimation of the average for large samples
  - a. Proportions
  - b. Standard error concept
  - c. Point estimates versus estimates of confidence intervals
  - d. Confidence intervals on arithmetic (known  $\sigma$ )
  - e. Confidence intervals on the arithmetic mean (unknown  $\sigma$ )
  - f. Confidence interval about the proportion
2. Hypothesis test for parameters of a population
  - a. P - Values
  - b. Inferences with small samples with respect to the mean of a population (known  $\sigma$  or unknown  $\sigma$ )
  - c. Inferences regarding the proportion of a population
  - d. Tests Hypotheses for Categorical Variables
  - e. Difference between two proportions of independent samples
3. Hypothesis test for two population parameters
  - a. Inferences about two means
  - b. Inferences with dependent samples
  - c. Inferences for two proportions
  - d. Inferences for two variances

4. Multinomial experiments
  - a. Test of Chi - Square "Goodness of Fit"
  - b. Proof of Independence
  - c. Homogeneity test
5. Regression and Correlation
  - a. Method of least squares
  - b. Linear correlation coefficient
  - c. Standard error of the estimate
  - d. Misuse of regression and correlation

### **ACTIVITIES**

- Active participation in conferences and discussions
- Practice exercises in the classroom
- Communication activities (reading and writing in the classroom)
- Use of relevant technology to interpret and analyze data.
- Solution of application problems
- Collaborative learning

### **V. EVALUATION CRITERIA**

• Three Partial exams	51%
• Final Cumulative Exam	20%
• Assignments, Short Tests, participation in class, attendance and tutorial time	29%
• Total	100%

The grade curve will be:

- 90 - 100 A
- 80 - 89 B
- 65 - 79 C
- 55 - 64 D
- 0 - 54 F

## **VI. SPECIAL NOTES**

### **A. Auxiliary services or special needs**

All students requiring auxiliary services or special assistance must request them at the beginning of the course or as soon as they acquire knowledge of their needs, through the corresponding register, in the Orientation Program.

### **B. Honesty, fraud and plagiarism**

The lack of honesty, fraud, plagiarism and any other inappropriate behavior in relation to academic work constitute major infractions sanctioned by the General Student Regulations. Major infractions, as provided in the General Student Regulations, may result in the suspension of the University for a defined period of more than one year or permanent expulsion from the University, among other sanctions.

### **C. Use of electronic devices**

Cell phones and any other electronic device that could disrupt teaching and learning processes or alter the environment conducive to academic excellence will be disabled. The pressing situations will be addressed, as appropriate. The use of electronic devices that allow accessing, storing or sending data during evaluations or examinations is prohibited.

### **D. Compliance with the provisions of Title IX**

The Federal Higher Education Act, as amended, prohibits discrimination on the basis of sex in any academic, educational, extracurricular, athletic or any other program or employment, sponsored or controlled by a higher education institution regardless of whether it is performed inside or outside the premises of the institution, if the institution receives federal funds.

As provided by the current federal regulations, a Title IX Assistant Coordinator has been designated in our academic unit to provide assistance and guidance in relation to any alleged incident constituting discrimination based on sex or gender, sexual harassment or sexual assault. You can contact the Auxiliary Coordinator at telephone 787 250-1912, extension 2262, or email [griverar@metro.inter.edu](mailto:griverar@metro.inter.edu)

The Normative Document entitled **Rules and Procedures to Address Alleged Violations of the Provisions of Title IX** is the document that contains the institutional rules to channel any complaint filed based on this type of claim. This document is available on the website of the Inter-American University of Puerto Rico ([www.inter.edu](http://www.inter.edu)).

## VII. EDUCATIONAL RESOURCES

A. Text: Badalian, Raymond (2014) Probability and Statistics, A traditional / technology Approach, 1st Edition Educo International

### B. Materials

- EducOSOFT Platform
- MSExcel
- The course requires a scientific calculator with statistical functions or the Graphing Calculator TI-83, TI-84, TI-83 Plus or TI-84 Plus.

## VIII. BIBLIOGRAPHY

Johnson / Kuby (2012) STAT 2, 2nd Edition Brooks / Cole Cengage Learning, CA

Johnson - Kuby (2004). Elementary Statistics - the essentials. 3rd edition. International Thomson Editors S.A de C.V, Division of Thomson Learning, Mexico

Triola, Mario F. (2003). Elementary Statistics. 9th edition. Addison - Wesley Longman

Mc Grath, Robert E. (1997). Understanding Statistics: a research perspective. New York: Longman.

Bluman, Allan (2004) Elementary Statistics: A Step by Step Approach, Fifth Edition, Mc Graw Hill

Triola, Mario F. (2003). Elementary Statistics Using excel. 9th edition. Addison – Wesley Longman Barto, Ray, Diehl, John (1998) TI-83 Enhanced Statistics, Second Edition, Venture Publishing, Andover MA

Johnson, Richard, Bhattacharyya, Gouri (2001) Statistics: Principles and Methods Fourth Edition, John Wiley

## ONLINE REFERENCES

1. Electronic Statistics Textbook StatSoft 1984-2007 (Full Course Online)  
<http://www.statsoftinc.com/textbook/stathome.html>
2. The World Wide Web Virtual Library: Statistics  
<http://www.stat.ufl.edu/vlib/statistics.html>

3. Elementary Statistics with Excel, Triola, Mario F. © 2000 by Addison Wesley Longman A division of Pearson Education <http://awl.com/TriolaExcel>
4. Elementary Statistics, Statistics <http://www.thomsomlearning.com>
5. WIKIPEDIA free Encyclopedia on line with due citation.
6. Introduction to Descriptive Statistics  
<http://www.mste.uiuc.edu/hill/dstat/dstat.html>
7. Biostatistics Methods and Applications  
<http://ftp.medprev.uma.es/libro/html.htm>
8. BIOSTATISTICS for the Health Science <http://www.biostats-hs.com>