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)**
Academic Term	
Professor	
Business 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. PROFILE OF COMPETENCES

The Bachelor of Arts in Mathematics Program is designed to develop general competencies, linked to core courses, which allows the student to:

- Demonstrate knowledge and understanding of the concepts and standard mathematical processes (numerical, algebraic and graphical) in a variety of situations.

IV. 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.

V. 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 σ)
    e. Confidence intervals on the arithmetic mean (unknown σ)
    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 σ or unknown σ)
    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

VI. ACTIVITIES

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

VII. EVALUATION CRITERIA

Criteria	Score	% Score of the Final
Three Partial exams	300	51%
Final Cumulative Exam	100	20%
Assignments, Short Tests, participation in class, attendance and tutorial time	100	29%
Total	**700**	**100%**

The grade curve will be:

90 - 100 A

80 - 89 B

65 - 79 C

55 - 64 D

0 - 54 F

VIII. SPECIAL NOTES

A. Auxiliary services or special needs

Students who requires auxiliary services or special assistance must request it at the beginning of the course or as soon as they know they need it, through the corresponding registration in the office of the professional counselor, Dr. María de los Ángeles Cabello, located in the Program of University Orientation, Ext. 2306. Email mcabello@metro.inter.edu

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 based on of sex in any academic, educational, extracurricular, athletic activity 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

The Normative Document titled 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).

E. Course requirements

1. It is a requirement that the student have access to a computer with Internet and the MS Office applications programs, compatible with the IBM system.

2. If the course offering is online or hybrid with remote virtual meetings, the exams are answered guarded with RESPONDUS or RPNow. It is the student's responsibility to find out about it. To use the applications, you must have access to a computer with a camera and microphone and good Internet service. Respondus or RPNow does not work on mobile devices and neither does it work with satellite Internet. You should read more information in the General Information link on the Blackboard home page, in particular the links:

• **Student authentication**

• **Authentication process as a student in distance courses**

• **"RPNow" for exams or tests guarded**

Any questions in this regard the student should contact the professor or staff at the Center for Distance Learning and Technological Development (CAADT)

IX. 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.

X. REFERENCES

A. BIBLIOGRAPHY

Johnson / Kuby (2012) STAT 2 11th Edition Brooks / Cole Cengage Learning, CA

Triola, Mario F. (2021). Elementary Statistics. 14th edition. Addison - Wesley Longman

Rodríguez, Pedro J., Ana H. Quintero, Gloria E. Vega. (1997). Descriptive statistics: A conceptual introduction to data analysis. Puerto Rican Publications Editors.

Vera Vélez, Lambert (2003). Basic manual of descriptive statistics for education and social sciences. Puerto Rican Publications. Hato Rey, PR

Bluman, Allan (2017) Elementary Statistics: A Step by Step Approach, 10th Edition, Mc Graw HillTriola, 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

B. 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 Descritive 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