



COURSE SYLLABUS

Advanced Python 3 Programming

Move from basic Python scripts to maintainable applications using Jupyter, regular expressions, structured data, automated tests and well-designed classes.

\$1,400 per person

14 course hours (on-demand video and labs) plus 1 hour of coaching

On-demand asynchronous training with online support, plus 1 hour of coaching.

Advanced Python 3 Programming

Move from basic Python scripts to maintainable applications using Jupyter, regular expressions, structured data, automated tests and well-designed classes.

Credential type	Certificate, issued by We Can Code IT
Clock hours	15 (14 course hours plus 1 hour of coaching)
Price	\$1,400 per person
Time	14 course hours (on-demand video and labs) plus 1 hour of coaching
Delivery	On-demand asynchronous training with online support, plus 1 hour of coaching.
Credential	Certificate of completion from We Can Code IT
Who it is for	This course is for working developers, analysts, QA automation engineers and IT staff who already script in Python and now need to write larger programs that others can maintain.
Prerequisites	Comfortable writing basic Python: strings, lists, tuples, dictionaries, loops, conditionals and functions; An introductory Python course or equivalent work experience
Requirements	Works on Windows, macOS or Linux; Python 3 and Jupyter Notebook (both free); A code editor such as Visual Studio Code (free)

About this course

This course takes you from writing basic Python to working the way a professional Python developer does. You will use Jupyter Notebook, write regular expressions, read and store data in SQLite, CSV, JSON and XML, test and debug your code, and design classes with object-oriented programming. By the end you will build and test a multi-file application that reads, cleans and stores real data.

What you will be able to do

- You will be able to use Jupyter Notebook to explore code and data, and know when to move notebook code into a reusable module.
- You will be able to write regular expressions with the re module to validate, search and extract fields from messy text.
- You will be able to read and write CSV, JSON and XML data and store records in SQLite with parameterized queries.
- You will be able to write unittest test cases with setUp and tearDown and step through failures with the Python debugger.

- You will be able to design classes that use properties, inheritance, class and static methods, and abstract base classes.

Syllabus

Module	Hours
1. Jupyter Notebook as a working environment Notebooks and cell modes, Markdown cells, Magic commands, Getting help in a notebook, Moving code from notebooks into modules. Lab: You will set up a notebook that explores a sample dataset, then move the working code into a Python module you can import.	1.5 h
2. Expressive Python Lambda functions, Advanced comprehensions, The collections module (defaultdict, Counter), Sorting with key functions, Mutable and immutable objects, Modules and packages. Lab: You will refactor a long, repetitive script into a small package that uses comprehensions, Counter and key-based sorting.	2 h
3. Regular expressions Regular expression syntax, The re module, Groups, search, findall and sub, Validating and extracting fields. Lab: You will write regular expressions that pull dates, IDs and amounts out of a messy text log and flag lines that do not match.	2 h
4. Working with data Virtual environments, SQLite with parameterized queries, CSV with DictReader and DictWriter, JSON and XML, Getting data from the web. Lab: You will load records from CSV, JSON and a web source, clean them, and store them in a SQLite database using parameterized queries.	3 h
5. Testing and debugging The unittest module, setUp and tearDown, Timing code for performance, Stepping through failures with the debugger. Lab: You will write a unittest suite for your data code, use the debugger to find and fix a planted bug, and time two versions of a slow function.	2 h
6. Classes and objects in depth Properties and private attributes by convention, Documenting classes, Inheritance and extending methods, Static and class methods, Abstract classes, How decorators work. Lab: You will model your records as a small class hierarchy with properties, a class method constructor and an abstract base class.	2 h
7. Capstone Parsing a text source, Storing results in SQLite, Modeling records with classes, Passing test suite. Lab: You will build and test a small application that parses text with regular expressions, stores results in SQLite and models records with classes, then review it with your coach.	1.5 h

Coaching sessions

1 h

1 hour of coaching. One-on-one or small-group coaching, scheduled with your coach.

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

Provider

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