

# Data Science and Analytics Bootcamp

**Complete Outline**

# About

## Program Length:

28 Weeks

## Instruction Format:

Mentor-led cohorts (online)

## Program Overview:

Data science and Analytics bootcamp is a job-ready training that truly masters you in the data science and data analytics field within 28 weeks. The program is rigorous and packed with challenges covering data science and analytics concepts, theories, and projects; for students to help them strengthen their capacities in diversified data analytics tools and coding languages. Our bootcamp program is scrutinized and designed with the right combination of tools and skills as listed below. You will learn fundamentals of data science, principles of machine learning, python programming, data analytics and data visualization. You will also prepare for top industry certifications. No college degree or experience is needed.

## Certifications Covered:

This bootcamp will cover the material needed for following certification:

- Microsoft PL-300 (Power BI Analyst)
- Microsoft AZ-900 (Azure Fundamentals)
- Microsoft DP-900 (Azure Data Fundamentals)

## Learning Outcomes:

- Go into the history of data science and its uses
- Go over concepts such as accuracy, precision as well as confidence correlation
- Go over the history of machine learning, current applications and basic models
- Learn the essential Mathematical concepts required for Machine Learning.
- Learn how to visualize data using Power BI
- Learn how to use Python, NumPy, Matplotlib, Seaborn and Pandas.
- Go over the concepts around Querying Data with SQL
- Learn the best practices around storytelling and data presentations

<b>Weekly Study Plan</b>	<b>Courses</b>
1-2	Introduction to Data Science and Analytics
3-4	Introduction to Mathematics for Data Science
5	Analyzing and Visualizing Data with Microsoft Excel
6	Analyzing and Visualizing Data with Microsoft Power BI
7-8	Exploratory Data Analysis: 1st Data Science Project
9-10	Introduction to Python for Data Science
11-12	Essential Math for Machine Learning: Python Edition
13-14	Data Science Research Methods: Python Edition
15-16	Application of Machine Learning: Python Implementation
17-18	Machine Learning: 2 <sup>nd</sup> Data Science Project
19-20	Querying Data with SQL
21-22	Data Presentation and Visualization
23-24	Data Querying and Cleaning: 3 <sup>rd</sup> Data Science Project
25	Ethics and Law in Data & Analytics
26	Analytics Storytelling for Impact
27-28	Capstone Project: Analyzing the COVID-19 Pandemic
<b>Bonus Course</b>	<b>Microsoft Azure Fundamentals (AZ-900)</b>
<b>Bonus Course</b>	<b>Azure Data Fundamentals (DP-900)</b>

# Courses & Modules

## 1. Introduction to Data Science and Analytics

- ✚ Course Introduction
- ✚ Module 1: Introduction to Data Science
- ✚ Module 2: Introduction to Statistics
- ✚ Module 3: Introduction to Machine Learning

## 2. Introduction To Mathematics for Data Science

- ✚ Course Introduction
- ✚ Module 1: Notation of Mathematics
- ✚ Module 2: Probabilities and Statistics
- ✚ Module 3: Confidence Intervals
- ✚ Module 4: Hypothesis Testing
- ✚ Module 5: Linear Regression and Loss Functions

## 3. Analyzing And Visualizing Data with Excel

- ✚ Course Introduction
- ✚ Module 1: Introduction to Excel
- ✚ Module 2: Learning the Basics
- ✚ Module 3: Using Formulas in Excel
- ✚ Module 4: Importing and Analyzing Data
- ✚ Module 5: Plotting in Excel
- ✚ Module 6: Supporting Material

## 4. Microsoft Power BI Data Analyst (PL-300)

- ✚ Course Introduction
- ✚ Module 1: Getting Started with Microsoft Data Analytics
- ✚ Module 2: Prepare Data in Power BI
- ✚ Module 3: Cleaning, Transforming, and Loading Data
- ✚ Module 4: Design a Data Model in Power BI
- ✚ Module 5: Create Model Calculations using DAX in Power BI
- ✚ Module 6: Optimize Model Performance
- ✚ Module 7: Create Reports
- ✚ Module 8: Create Dashboards
- ✚ Module 9: Identify Patterns and Trends
- ✚ Module 10: Create and Manage Workspaces

- ✦ Module 11: Manage Files and Datasets in Power BI
- ✦ Module 12: Row-level Security
- ✦ Supporting Material

