

**INTER AMERICAN UNIVERSITY OF PUERTO RICO
METROPOLITAN CAMPUS
BUSINESS FACULTY
GRADUATE DEPARTMENT
MBA PROGRAM**

SYLLABUS

I. GENERAL INFORMATION

Course Title	:	Quantitative Methods for Decision Analysis
Code and Number	:	BADM 5010
Credits	:	3
Academic Term	:	
Professor	:	
Office Location and Hours	:	
Office Telephone	:	
E-mail	:	

II. DESCRIPTION

Study of quantitative methods and the application of mathematical and statistical models for decision making in organizations.

III. PROGRAM LEARNING OUTCOMES

- Demonstrate knowledge and understanding of the main qualitative and quantitative models used in the decision-making processes and problem solving in the business context.
- Use quantitative and qualitative methods and methodology of research to substantiate decision making in the organization.

IV.. OBJECTIVES

It is expected that upon completing the course, the student will be able to:

1. Identify and diagnose major problems of business administration.
2. Select and apply an appropriate quantitative method or model to the identified problem that requires a particular decision from a business organization.
3. Interpret the results obtained from the quantitative analysis performed.

4. Recommend an appropriate action that implements the identified solution reached with the corresponding quantitative analysis that was undertaken.
5. Evaluate the results reached by implementing the identified solutions

V. CONTENT

- A. Introduction to quantitative analysis.
 1. Key definitions used in a quantitative approach.
 2. Benefits and categories used in mathematical models.
 3. Problems related to quantitative analysis.
- B. Concepts of probability and applications.
 1. Key concepts and Bayes Theorem.
 2. Random variables and probability distributions.
- C. Decision analysis.
 1. Steps in decision-making and its environment.
 2. Decisions under uncertainty and the realism criterion (Hurwicz).
 3. Decisions under risk and use of the Payoff Table.
 4. Decision Trees and probability estimation.
 5. Utility criterion applied to decision-making.
 6. The normal distribution and decision analysis.
- D. Models for inventory control.
 1. Relevance of inventory control.
 2. Economic Order Quantity (EOQ) y Reorder Point (ROP).
 3. Special models of inventory control:
 - a. Production Run Model (PRM)
 - b. Quantity Discount Model (QDM)
 - c. Safety Stock
 - d. ABC Analysis
 4. Additional models of inventory control:
 - a. Material Requirement Planning (MRP)
 - b. Just-in-time (JIT)
 - c. Enterprise Resource Planning (ERP)

VI. LEARNING ACTIVITIES

1. Critical reading and assignments
2. Lectures & discussion.
3. Tables and graphical presentations.
4. Exercises and verbal problems.

VII. EVALUATION

	Points (total)	Weights (%)
Exam 1	100	25
Exam 2	100	35
Final Exam	100	30
Discussion Forums	100	10
Total	400	100

Normal curve will be used when computing final grades:

- 100 - 90% -- A
- 89% - 80% -- B
- 79% - 70% -- C
- 69% o menos -- F

VIII. SPECIAL NOTES

A. Auxiliary services or special needs

All students who require auxiliary services or special assistance must request them at the beginning of the course or as soon as they become aware that they need them, through the corresponding registry, in the Office of the Coordinator of services for students with disabilities, Dr. María de los Ángeles Cabello. She is located in the Counseling and Counseling Program, office 111, on the first floor of the John Will Harris building, extension 2306

B. Honesty, fraud, and plagiarism

Dishonesty, fraud, plagiarism and any other inappropriate behavior in relation to academic work constitutes major infractions sanctioned by the General Student Regulations. The major infractions, as stated in the General Student Regulations, may have as a consequence, suspension from the University for a definite period greater than one year or the permanent expulsion from the University, among other sanctions.

C. Use of electronic devices

Cellular telephones and any other electronic device that could interrupt the teaching and learning processes or alter the environment leading to academic excellence will be deactivated. Any urgent situation will be dealt with, as appropriate. The handling of electronic devices that allow students to access, store or send data during evaluations or examinations is prohibited

D. Compliance with the Provisions of Title IX

The Federal Higher Education Act, as amended, prohibits discrimination because of sex in any academic, educational, extracurricular, and athletic activity or in any other program or function, sponsored or controlled by a higher education institution, whether or not it is conducted within or outside the property of the institution, if the institution receives federal funds.

In harmony with the current federal regulation, in our academic unit an Assistant Coordinator of Title IX has been designated to offer assistance and orientation in relation to any alleged incident constituting discrimination because of sex or gender, sexual harassment or sexual aggression. The Assistant Coordinator Sr. George Rivera can be reached by phone at extension 2262 or 2147, or by e-mail griverar@metro.inter.edu.

The Normative Document titled **Norms and Procedures to Deal with Alleged Violations of the Provisions of Title IX** is the document that contains the institutional rules to direct any complaint that appears to be this type of allegation. This document is available in the Web site of Inter American University of Puerto Rico (www.inter.edu).

IX. EDUCATIONAL RESOURCES

Text

Render, Barry; Stair Jr., Ralph M.; Hanna, Michael E.; Hale, Trevor S. (2017)
Quantitative Analysis for Management. 13ma Edición: Pearson Education.

Supplemental Readings

Support resources of the Textbook which are available online: (Companion website)
www.pearsonhighered.com/render

Audiovisual & Electronic Sources (includes title or name and URL address)

INFORMS: Institute for Operations Research & Management Science, www.informs.org
Operations Research: Science of Better, www.scienceofbetter.org
Academy of Management, www.aom.org
Kellogg School of Management, www.kellogg.northwestern.edu

Harvard Business School, www.hbs.edu
Foundation for Economic Education, www.fee.org
Centro para la Apertura y el Desarrollo de América Latina, www.cadal.org
Mises Institute, www.mises.org

X. BIBLIOGRAPHY (OR REFERENCES)

Baker, Kenneth R. (2015) *Optimization Modeling with Spreadsheets*. Wiley. (Ebrary)

Olson, David L. (2014) *Supply Chain Risk Management*. Business Expert Press.
(Ebrary)

Sower, Victor; Sower, Christopher (2015) *Better Business Decisions Using Cost Modeling*. Business Expert Press. (Ebrary)

Rev. 8/2022