COURSE SYLLABUS

Python for Data Science Bootcamp

Discover Python and data science with no prior coding or math experience required. You'll learn the fundamentals of Python and libraries, including pandas and scikit-learn. By the end of the bootcamp, you'll be able to manipulate and analyze data with Python and create beautiful data visualizations.

Group classes (NYC) and onsite training are available for this course. For more information, email corporate@nobledesktop.com or visit: https://www.careercenters.com/courses/python-data-science-nyc



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Course Outline

Python Fundamentals

Python Fundamentals: Variables & Data Types

- Declare variables of basic types: integers, floats, strings, booleans
- Perform input/output with print() and input()
- Apply arithmetic, relational, and logical operators

Control Flow I: Conditional Logic

- Use comparison operators ==, !=, <, >, <=, >=
- Write if/else and nested conditionals
- Combine conditions with and/or for complex logic

Control Flow II: Loops & Iteration

- Implement for loops over ranges and lists; understand iterables
- Understand map and filter operations.
- Use list comprehensions to simplify operations.

DataFrames & Data Manipulation with pandas

- Construct DataFrames from various data formats via pd.DataFrame()
- Concatenate multiple DataFrames using pd.concat()
- Inspect DataFrame shape and handle missing values (NaN)
- Perform pandas data analysis operations to glean insight

Data Visualization: Charting Basics

- Plot time series with plt.plot() for line charts
- Create scatter plots using plt.scatter() to reveal correlations
- Decide between line vs. scatter based on data context and purpose

Trend Analysis with Regression Lines

- Understand least-squares regression concept and its interpretation
- Compute a best-fit line via numpy.polyfit()
- Overlay regression lines on scatter plots and make predictions

Advanced Plot Customization

- Annotate charts with titles, axis labels, and legends
- Highlight key data points (e.g., min/max) directly on plots
- Use stacked bar charts, pie charts, and animated charts to visualize data