SAGRADO
Universidad del Sagrado Corazón

Syllabus

Title: Business Analytics II

Code: BAN 302

Prerrequisite: BAN 301

CREDITS: 3 credits | 45 contact hours | 1 term

Description

The second part of the Business Analytics Techniques course focuses on data analysis that informs a company's strategies, within a framework centered on logical reasoning and practical communication. The course begins by revisiting the data management techniques, descriptive statistical analysis, and predictive analysis techniques covered in the Analytics Techniques course. This serves as a foundation for exposing students to analytical techniques that facilitate the development of business strategies. The course methods emphasize project-based learning and the use of technological tools from the field of business analytics. Students continue to develop communication skills by integrating quantitative analysis with statistical software proficiency. Within this framework, the course addresses ethical aspects of decision-making and systemic business planning. This course is intended for students majoring in Business Analytics within the Business Administration program, and its purpose is to reinforce the learning of analytical techniques used in business through practical exercises in active prediction.

Justification

In today's landscape, companies that harness the power of data analysis gain a competitive advantage in the market. The demand for professionals who know how to apply business analytics techniques is growing rapidly across all industries. Mastery of analytical techniques in the field of business administration can lead to career opportunities such as management consulting, finance, marketing, and operations management, among others. In a constantly evolving environment, the application of analytical techniques helps companies adapt to changes by effectively identifying new opportunities or challenges. Analyzing data is only part of the equation; effectively communicating ideas to stakeholders is equally important. In summary, studying business analytics equips students with the skills and knowledge necessary to thrive in the modern business world, providing a solid foundation for a successful career.

COMPETENCIES

The course develops the following competencies in students:

- Critical Thinking
- Ethical Reflection
- Communication

OBJECTIVES

Upon completion of the course, students will be able to:

1. Collect, clean, analyze, and visualize data using convenient analytical tools and techniques.
2. Understand the underlying principles of analytical techniques and predictive analytics, including relevant statistical, mathematical, and computational concepts.
3. Contribute to solving various types of business problems by employing analytical techniques within a framework of interdisciplinary collaboration.
4. Use critical thinking to question and critically evaluate the methods and results of data analysis and prediction, as well as consider the limitations and potential biases in their approaches.
5. Effectively communicate their findings and recommendations through written reports, presentations, and data visualizations.
6. Apply ethical principles in their analytical work, recognizing instances where data privacy and the ethical use of information must be safeguarded.

Content

I. Introduction
   A. Data Management
      1. Sample Selection
      2. Data Preparation
      3. Data Classification
      4. Analysis to Explore Associations
   B. Data mining
   C. Ethical considerations in data handling

II. Building Models in Spreadsheets
   A. Spreadsheet Design
      1. Mathematical models
      2. Model-Based Diagrams

B. Auditing spreadsheet models
    1. Model effectiveness
    2. Limitations and Biases
    3. Recommendations for Alternative Models

III. Prescriptive analysis
A. Optimization models
    1. Maximizing benefits, returns, or advantages
    2. Minimizing losses, costs, or disadvantages
    3. Alternative optimal solutions
B. Sensitivity analysis
C. Presentation of model results
D. Consideration of constraints or limitations

IV. Advanced prescriptive analysis
A. Models Involving Binary Variables
B. Optimization Using Binary Variables
C. Presentation of model results
D. Consideration of multiple constraints or limiting variables

V. Monte Carlo simulation
    A. Scenario analysis
B. Modeling through simulations
C. Optimizing the use of simulations
D. Verification and validation
E. Advantages and Disadvantages of Using Simulations

VI. Prescriptive Analysis for Business Decision-Making
A. Problem Formulation
B. Optimistic analysis
C. Conservative analysis
D. Expected-value analysis
E. Risk Consideration
F. Utility Analysis

METHODOLOGIES

The following active learning strategies are recommended:

- Lectures by the instructor
- Case study analysis
- Problem-based learning
- Projects

- Simulations
- Student presentations

ASSESSMENT

Midterm Assignments	25%
Exams	25%
Essays	10%
Oral Presentation	15%
Collaborative Project	25%
Total	**100%**

Student Learning Assessment

The institutional assessment rubric is applied to the core activity of the course.

BIBLIOGRAPHY

Text

1. Camm, J. D., Cochran, J. J., Fry, M. J., Ohlmann, J. W., & Anderson, D. R. (2016). Essentials of Business Analytics. Cengage Learning.

Other Resources

2. Albright, S. C. & Winston, W. L. (2020). Business Analytics: Data Analysis and Decision Making. Cengage Learning, Inc.
3. Evans, J. (2020). Business Analytics, 3rd edition. Pearson.
4. Fahl, J. (2017). Data Analytics: A Practical Guide to Data Analytics for Business, Beginner to Expert (Data Analytics, Prescriptive Analytics, Statistics, Big Data, Intelligence, Master Data, Data Science, Data Mining). CreateSpace Independent Publishing Platform.
5. Hair, J. F., Harrison, D. E., & Ajjan, H. (2022). Essentials of Marketing Analytics. McGraw-Hill.
6. Hodeghatta, U. R., Nayak, U., Hodeghatta, U. R., & Nayak, U. (2017). Overview of Business Analytics.
7. Marr, B. (2021). Key Business Analytics: The 60+ Business Analysis Tools Every Manager Needs to Know. Pearson Education Limited.
8. Nabavi, M., & Olson, D.L. (2018). Introduction to Business Analytics. Business Expert Press.
9. Paczkowski, W.R. (2021). Business Analytics: Data Science for Business Problems. Springer.

10. Palepu, K. G., Healy, P. M., Wright, S., Bradbury, M., & Coulton, J. (2020). Business Analysis and Valuation: Using Financial Statements. Cengage AU.
11. Pochiraju, B., & Seshadri, S. (Eds.). (2019). Essentials of Business Analytics: An Introduction to the Methodology and Its Applications (Vol. 264). Springer.
12. Runkler, T. A. (2020). Data Analytics. Wiesbaden: Springer Fachmedien Wiesbaden.
13. Sahay, A. (2018). Business Analytics, Volume I. Business Expert Press.
14. Sahay, A. (2019). Business Analytics, Volume II. Business Expert Press.
15. Srinivasa, K. G., & Kurni, M. (2021). A Beginner's Guide to Learning Analytics. Springer.

Reasonable Accomodation

For detailed information on the process and required documentation, please visit the appropriate office. To ensure a level playing field, in compliance with the ADA (1990) and the Rehabilitation Act (1973), as amended, any student who requires Reasonable Accomodation or special assistance must complete the process established by the Vice-Presidency for Academic Affairs.

ACADEMIC INTEGRITY

This policy applies to all students enrolled at the Universidad del Sagrado Corazón to take courses with or without academic credit. A breach of academic integrity is any act or omission that fails to demonstrate the honesty, transparency, and responsibility that must characterize all academic activity. Any student who violates the policy on honesty, fraud, and plagiarism is subject to the following sanctions: a grade of zero on the assessment and/or having to redo the seminar assignment; a grade of F(*) in the seminar; or suspension or expulsion, as established in the Academic Integrity Policy document effective November 2022.

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