## **5. Exploratory Data Analysis: 1st DATA SCIENCE PROJECT**

- ✦ Overview
- ✦ Requirements
- ✦ Submission

## **6. Introduction to Python for Data Science**

- ✦ Course Introduction
- ✦ Module 1: Google Colab Overview
- ✦ Module 2: Introduction to Python: Syntax
- ✦ Module 3: Pythonic Functions and Good Practices
- ✦ Module 4: Linear Algebra: Numpy
- ✦ Module 5: Plotting: Matplotlib and Seaborn
- ✦ Module 6: Dataframes: Pandas

## **7. Essential Math for Machine Learning: Python Edition**

- ✦ Course Introduction
- ✦ Module 1: Logistic Regression
- ✦ Module 2: Unsupervised Learning: Clustering
- ✦ Module 3: Decision Trees
- ✦ Module 4: Neural Networks
- ✦ Module 5: Deep Neural Networks and Backpropagation

## **8. Data Science Research Methods: Python Edition**

- ✦ Course Introduction
- ✦ Module 1: How to Write a Research Question
- ✦ Module 2: Collecting Data
- ✦ Module 3: Data Preprocessing and Feature Engineering

## 9. Application Of Machine Learning: Python Implementations

- ✚ Course Introduction
- ✚ Module 1: Logistic Regression
- ✚ Module 2: K-means Algorithm
- ✚ Module 3: Decision Trees
- ✚ Module 4: Neural Networks
- ✚ Supporting Material

## 10. Machine Learning: 2nd DATA SCIENCE PROJECT

- ✚ Overview
- ✚ Requirements
- ✚ Submission

## 11. Querying Data with SQL

- ✚ Course Introduction
- ✚ Introduction to SQL
- ✚ More SQL: Intermediate Functions
- ✚ SQL: Output Control
- ✚ SQL: Table Modification
- ✚ SQL: Common Table Expressions
- ✚ Supporting Material

## 12. Data Presentation and Visualization

- ✚ Course Introduction
- ✚ Introduction to Data Visualization
- ✚ Advanced Visualization with Matplotlib
- ✚ Advanced Visualization with Seaborn
- ✚ Supporting Material

## 13. Data Querying and Cleaning: 3rd DATA SCIENCE PROJECT

- ✚ Overview
- ✚ Requirements
- ✚ Submission

#### 14. Ethics and Law in Data & Analytics

- ✚ Course Introduction
- ✚ The Power of Data Science
- ✚ Fairness
- ✚ Transparency
- ✚ Explaining the Black Box
- ✚ Supporting Material

#### 15. Analytics Storytelling for Impact

- ✚ Course Introduction
- ✚ The Storytelling Process
- ✚ The Storytelling Process - Encoding Data, Visual Perception
- ✚ Effective Visual - Encoding, Grammar, and Layers
- ✚ Frame the Story - Audience, Information Graphics, Uncertainty
- ✚ Supporting Material

#### 16. Capstone Project: Analyzing the COVID-19 Pandemic

- ✚ Analyzing the COVID-19 Pandemic
- ✚ GitHub
- ✚ Predicting COVID-19 ICU Admissions

#### BONUS COURSES: Microsoft Azure Fundamentals (AZ-900)

- ✚ Course Introduction
- ✚ Module 1: Azure Concepts, Services, and Solutions
- ✚ Module 2: Azure Management and Monitoring
- ✚ Module 3: Azure Security and Compliance
- ✚ Module 4: Azure Availability and Cost Management
- ✚ Course Summary

#### BONUS COURSES: Azure Data Fundamentals (DP-900)

- ✚ Course Introduction
- ✚ Module 1: Explore Core Data Concepts
- ✚ Module 2: Explore Relational Data in Azure
- ✚ Module 3: Explore Non-Relational Data in Azure

- ✦ Module 4: Explore Modern Data Warehouse Analytics in Azure

**Time To Dive In! QuickStart - Provided Resources To Help You Get Hired**

- ✦ Lesson 1: Automating your Job Search: Huntr Edition
- ✦ Lesson 2: Huntr Tutorial: How to Use your Board
- ✦ Lesson 3: Huntr Tutorial: Goal Setting/Our Expectations of You
- ✦ Lesson 4: Länch, Powered by Pepelwerk
- ✦ Summary and Key Points