KOENIG SOLUTIONS · COURSE OUTLINE

Data Analytics: Pandas, Seaborn & Excel Stats

Learn to analyse and visualise data using Python, Pandas, Seaborn, Excel and SPSS, from data cleaning to statistical testing.

5 Days	9	50
DURATION	MODULES	TOPICS

COURSE OVERVIEW

This course begins with an introduction to Python and Google Colaboratory before covering Pandas for data frame handling, missing values, file operations and SQL operations. It then moves into visualisation with Matplotlib and Seaborn, followed by probability concepts, statistics fundamentals and measures of central tendency and dispersion. Later modules address data preparation, including handling missing and categorical data, cleaning and outliers, and exploratory data analysis using scatter plots, histograms and box plots. The course closes with an overview of Microsoft Excel and IBM SPSS, covering data import, Excel functions, charts, PivotTables, hypothesis testing, regression analysis and What-If analysis.

WHO THIS COURSE IS FOR

Data Analysts | **Business Analysts** | **Data Scientists** | **Statisticians** | **Excel Users** | **Research Analysts**

LEARNING OBJECTIVES

- Explain core Python concepts using Google Colaboratory
- Apply Pandas operations for data frames and missing values
- Create visualisations using Matplotlib and Seaborn plots
- Describe probability concepts including random variables and distributions
- Identify statistical measures such as mean, median and variance
- Apply data preparation techniques for cleaning and outliers
- Analyse data through univariate, bivariate and multivariate exploration
- Perform statistical analysis using Excel and IBM SPSS

COURSE SYLLABUS

9 Modules, 50 Topics

01

Introduction to Python

TOPICS

Introduction to Google Colaboratory · Introduction to Python

02

Pandas

TOPICS

Introduction to Pandas · Understanding Data Frame · View and Select Data Demo · Missing Values · Data Operations · File Read and Write Support · Pandas SQL Operation

03

Matplotlib

TOPICS

Plotting Histogram · Bar Chart · Pie Chart · Subplot

04

Seaborn

TOPICS

Numerical Data Plotting · Line Plot · Categorical Data Plotting · Regression Plots

05

Probability

TOPICS

- Data types and its measures
- Random Variables, its application with variables
- Probability-Application with examples
- Probability distribution with examples
- Sampling Funnel- Why and How

06

Statistics

TOPICS

- What is statistics?
- Basic terminologies in statistics
- Types of statistics
- Descriptive statistics
- Measure of central tendency (mean, median, mode)
- Measures of dispersion (variance, standard deviation, range - its derivation)
- Inferential statistics

07

Data Preparation

TOPICS

What is Data Pre-Processing? · Handling Missing data · Handling Categorical data · Data cleaning techniques · Outliers

08

Exploratory Data Analysis

TOPICS

Introduction · 2D Scatter-plot · 3D Scatter-plot · Univariate, Bivariate and Multivariate · Histogram · Box-plot · Variance, Standard Deviation

09

Overview of Microsoft Excel & IBM SPSS Tool

TOPICS

- Data Import and Cleaning
- Basic Excel Functions for Data Analysis
- Data Visualization with Excel Charts
- Advanced Excel Functions (e.g., PivotTables)
- Hypothesis Testing and T-Tests
- Linear Regression Analysis
- Excel's What-If Analysis and Solver
- Hands-on Statistical Analysis
- Overview of IBM SPSS tool

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

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