

BUSI 12: INTRODUCTION TO DATA ANALYTICS & BUSINESS DECISIONS

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Spring 2026
Units:	4
Hours:	4 lecture per week (48 total per quarter)
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU/UC
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

Student Learning Outcomes

- Students will demonstrate appropriate use of basic data analytics terms and concepts
- Students will perform basic data analytics tasks (e.g. data collection, manipulation, preparation, visualization, and decision) as they relate to the professional data analytics work environment

Description

This course is an overview of data analytics and their use in making business decisions, covering a broad selection of topics along the life-cycle of data analytics (business objective; data collection, cleansing, transformation; data analysis, data visualization/storytelling; data-based decision making). Professional skills, such as communication, presentation, and data storytelling, are presented. Students will acquire a basic working knowledge of data analytics through hands-on projects and study in a variety of business, engineering, social sciences, or life sciences domains. Issues of ethics, leadership, and teamwork are highlighted. Students will also learn foundational computational thinking skills using tools such as Python and Jupyter Notebooks to support data analysis and business decision making.

Course Objectives

The student will be able to:

- Describe data analytics/science and its applicability to business decision making
- Apply basic data analytics methods to business decision making
- Describe and perform basic data collection, manipulation, and preparation techniques using standard data analytics software
- Describe standard data analytics techniques used to identify insights, including data visualization, data storytelling, exploratory data analysis
- Present analysis insights based on standard data analytic practices
- Use programming tools (e.g., Python) to organize, manipulate, and visualize business data
- Simulate and model business scenarios using basic computational methods

Course Content

- Introduction to data and business analytics
 - Data, big data, information
 - Definition of data analytics, data science
 - Uses of data and data analytics in business
 - Survey of popular data analytics tools
 - Comparative descriptions of job roles that work with data and analytics
- Business framing in analytics
 - Data requirements, data sourcing, data collection
 - Business types and their interest in analytics
 - Business data analytics stakeholder analysis
 - Business data analytics stakeholder matrix
 - Business objective definition
 - Business objective to data solution mapping
 - Methods to communicate data analytic findings in business vs. non-business context
- Data preparation
 - Data analytic tool fundamentals
 - Tool structure and functionality
 - Integration to external data source
 - Static data vs. dynamic data
 - Absolute vs. relative references
 - Data paste, imputation, and filtering
 - Data cleaning best practices
 - Data cleaning and Null values
 - Merging and joining multiple datasets
- Introduction to data visualization and data storytelling
 - Chart creation
 - Column chart
 - Line chart
 - Scatter chart
 - Combination chart
 - Sparklines
 - Univariate, bivariate, and multivariate data visualizations
 - Tufte's 5 Data Graphic Principles of data visualization
 - Data storytelling principles
- Descriptive statistics
 - Data variable types (continuous vs. discrete, nominal vs. ordinal)
 - Measures of center in statistics, e.g., mean, median, and mode
 - Measures of spread in statistics, such as range, quartiles/interquartile range, standard deviation, variance
 - Descriptive statistics (SUM/COUNT, SUMIF/COUNTIF, SUMPRODUCT, etc.)
 - Statistics-based data visualizations
- Exploratory Data Analysis
 - Exploratory Data Analysis (EDA) definition
 - Applications of EDA to business insights
 - EDA-supported data visualizations
- Communicating data insights
 - Data visualization communication planning and messaging
 - Data insight design principles
 - Data storytelling best practices
- Computational thinking and simulation for business

- a. Programming fundamentals: variables, expressions, data types, iteration, functions
- b. Simulating business processes using basic algorithms
- c. Debugging and error-handling in analytic workflows
- d. Using tools such as Jupyter Notebooks to execute and document business-focused analysis
- e. Introduction to Python-based tools for data wrangling and visualization

Lab Content

Not applicable.

Special Facilities and/or Equipment

When taught as an online distance learning section, students and faculty need ongoing and continuous internet and email access.

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Formative activities and assessments
Critical thinking assessments
Summative assessments
Class project
Discussion
Programming assignments and/or hands-on assignments demonstrating simulation or data manipulation

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Lectures
Discussions
Activities
Problem-based learning
Case studies
Collaborative learning/peer review
Demonstration/modeling
Performance-based assessments

Representative Text(s) and Other Materials

Sharda, Delen, and Turban. Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th ed.. 2021.

Favero and Belfiore. Data Science for Business and Decision Making. 2019.

Riche, Hurter, Diakopoulos, and Carpendale. Data-Driven Storytelling. 2018.

Adhikari, Ani, and John DeNero. Computational and Inferential Thinking: The Foundation of Data Science. 2021.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Reading assignments:
 - a. Selected textbook readings (approx. 40 pages per week)
 - b. Articles
 - i. Example article: Scherbak, "Is data science a science: What to expect from your first data science project", Medium, March 12, 2019
 - c. Case studies
 - d. Web research

Discipline(s)

Business