

Data Science: Python, Pandas & Regression

Learn to analyse data with Python and Pandas, apply statistical methods, and build regression, time series and machine learning models.

12

MODULES

69

TOPICS

COURSE OVERVIEW

This course begins with the foundations of data science and probability and statistics, then introduces Python syntax, data structures, control flow, functions and classes. It covers reading, writing and manipulating data with Pandas, and visualising it using Matplotlib, Seaborn and ggplot. It then moves into advanced statistics and predictive modelling, including regression, PCA, factor analysis, K-Nearest Neighbor and decision trees, followed by time series forecasting and an introduction to machine learning with Scikit-learn.

WHO THIS COURSE IS FOR

Data Analysts

Data Scientists

Python Developers

Business Analysts

Statisticians

LEARNING OBJECTIVES

- Explain the data science life cycle and its tools
- Describe measures of central tendency, dispersion and probability
- Apply hypothesis testing and Bayes theorem to data
- Implement Python data structures, loops and functions
- Manipulate and summarise datasets using Pandas
- Build charts with Matplotlib, Seaborn and ggplot
- Apply regression, PCA, KNN and decision tree models
- Develop time series forecasts and machine learning models

12 Modules, 69 Topics

01

Foundation for Data Science

TOPICS

Introduction to Data Science · Analytics Landscape · Life Cycle of a Data Science Projects · Data Science Tools & Technologies

02

Probability & Statistics

TOPICS

Measures of Central Tendency · Measures of Dispersion · Descriptive Statistics · Probability Basics · Marginal Probability · Bayes Theorem · Probability Distributions · Hypothesis Testing

03

Basics of Python

TOPICS

Install Anaconda · Data Types & Variables · String & Regular Expressions

04

Python Built-in Data Structures

TOPICS

Python list · Python dictionaries · Python set · Python tuple · Comprehensions

05

Control & Loop Statements in Python

TOPICS

For Loop · While Loop · Break Statement · Next Statements · Repeat Statement · if, if...else Statements · Switch Statement

06

Functions & Classes in Python

TOPICS

Writing your own functions (UDF) · Calling Python Functions · Functions with Arguments · Calling Python Functions by passing Arguments · Lambda Functions · Classes & Objects

07

Working with Data

TOPICS

Reading files with Python · Writing files from Python · Reading files using Pandas library · Saving Data using Pandas library

08

Analyze Data Using Pandas

TOPICS

Clean & Prepare Datasets · Manipulate DataFrame · Summarize Data · Churn Insights from Data

09

Visualize Data

TOPICS

Charts using Matplotlib · Charts using Seaborn · Charts using ggplot

10

Advanced Statistics & Predictive Modeling

TOPICS

- ANOVA
- Linear Regression (OLS)
- **Case Study:** Linear Regression
- Principal Component Analysis
- Factor Analysis
- Case Study: PCA/FA
- Logistic Regression (MLE)
- **Case Study:** Logistic Regression
- K-Nearest Neighbor Algorithm
- **Case Study:** K-Nearest Neighbor Algorithm
- Decision Tree
- **Case Study:** Decision Tree

11

Time Series Forecasting

TOPICS

- Understand Time Series Data
- Visualizing Time Series Components
- Exponential Smoothing
- Holt's Model
- Holt-Winter's Model
- ARIMA
- **Case Study:** Time Series Modeling on Stock Price

12

Introduction to Machine Learning

TOPICS

What is Machine Learning? · Supervised Learning · Unsupervised Learning · Using Scikit-learn · Scikit-learn classes ·
Case Study: Machine Learning Algorithm

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

Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

Ready to Get Started?

Talk to a learning advisor about schedules, group training and customised delivery.

Visit koenig-solutions.com

✉ info@koenig-solutions.com