

Course duration

- 2 days

Course Benefits

- Lambda functions.
- Advanced list comprehensions.
- The collections module.
- Mapping and filtering.
- Sorting sequences.
- Unpacking sequences in function calls.
- Modules and packages.
- Understanding regular expressions.
- Python's re module.
- Data stored in a relational database.
- Data stored in a CSV file.
- Data from a web page.
- HTML, XML, and JSON.
- Accessing an API.
- Testing performance with timers and the timeit module.
- The unittest module.
- Classes and objects in Python.
- Instance methods, class methods, and static methods.
- Properties.
- Decorators.
- Subclasses and inheritance.

Available Delivery Methods

Private Class

Private classes are delivered for groups at your offices or a location of your choice.

Self-Paced

Learn at your own pace with 24/7 access to an On-Demand course.

Course Outline

1. Advanced Python Concepts

1. Lambda Functions
2. Advanced List Comprehensions
3. Exercise: Rolling Five Dice
4. Collections Module
5. Exercise: Creating a defaultdict
6. Counters
7. Exercise: Creating a Counter
8. Mapping and Filtering
9. Mutable and Immutable Built-in Objects
10. Sorting
11. Exercise: Converting list.sort() to sorted(iterable)
12. Sorting Sequences of Sequences
13. Creating a Dictionary from Two Sequences
14. Unpacking Sequences in Function Calls
15. Exercise: Converting a String to a datetime.date Object
16. Modules and Packages
2. Regular Expressions
 1. Regular Expression Tester
 2. Regular Expression Syntax
 3. Python's Handling of Regular Expressions
 4. Exercise: Green Glass Door
3. Working with Data
 1. Virtual Environment
 2. Relational Databases
 3. Passing Parameters
 4. SQLite
 5. Exercise: Querying a SQLite Database
 6. SQLite Database in Memory
 7. Exercise: Inserting File Data into a Database
 8. Drivers for Other Databases
 9. CSV
 10. Exercise: Finding Data in a CSV File
 11. Creating a New CSV File
 12. Exercise: Creating a CSV with DictWriter
 13. Getting Data from the Web
 14. Exercise: HTML Scraping
 15. XML
 16. JSON
 17. Exercise: JSON Home Runs
4. Testing and Debugging
 1. Testing for Performance
 2. Exercise: Comparing Times to Execute
 3. The unittest Module
 4. Exercise: Fixing Functions
 5. Special unittest.TestCase Methods
5. Classes and Objects
 1. Attributes

2. Behaviors
3. Classes vs. Objects
4. Attributes and Methods
5. Exercise: Adding a roll() Method to Die
6. Private Attributes
7. Properties
8. Exercise: Properties
9. Objects that Track their Own History
10. Documenting Classes
11. Exercise: Documenting the Die Class
12. Inheritance
13. Exercise: Extending the Die Class
14. Extending a Class Method
15. Exercise: Extending the roll() Method
16. Static Methods
17. Class Attributes and Methods
18. Abstract Classes and Methods
19. Understanding Decorators

Class Materials

Each student will receive a comprehensive set of materials, including course notes and all the class examples.

Class Prerequisites

Experience in the following *is required* for this Python class:

- Basic Python programming experience. In particular, you should be very comfortable with:
 1. Working with strings.
 2. Working with lists, tuples and dictionaries.
 3. Loops and conditionals.
 4. Writing your own functions.

Experience in the following *would be useful* for this Python class:

- Some exposure to HTML, XML, JSON, and SQL.

Prerequisite Courses

Courses that can help you meet these prerequisites:

- [Introduction to Python 3 Training](#)

Follow-on Courses

- [Python Data Analysis with JupyterLab Training](#)