



COURSE SYLLABUS

Programming for Data Science with Python

Learn the four everyday tools of a data team, SQL, Python with pandas, the command line and Git, and how they work together.

\$2,395 per person

24 course hours (on-demand video and labs) plus 2 hours of coaching

On-demand asynchronous training with online support, plus 2 hours of coaching.

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Credential type	Certificate, issued by We Can Code IT
Clock hours	26 (24 course hours plus 2 hours of coaching)
Price	\$2,395 per person
Time	24 course hours (on-demand video and labs) plus 2 hours of coaching
Delivery	On-demand asynchronous training with online support, plus 2 hours of coaching.
Credential	Certificate of completion from We Can Code IT
Who it is for	This course is for analysts, reporting staff, business intelligence and operations staff who work in spreadsheets today and need to start working with databases, scripts and shared code.
Prerequisites	Comfortable with spreadsheets and basic descriptive statistics; No prior SQL or Git experience needed; Some exposure to any programming language is helpful but not required
Requirements	Works on Windows, macOS or Linux; Python 3 with NumPy and pandas (free); A SQL database for practice, such as PostgreSQL (free); Git and a free GitHub account; A terminal (built into macOS and Linux; on Windows, a terminal such as Git Bash)

About this course

This course introduces the four tools data teams use every day: SQL, Python with NumPy and pandas, the command line, and Git with GitHub. You will see how they fit into one workflow, from pulling data out of a database to sharing finished work. By the end you will query a database with SQL, clean and summarize the result in a Python script, run that script from the terminal, and keep your project under version control on GitHub.

What you will be able to do

- You will be able to navigate folders, manage files and run Python scripts from the command line.
- You will be able to write SQL queries that filter, join and aggregate tables, including subqueries, common table expressions and window functions.
- You will be able to write a Python script that loads data into pandas, handles missing values and computes descriptive statistics.
- You will be able to track your work in Git with commits, branches and merges, resolve a merge conflict, and push a project to GitHub.

- You will be able to connect SQL, pandas, the command line and Git in one repeatable data workflow.

Syllabus

Module	Hours
1. The command line for data work Navigating folders, Working with files, Pipes and redirection, Running Python scripts from the terminal. Lab: You will organize a folder of raw data files from the terminal and run a starter Python script against them.	2.5 h
2. SQL fundamentals SELECT, FROM and WHERE, Logical operators, JOINS and when to use each type, COUNT, SUM, MIN and MAX, CASE, dates and NULLs. Lab: You will answer a set of business questions against a sample sales database using filters, joins and aggregations.	4 h
3. Advanced SQL queries Subqueries, Common table expressions, Window functions (RANK, NTILE, LAG, LEAD), Partitions. Lab: You will rank customers, compare each month with the one before it, and build a multi-step report with common table expressions.	3 h
4. Python for data scripts Data types, Control flow, Functions, Reading files, Handling errors. Lab: You will write a Python script that reads a data file, checks it for problems and reports a clear error when the input is bad.	3.5 h
5. NumPy and pandas Arrays and broadcasting, Series and DataFrames, Loading data, Handling missing values, Descriptive statistics. Lab: You will load a messy dataset into pandas, clean the missing values and produce a summary table of descriptive statistics.	4 h
6. Git and GitHub Configuring Git, init, clone, status, log and diff, Commits and .gitignore, Branches, merges and conflicts, Undoing changes, Pushing to GitHub. Lab: You will put your scripts under version control, work on a branch, resolve a merge conflict and push the project to GitHub.	4 h
7. Capstone Querying a database, Analysis in a pandas script, Running from the terminal, Publishing to GitHub. Lab: You will query a database, analyze the result in a pandas script run from the terminal, and publish the project to GitHub with a clean commit history, then review it with your coach.	3 h
Coaching sessions 2 hours of coaching. One-on-one or small-group coaching, scheduled with your coach.	2 h

Live online or in-person sessions are available for an additional fee. Email admissions@wecancodeit.org for details.

Provider

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