



# **BUSINESS ANALYTICS**

**AI SYLLABUS**

# Business Analytics

## Course Description

This course provides an introduction to business analytics, with a focus on data visualization, statistical analysis, predictive modeling, and machine learning. Through a combination of lectures, hands-on projects, and case studies, students will learn how to analyze and interpret data to inform business decisions.

## Course Goals:

Understand the principles and practices of business analytics

Develop the skills to analyze and interpret data using statistical analysis and predictive modeling

Learn how to use data visualization tools to communicate insights

Gain insights into machine learning and its applications in business analytics

## Course Outline:

### Week 1: Introduction to Business Analytics

- Overview of business analytics
- The role of data analytics in business decision-making
- Trends and challenges in the field of business analytics

### Week 2: Data Visualization

- Introduction to data visualization
- Understanding the principles of effective data visualization
- Using data visualization tools to communicate insights

### Week 3: Statistical Analysis

- Introduction to statistical analysis
- Understanding descriptive and inferential statistics
- Using statistical analysis tools to analyze data

### Week 4: Predictive Modeling

- Introduction to predictive modeling

- Understanding regression analysis and decision trees
- Using predictive modeling tools to make forecasts and predictions

## Week 5: Machine Learning

- Introduction to machine learning
- Understanding supervised and unsupervised learning
- Using machine learning tools to analyze and interpret data

## Assessment and Evaluation:

Participation and Attendance: 10%

Homework Assignments: 30%

Midterm Exam: 20%

Final Exam: 40%

## Required Readings:

1. [Data Analytics Made Accessible: 2023 Edition by Anil Maheshwari](#)
2. [The Visual Display of Quantitative Information by Edward R. Tufte](#)
3. [The Elements of Statistical Learning: Data Mining, Inference, and Prediction by Trevor Hastie, Robert Tibshirani, and Jerome Friedman](#)
4. [Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking by Foster Provost and Tom Fawcett](#)
5. [Storytelling with Data: A Data Visualization Guide for Business Professionals by Cole Nussbaumer Knaflic](#)
6. [Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython by Wes McKinney](#)
7. [Introduction to Machine Learning with Python: A Guide for Data Scientists by Andreas C. Müller and Sarah Guido](#)

## Course Assignments:

1. Create data visualizations using data visualization tools
2. Conduct statistical analysis on a dataset and present findings
3. Build a predictive model using regression analysis or decision trees
4. Use machine learning algorithms to classify or cluster data

## Classroom Policies:

- Attendance and participation are expected in every class.
- Late homework assignments will not be accepted without prior approval from the instructor. If you have an emergency or an unexpected situation that prevents you from completing an assignment on time, please contact the instructor as soon as possible.
- Academic dishonesty, including plagiarism and cheating, will not be tolerated and will result in a failing grade for the course. It is the responsibility of each student to ensure that their work is original and properly cited.
- Students are expected to treat each other and the instructor with respect and professionalism. Inappropriate behavior, including harassment and discrimination, will not be tolerated and may result in disciplinary action.
- Accommodations for students with disabilities are available through the Disability Services Office.

## Course Resources:

- Online resources, including articles, videos, and tutorials, will be assigned throughout the course.
- Guest speakers from industry and academia will be invited to share their insights and experiences in business analytics.
- The course website will include links to business analytics tools and resources, such as software and datasets.