

# Programming for Data Science

This Programming for Data Science course teaches you essential data science skills, including writing reusable code, processing unstructured data, data wrangling, and creating visualizations. You'll know how to write code that makes sense of unstructured sets from multiple channels and provides insights exactly how you need them.

[CBT Nuggets course material](#) →

## WEEK 1

### Explore Data Science Domains and Roles

158 min.

What is Data Science?	12
Data Science Tools	11
Data Science Development Environments	9
What is Anaconda?	6
Data Science Roles	5
The Data Science Roadmap	5
Challenge	1

### Access the Command Line for Data Science

Introduction	5
What is a command-line, terminal, and Shell?	12
macOS Terminal, Git for Windows, and Linux Emulators	9
Basic Linux Commands	13
Create Projects and Workflows	11
Challenge	1

### Set Up a Data Science Development Environment

Introduction	4
Install Anaconda	9
Virtual Environments with Conda	5
Install Jupyter Notebook	8
Starting a Jupyter Notebook and Session	6
Closing a Jupyter Notebook Session	2
Explore Visual Code for Data Science	5
Challenge	1

## Explore Python Data Types for Data Science

Introduction	2
Primitive & Non-Primitive Data Types	16

### WEEK 2

160 min.

Numbers: Integers and Floats	5
Text: Strings and Booleans	6
Collections: Lists	5
Collections: Dictionaries	7
Collections: Tuples, and Sets	8
Challenge	1

## Explore Strings and Sequences for Data Science

Introduction	4
Working with Variables	8
Leaving Comments	5
Working with Strings	7
String Formatting	5
Indexing	5
Slicing	6
Challenge	1

## Explore Math Operators and LaTeX for Data Science

Introduction	4
Python and Math	8
Math Operators	11
Boolean Values	5
Built-in Python Functions	6
Scientific Notation	4

LaTeX for Equations and Formulas	5
Challenge	1

## Write Reusable Python Functions for Data Science

Introduction	2
Comparison and Logical Operators	10
Writing Functions	12
If statements and Functions	9
Understanding Functions	10

### WEEK 3

153 min.

Pseudocode	5
Asking for Input	4
Challenge	1

## Write Loops to Automate Tasks for Data Science

Introduction	2
Functions Review	9
if Statements	17
for Loops	9
while Loops	7
Challenge	13

## Use Python Built-in Methods for Data Science

Introduction	3
List Review	13
List Methods	11
Dictionary Review	6

Dictionary Methods	10
Numpy and Pandas	7
Challenge	1

### Write Code using OOP Concepts for Data Science

Introduction	5
Programming Styles	13
Python Class Objects	17

## WEEK 4

158 min.

EDA: Dimensions	6
EDA: Summary Statistics	8
EDA: Complete with Histograms	6
Challenge	1

### Wrangling Data with Pandas for Data Science

Introduction	5
What is Pandas?	18
Conda Commands	1
EDA (Exploratory Data Analysis)	9
Clean and Manipulate Data	8
Data Visualization with Pandas (it does that also!)	8
Challenge	1

### Work with Arrays and Numpy for Data Science

Introduction	3
What is Numpy?	8
Conda Commands Review	1

Numpy Vs Pandas	10
Creating and Manipulating Arrays	10
Array Operations, Array Methods and Functions	10
Real-World Example: Bitcoin Price Trends	1
Challenge	1

### Visualizing Data with Matplotlib for Data Science

Introduction	3
What is Matplotlib?	13
Plotting with Matplotlib	1
Visualizing Cereal Data	1
Fields in the dataset from Kaggle:	15
Customizing Plots	10

## WEEK 5

153 min.

Challenge	1
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### Visualize Data with Seaborn for Data Science

Introduction	4
What is Seaborn?	1
Matplotlib vs Seaborn	13
Conda Commands Review	1
Plotting with Seaborn	13
Customizing Plots	7
Real-world Notebook	3
Challenge	1
Supplemental Files	1

## Explore Web Scraping Fundamentals for Data Science

Introduction	3
How the Internet Works	4
Visual Studio Code	8
HTML	9
CSS	6
Web Scraping with BeautifulSoup	11
Code examples:	1
Challenge	1
Supplemental Files	1

## Collect Web Data with Python and BeautifulSoup

Introduction	4
What is BeautifulSoup?	3
What is the Test Site?	1
What are Attributes Useful For?	1
The find() Method	18
The find_all() Method	25
Challenge	1

## Use Git and GitHub Repositories for Data Science

Introduction	3
What is Git?	8

## WEEK 6

156 min.

What is GitHub?	6
Create an Online Repo and Push Your Code to GitHub	8
Hosting Datasets for use in Jupyter Notebook	10
Challenge	5

## Analyze Core Data Structures for Data Science

Introduction	5
What are Data Structures?	9
Python Basic Data Structure Limitations	11
Data Structures Deep Dive	10
Social Network Analysis Use Case	10
Challenge	1

## Evaluate Complexity and Memory for Data Science

Introduction	6
Complexity Analysis and Memory	12
Algorithm Comparison	9
Pandas Data Types	14
Challenge	1

## Apply Big O Notation Concepts for Data Science

Introduction	5
Big O Notation	34

## WEEK 7

169 min.

Coffee Shop Complexity	4
Challenge	1

## Explore R Fundamentals for Data Science

Introduction	9
What is R and Why Should I Learn it in 2023?	7
Getting Started with R and Google Colab	11
R Data Types	14
Challenge	1

## Implement and Compare R Data Structures

Introduction	4
R and Python Data Structures	1
Part: I Vectors	6
Part: II Arrays and Lists	7
Part: III Data Frames	5
Operations and Calculations	5
Matrix Calculations	6
Data Exploration	5
Challenge	1

## Perform EDA with R and Python for Data Science

Introduction	1
Load and Prepare the Dataset (EDA light)	9
Perform Exploratory Data Analysis (EDA) Part I	9
Perform Exploratory Data Analysis(EDA) Part II	18
Challenge	7

## Explore AI Language Models and OpenAI's ChatGPT

Introduction	4
What is AI?	6
OpenAI GPT-3 Language Models	6
What is ChatGPT and How Does it Work Under the Hood?	3
Prompts and Completions	19

Fun Examples to Try on Your Own!	1
Challenge	1

## Query OpenAI's Language Model API with Colab

Introduction	3
Bare Bones Completion	9
API Authentication	1
Install and Import Libraries	5
Creating a Completion	10
Time Complexity	1
Prompt	7
Bonus Use Case: White Paper Summarization	5
Challenge	1

## Create AI Web Apps with OpenAI and Streamlit

Introduction	4
What is Streamlit?	6
What is Streamlit Community Cloud?	3
Designing an AI Web App	4
HungryBear: Non-production Code	10
HungryBear: Production Code	1
Part 1	6
Part 2	12
Challenge	1

## WEEK 8

91 min.