

Python Essentials

Syllabus



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Course Overview

Our Python Essentials course is designed for professional software developers, scientists and engineers. This course gives a comprehensive introduction to the Python programming language in just four days. By the end of the course, the student will be comfortable with general Python programming and will be able to get started with fairly ambitious projects. The course uses Python 3.x.



Who Should Take This Course

- This course assumes no previous experience with Python. However, the student should have some prior experience with another programming language, such as JavaScript, PHP, Java, Perl or C++.
- Students should be already comfortable with basic programming concepts, such as variables, boolean expressions, flow control, loops, functions, arrays and common data structures.
- Students must already know how to work with files, directories, simple text editors, command shells, environment variables, internet connections and other essential aspects of using a computer for software development.
- This course is ideal for anyone with some programming experience who wants to quickly gain a working knowledge of the Python 3.x language.

Syllabus

Working With Data

- Learn how to represent data in Python idiomatically.
- Master Python's data structures and collections, such as tuples, lists, dictionaries, sets, etc.
- Learn about Python's capabilities to handle and process text.
- Understand Python's sequences and their capabilities for iterations, slicing and reductions.
- Discover the power of List Comprehensions.

Working With Code

- Learn how to organize larger programs.
- Work with functions.
- Understand exceptions and error handling in Python.
- Learn about modules, namespaces and the difference between global and local definitions.
- Get an overview of Python's most useful modules.

Classes and the Python Object Model

- Discover what Object-Oriented Programming (OOP) is and how it works in Python.
- Learn how to define classes and methods, and how to manage instance data.
- Master single inheritance, multiple inheritance and method overriding.
- Understand how the object model works in python.
- Discover how dictionaries are at the core of how objects work in Python.
- Understand how class and instance attribute lookups work.

Iterators and Generators

- Learn about the iterator protocol and how to make your own objects respond to iteration.
- Discover generators and generator expressions.
- Understand the similarities and differences between list comprehensions and generator expressions.
- Assemble Generator pipelines to process data in a flexible and modular way.

Syllabus (continued)

Some Advanced Topics, Testing, Debugging and Packages

- Learn about closures and use them to define function decorators.
- Understand static and class methods.
- Discover the powerful flexibility of Python's function arguments.
- Learn about Python's facilities for testing and debugging code.
- Organize your projects into importable packages.
- Learn how to install third-party packages.