# Fundamentals of Data Analytics – Syllabus

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\*\*Fundamentals of Data Analytics - 15-Week Syllabus\*\*  
  
\*\*Course Objectives:\*\* Students will gain a foundational understanding of data analytics principles and practical skills in Power BI, Python, Advanced Excel, and data visualization.  
  
  
\*\*Week 1: Introduction to Data Analytics & Course Overview\*\*  
  
\* Main Topic: What is Data Analytics? The Data Analytics Process.  
\* Subtopics: Types of Data, Data Sources, Ethical Considerations in Data Analytics.  
\* Activity: Introductions and Icebreaker; Data Analytics Case Study Discussion.  
  
  
\*\*Week 2: Introduction to Excel for Data Analysis\*\*  
  
\* Main Topic: Advanced Excel Functions and Features.  
\* Subtopics: Data Cleaning, Data Transformation, Pivot Tables, VLOOKUP/HLOOKUP.  
\* Activity: Excel Lab - Data Cleaning and Transformation Exercise.  
  
  
\*\*Week 3: Advanced Excel for Data Analysis (cont.)\*\*  
  
\* Main Topic: Data Analysis Tools in Excel.  
\* Subtopics: Conditional Formatting, Data Validation, Charts and Graphs in Excel.  
\* Activity: Excel Lab - Creating Charts and Dashboards from a Dataset.  
  
  
\*\*Week 4: Introduction to Data Visualization\*\*  
  
\* Main Topic: Principles of Effective Data Visualization.  
\* Subtopics: Choosing the Right Chart Type, Storytelling with Data, Avoiding Misleading Visualizations.  
\* Activity: Data Visualization Assignment - Creating a presentation using a provided dataset.  
  
  
\*\*Week 5: Introduction to Python for Data Analysis\*\*  
  
\* Main Topic: Python Basics for Data Science.  
\* Subtopics: Data Types, Variables, Operators, Control Flow.  
\* Activity: Python Lab - Basic Python Programming Exercises.  
  
  
\*\*Week 6: Python Libraries for Data Analysis (Part 1)\*\*  
  
\* Main Topic: NumPy and Pandas.  
\* Subtopics: NumPy arrays, Pandas DataFrames, Data Manipulation with Pandas.  
\* Activity: Python Lab - Data Manipulation with NumPy and Pandas.  
  
  
\*\*Week 7: Python Libraries for Data Analysis (Part 2)\*\*  
  
\* Main Topic: Data Cleaning and Preprocessing with Python.  
\* Subtopics: Handling Missing Data, Outlier Detection, Data Transformation.  
\* Activity: Python Lab - Data Cleaning and Preprocessing Project.  
  
  
\*\*Week 8: Introduction to Power BI\*\*  
  
\* Main Topic: Power BI Interface and Data Connection.  
\* Subtopics: Importing Data from various sources, Data Transformation in Power Query.  
\* Activity: Power BI Lab - Importing and Transforming a Dataset.  
  
  
\*\*Week 9: Power BI Data Modeling and Relationships\*\*  
  
\* Main Topic: Creating effective data models in Power BI.  
\* Subtopics: Establishing relationships between tables, Data Modeling Best Practices.  
\* Activity: Power BI Lab - Building a Data Model and creating relationships.  
  
  
\*\*Week 10: Power BI Data Visualization and Reporting\*\*  
  
\* Main Topic: Creating interactive dashboards and reports.  
\* Subtopics: Visualizations, Filters, Slicers, and Report Formatting.  
\* Activity: Power BI Lab - Creating a Dashboard and Report.  
  
  
\*\*Week 11: Descriptive Statistics and Data Interpretation\*\*  
  
\* Main Topic: Measures of Central Tendency and Dispersion.  
\* Subtopics: Mean, Median, Mode, Standard Deviation, Variance.  
\* Activity: Quiz on Descriptive Statistics; Interpretation of a dataset.  
  
  
\*\*Week 12: Inferential Statistics and Hypothesis Testing\*\*  
  
\* Main Topic: Introduction to Hypothesis Testing and p-values.  
\* Subtopics: t-tests, Chi-square tests.  
\* Activity: Statistical Analysis Lab using Python or Excel.  
  
  
\*\*Week 13: Regression Analysis\*\*  
  
\* Main Topic: Linear Regression and its applications.  
\* Subtopics: Simple Linear Regression, Multiple Linear Regression.  
\* Activity: Regression Analysis Case Study.  
  
  
\*\*Week 14: Project Work: Data Analytics Project Presentation Preparation\*\*  
  
\* Main Topic: Project Guidance and Review.  
\* Subtopics: Presentation Skills, Data Story Telling.  
\* Activity: Project Work and Peer Review.  
  
  
\*\*Week 15: Data Analytics Project Presentations\*\*  
  
\* Main Topic: Student Project Presentations and Final Discussion.  
\* Subtopics: Q&A session, Course Wrap-up.  
\* Activity: Student Project Presentations.

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