

Data Science & Business Analytics

A job-ready, fully online program that takes you from Python foundations to real business insights — statistics, SQL, data cleaning & EDA, data visualization, Power BI/Tableau, machine learning, forecasting, and BI dashboards. Build a portfolio and get interview-ready.

Total: 60–65 Hours

Free Foundation: 15 Hours

Job-Ready Program: 45–50 Hours

Online & Live

Certificate

Free Foundation — 15 Hours

Start learning for free. Build your core Python, statistics, and data foundations.

Module 1: Programming Foundations with Python

Estimated Time: 5 Hours**Learning Objectives**

- Write and run Python programs confidently
- Use core programming logic to prepare for data analytics

Topics

- Python setup, syntax, variables, and data types
- Conditionals, loops, functions, and modules
- Lists, dictionaries, and file handling for data

Hands-on

- Build Python scripts that read, clean, and summarize data

Assessment: Quiz + Coding Exercises

Module 2: Statistics & Probability for Analytics

Estimated Time: 4 Hours**Learning Objectives**

- Understand the statistics that power data analysis
- Apply probability to reason about data and uncertainty

Topics

- Descriptive statistics: mean, median, variance, distributions
- Probability, sampling, and the normal distribution
- Correlation, hypothesis testing, and confidence intervals

Hands-on

- Compute statistics and visualize distributions in Python

Assessment: Quiz

Module 3: Data Handling with NumPy & Pandas

Estimated Time: 4 Hours

Learning Objectives

- Manipulate numerical data efficiently with NumPy
- Load, clean, and transform datasets with Pandas

Topics

- NumPy arrays and vectorized operations
- Pandas Series, DataFrames, indexing, and grouping
- Handling missing data and merging datasets

Hands-on

- Clean and analyze a real CSV dataset with Pandas

Assessment: Quiz + Lab

Module 4: Version Control with Git & GitHub

Estimated Time: 2 Hours

Learning Objectives

- Track code and notebooks with Git
- Collaborate and showcase work on GitHub

Topics

- Repositories, commits, and branches
- Merging, pull requests, and conflict resolution
- Building a professional analytics GitHub profile

Hands-on

- Push your first notebooks and projects to GitHub

Assessment: Quiz + Lab

Paid Job-Ready Program — 45–50 Hours

Go from foundations to fully employable across SQL, EDA, visualization, machine learning, forecasting, and BI dashboards.

Module 5: SQL for Data Analysis

Estimated Time: 5 Hours

Learning Objectives

- Query and aggregate data from relational databases
- Answer business questions directly with SQL

Topics

- SELECT, WHERE, GROUP BY, and ORDER BY
- Joins, subqueries, and common table expressions
- Window functions and analytical aggregations

Hands-on

- Write SQL analysis queries on a real business database

Assessment: Project Milestone

Module 6: Data Cleaning & Exploratory Data Analysis

Estimated Time: 5 Hours

Learning Objectives

- Turn raw, messy data into analysis-ready datasets
- Uncover patterns through exploratory data analysis

Topics

- Data cleaning, encoding, and outlier handling
- Feature scaling and transformation
- Exploratory data analysis (EDA) techniques

Hands-on

- Produce a full EDA report on a real-world dataset

Assessment: Project Milestone

Module 7: Data Visualization (Matplotlib, Seaborn, Power BI/Tableau)

Estimated Time: 5 Hours

Learning Objectives

- Communicate insights with clear visualizations
- Build interactive dashboards for business users

Topics

- Matplotlib and Seaborn plotting in Python
- Choosing the right chart for the message
- Interactive dashboards with Power BI and Tableau

Hands-on

- Build a visual data-story dashboard in Power BI or Tableau

Assessment: Lab

Module 8: Business Analytics & Statistical Inference

Estimated Time: 4 Hours

Learning Objectives

- Apply statistical inference to business decisions
- Translate data findings into actionable recommendations

Topics

- Hypothesis testing and A/B testing for business
- Regression analysis and key business metrics (KPIs)
- Cohort, funnel, and customer segmentation analysis

Hands-on

- Run an A/B test analysis and interpret business impact

Assessment: Lab

Module 9: Machine Learning for Data Science

Estimated Time: 7 Hours

Learning Objectives

- Build classification and regression models
- Understand how core ML algorithms work

Topics

- Linear & logistic regression
- Decision trees, random forests, and gradient boosting
- Clustering, k-NN, and the scikit-learn workflow

Hands-on

- Train and compare predictive models on real data

Assessment: Project Milestone

Module 10: Advanced ML & Model Evaluation

Estimated Time: 5 Hours

Learning Objectives

- Measure and improve model performance
- Engineer features that boost accuracy

Topics

- Train/test splits, cross-validation, and metrics
- Bias-variance, overfitting, and regularization
- Hyperparameter tuning and feature engineering pipelines

Hands-on

- Tune and validate a model to production quality

Assessment: Lab

Module 11: Time Series & Forecasting

Estimated Time: 4 Hours

Learning Objectives

- Analyze data that changes over time
- Forecast future business trends

Topics

- Trend, seasonality, and stationarity
- Moving averages and exponential smoothing
- ARIMA and modern forecasting techniques

Hands-on

- Build a sales forecasting model on time series data

Assessment: Project Milestone

Module 12: Big Data & Analytics Tools Overview

Estimated Time: 4 Hours

Learning Objectives

- Understand how big data is stored and processed
- Work with modern cloud analytics tools

Topics

- Big data concepts, data lakes, and warehouses
- Distributed processing with Spark fundamentals
- Cloud analytics and data pipeline basics

Hands-on

- Query a large dataset with a cloud analytics tool

Assessment: Lab

Module 13: Business Intelligence Dashboards & Data Storytelling

Estimated Time: 5 Hours

Learning Objectives

- Design executive-ready BI dashboards
- Tell a compelling story with data

Topics

- Dashboard design principles and KPI selection
- Building interactive reports in Power BI / Tableau
- Data storytelling and presenting to stakeholders

Hands-on

- Build and present an interactive BI dashboard

Assessment: Project Milestone

Module 14: Capstone Analytics Project, Portfolio & Job Readiness

Estimated Time: 4 Hours

Learning Objectives

- Ship a complete, portfolio-ready analytics project
- Prepare for the data and business analyst job search

Topics

- End-to-end capstone analytics project planning and build
- Portfolio, GitHub, and resume optimization
- Analytics interview, case-study, and SQL prep

Hands-on

- Build and present an end-to-end capstone analytics project; mock interviews and resume review

Assessment: Capstone Project + Mock Interview

Total Course Duration: 60–65 Hours

Free Foundation (15h) + Paid Job-Ready Program (48h). Includes portfolio projects, resume & interview prep, mock interviews, and a Progmatrix Certificate of Completion. Enroll at www.progmatrix.com