

FULL STACK DATA SCIENCE

FULL-TIME PROGRAM SYLLABUS PROGRAM LENGTH: 16 WEEKS





PROGRAM OVERVIEW

In these programs, students learn beginner and intermediate levels of Data Science with R, Python, Hadoop, Spark, Github, and SQL as well as popular and useful R and Python packages like Tibbles, ggplot2, scikit-learn, and more. Once the learning foundation has been set, students work on multiple projects through the bootcamp. The program distinguishes itself by balancing intensive lectures with real-world project work, and by the breadth of its curriculum. By the end of the online program, you will have the skills, experience, and confidence needed to dive into a career in data.

The program's curriculum is challenging, comprehensive, and constantly updated, ensuring you are always learning the most in-demand data analytics skills, techniques, and tools used by Data Scientists. Led by Educators with experience in the field, you will develop and work on real-world data problems, building a standout portfolio of completed projects.

In addition to our core curriculum, our career services, interview readiness, and other talent development activities put students in front of professionals who are excited about getting to know them and connecting them with potential opportunities. The technology opportunities are continuously expanding and so are our graduates.

PREREQUISITES

The course requires students to have access to a personal computer (Windows or macOS), basic computer literacy, and access to Wi-Fi.



PART I (8-WEEKS)



INTRODUCTION TO DATA SCIENCE

The program begins with a high-level introduction to basic Data Science concepts as well as a discussion of soft/power skills that will be required: decision making, critical thinking, attitude, collaboration, communication, time and resource management and more. Throughout the course, students will practice being responsible for their code by practicing standard collaboration techniques. Ultimately, in this introductory segment, students will be taught common development methodologies.



SOURCES AND TYPES OF DATA

In this segment, students will learn the basics of data types such as quantitative, discrete, continuous, and interval data. Then the students will explore measurement hierarchy, contingency tables, and bias. Focuses on the data types will support their programming throughout the remainder of the course.



STATISTICS

In the statistics component of the course, students will be introduced to center and spread, mean, median, standard deviation, and random sampling. Then the students will learn more advanced statistical topics like confidence intervals.



EXCEL

Students will learn the popular spreadsheet Excel. Specifically, they will learn calculations, macros, graphing tools, and pivot tables. Students will then complete an Excel project for their own portfolios.



PYTHON DATA STRUCTURES AND FUNCTIONS

Students will be introduced to the Python programming language and will learn its syntax, commonly used data structures, as well as the basic structure behind its functions and methods. Emphasis will be placed on the implementation of functions and data structures.



OBJECT ORIENTED PROGRAMMING WITH PYTHON (OOP)

Students will learn the fundamentals of object-oriented programming (OOP) through a deeper dive into the Python programming language. Core OOP concepts of objects, inheritance, and function overloading, instantiation, and methods will be taught through project-based learning.

PART II (8-WEEKS)



INTERMEDIATE PYTHON

The program will continue with intermediate Python topics and will pick up where Foundational Data Science left off. First, students will learn MatPlotLib and will continue their Python programming experience with Scikit-Learn.



ADVANCED PYTHON

In this segment students will learn more advanced Python topics such as Web Scraping and Sentiment Analysis. Then the students will focus on an advanced machine learning project.



DATABASES AND SQL

At this point, students will dive into server-side database management by first learning how to work Structured Query Language (SQL) and how it is used to manage databases. Students will learn how to make basic and advanced queries as well as how to use SQL for reporting and manipulating data within a database. Finally, students will learn normalization tactics and how to model data.



INTERMEDIATE R

Students will learn the R programming language. First, students will practice with intermediate topics such as Tibbles, ggplot2, importing and transforming data, and exploratory data analysis.



ADVANCED R

Students will complete a hands-on machine learning project. Students will then explore advanced R topics including Web Scraping.



CAPSTONE PROJECT

To conclude the course, students will complete a capstone project and will present to the class.