APPLIED TECHNOLOGY ACADEMY

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Core Python Training

Applied Technology Academy

This comprehensive and very hands-on course provides an in-depth exploration of working with the programming language, with an emphasis on applying Python programs to real-world scenarios and tasks, and gaining a deeper and stronger understanding of language features that can help to simplify those tasks.

LEVEL	DURATION	EXPERIENCE	AVERAGE SALARY	LABS
Advanced	**5 Days**	**3 years: Data Science**	**$130,000**	**Yes**

Course Outline

- 1. Introduction to Python
- Installing Python 3.x
- Preparing to write Python
- Preparing to write a Python file (*.py) – Text Editors
- Executing a Python file
- Python Enhancement Proposals (PEPs)
- Python Statements and Control Flow
- Python Interpreter
- Overview of the Standard Library
- 2. Version Controlling Code with Git – Optional
- Overview of Git
- Git commands
- Set up a GitHub account
- GitHub essentials
- README course requirements
- How to Set up a repo
- Issue a Pull request
- How to use “Issues” for peer review
- 3. Basics of Programming
- Structure of a Python Program
- Functions and purpose of main()
- Arguments
- Command line parameters
- Built in Functions

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- Simple print statements
- White spacing basic rules
- String Literal – Escape Sequences
- 4. Python Variables, Data Types and Operators
- Python Variables
- Naming Conventions & Rules
- Numeric Types – Integers and Floating points
- String
- Booleans
- Types as Objects
- Sequence Types
- Type conversion
- Mutable vs Immutable Objects
- Operators and Precedence / Arithmetic Expressions
- 5. String Types
- Generating Strings in Python
- Common String Methods
- Formatting String Output
- Printing and formatting strings
- Scripting with input()
- About raw_input()
- 6. Dates and times
- Working with dates and times
- Translating timestamps
- Parsing dates from text
- Formatting dates
- Calendar data
- 7. Lists & Tuples
- Lists
- Mixed Lists
- Common List Methods
- Other List Operations – CRUD operations
- Working with Tuples
- Immutable Tuples
- Shallow and deep copies of List and tuples
- Lists vs Tuples

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- 8. Dictionaries and Sets
- An overview on and construction of dictionaries
- Keys and Values
- Dictionary Methods
- About sets
- Creating sets
- Working with sets
- Dictionaries vs Lists vs Tuples vs Sets
- 9. Operators and Conditional Statements
- Relational Operators
- Logical operators
- Comparison Operations
- “simple” if Statement
- If else statements
- If elif
- Nested if statement
- 10. Looping with “while”
- While usage
- Count controlled loop
- Event controlled loop
- Continue
- Break
- 11. Looping with “for”
- The for Loop
- For iteration examples
- Looping across data sets
- Looping across lists of lists
- Looping across lists of dictionaries
- 12. Understanding Iterators
- The range() function
- Taking the range() of len()
- Iterative Objects
- The iter() Function
- Iterating through a sequence
- Nested sequences
- Sequence functions, keywords, and operators

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- Iterating through lists
- Looping with dictionaries
- 13. Sorting
- The sorted() function
- Alternate keys
- Sorting collections
- Using operator.itemgetter()
- Reverse sorting
- 14. Basic File operations in Python
- Opening files
- Read data from files
- Write data to files
- Reading and writing raw (binary) data
- 15. Python Functions
- Function Basics
- Defining functions
- Parameters
- Returning values
- Nested Functions
- Variable Masking
- Preventing Variable Modifications
- Argument Matching Methods
- Basic List Comprehensions
- 16. Python Scope
- Local scope
- Global scope
- Nested scope
- 17. Modules & Packages
- Module Basics
- Packages
- Pip and pip3
- Virtual environments
- Defined modules
- Import modules
- From import statements
- Some useful modules to know

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- Functions and module aliases
- 18. Regular Expression
- Import re library
- Writing regular expression
- Searching for data in files
- 19. The standard library
- The sys module
- Launching external programs
- Math functions
- Random numbers
- Reading CSV data
- 20. Classes in Python
- About OOP
- Defining a class
- Constructor
- Classes instantiation
- Class variables and methods
- Instance variables
- Properties – getters and setters
- Subclasses (Inheritance)
- Multiple Inheritance
- Static methods

Prerequisites

It is helpful (but not essential) to have a basic familiarity with another programming or scripting language and a user-level knowledge of Unix/Linux, Mac, or Windows.

Follow-On Courses

- Python for Network Automation
- Python for Reverse Engineers
- Threat Hunting with Python

Course Objectives

Throughout the course students will learn to write effective Python code using the most current and efficient features and techniques.

Working within in an engaging, hands-on learning environment, guided by our expert instructor, students will learn to:

- Understand the evolution, features, and real-time purpose of Python
- Install IDE and Text editors for creating and running Python scripts
- Create working Python scripts following best practices
- Discover python data types and use them appropriately
- Source code integration with a version control management tool (Git)
- Work with collections such as lists, tuples, dictionaries, and sets
- Use built-in functions and create custom functions with parameters and return types
- Understand Pythonic features such as comprehensions and iterators
- Work with dates, times, and calendars
- Read and write files with both text and binary data
- Gain familiarity with the standard library and its work-saving modules
- Search text with regular expressions
- Understand the essence of objects in Python and create classes in Python

Target Audience

This course is an appropriate introduction to students of any background looking to get started with Python, including, but not limited to:

Programmers and developers who aspire to shift their career towards RPA/AI development or Data Science related projects which use Python as the core scripting language

- System Administrators/Network Administrators/DevOps Engineers
- Back-end/Front-end developers

Ready to enroll? Call 800.674.3550 or email Info@AppliedTechAc.com — private team cohorts, GSA MAS purchasing, military credentialing funding, VA GI Bill and VR&E and student financing available.