

Python™ Diagnostic



Length: 2 Days / 4 Half Days

Overview: This course is designed for students who have a foundational understanding of Python and want to deepen their skills in using Python as a data analysis tool for diagnostic analytics—getting to the “why” behind your data. Students will explore data science analytics and exploration, covering essential topics such as aggregation, grouping, charting, and data storytelling. You will also learn about data cleaning, quantifiability, and key libraries like NumPy, Sci-Kit Learn, Matplotlib, and Seaborn. By the end of the course, you will be equipped to perform regression and classification analyses, enhancing your ability to derive insights from data.

Objectives: The objective of this course is to teach Data Science Analytics and Exploration within the context of Data Diagnosis, finding out the “why” behind your data. Topics include:

- Pandas Basics Review
- Aggregation
- Grouping
- Charting
- Data Story Telling
- Data Cleaning
- Quantifiability
- NumPy
- Sci-Kit Learn
- Matplotlib
- Seaborn
- Regression
- Machine Learning
- Classification

Data Analysis Review

• Pandas Review

- Importing
- Data Check
- Preliminary Clean Up

• Data Wrangling

- Slicing
- Filtering & Sorting
- Grouping

• Exploratory Data Analysis

- Charting Basics
- Descriptive Analytics

Making Diagnosis with Aggregation and Charting

• Making Hypothesis

• Preparing Data for Diagnosis

• Proving/Disproving Your Hypothesis

- How to know when your model is lying
- Using multiple Charts to prove or disprove your hypothesis.
- Analyzing multiple features

Using Machine Learning for making Diagnosis

• Using Machines to Diagnose Data

- Regression
- Classification

• Proper ML techniques

- Preparing Data for ML processing
- Normalization and Correlation
- Making Your First Machine



Prerequisites

Python Data Prep

Materials

- All students will receive slides with lecture material and data and labs.
- Software Needed on Each Student PC
 - Microsoft Excel 2010 or later (2013 or later recommended)
 - Internet access
 - Jupyter Notebook
- Related data and lab files will be provided

Other Python Courses Available: Python Data Prep; Python Predictive