



To discuss this course and customizations:
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Azure Functions with Python

Class Duration

14 hours of live training delivered over 2 days.

Student Prerequisites

- Some prior Python experience, such as writing basic scripts, functions, and classes
- Professional programming experience, in Python or another language
- Comfort with the command line and installing developer tools
- No prior Azure Functions or serverless experience required

Target Audience

- Experienced programmers with some Python experience who are new to Azure Functions
- Teams adopting serverless Python on Azure who want a fast, practical ramp
- For the AWS cloud instead, see [AWS Lambda with Python](#)

Description

This fast-paced, two-day course is built for experienced programmers who have some Python experience and are new to Azure Functions. The first part of the course consolidates the modern Python skills that serverless work relies on: its syntax and object model, environments and tooling, functions and type hints, working with data and JSON, and error handling, logging, and testing. Building on that foundation, the course moves to serverless development with Azure Functions using the Python v2 programming model: defining functions with decorators, wiring triggers and bindings such as HTTP, Timer, Blob, and Service Bus, developing and debugging locally with the Core Tools, deploying to Azure, and operating functions in production with Application Insights and performance tuning. Because participants already know how to program, the pace stays brisk and the focus stays on what is genuinely different about Python and about building on Azure Functions.



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Learning Outcomes

- Read and write idiomatic Python and apply its object model and core data types.
- Set up Python environments and manage dependencies with modern tooling.
- Use functions, modules, type hints, and dataclasses to structure Python code.
- Work with JSON, files, and HTTP from Python.
- Handle errors, add logging, and write unit tests with pytest.
- Explain the Azure Functions hosting model, Python worker, and hosting plans.
- Build Python functions with the v2 programming model and decorators.
- Wire triggers and bindings such as HTTP, Timer, Blob, Queue, and Service Bus.
- Develop and debug functions locally, then deploy them to Azure.
- Operate functions with Application Insights logging, tracing, and performance tuning.

Training Materials

All students receive comprehensive courseware covering all topics in the course. Courseware is distributed via GitHub in the form of documentation and extensive code samples. Students practice the topics covered through challenging hands-on lab exercises.

Software Requirements

Students will need a free, personal GitHub account to access the courseware, a recent Python release, the ability to install Python packages, Visual Studio Code with the ability to install extensions, the Azure Functions Core Tools, the Azure CLI, and an Azure subscription with permission to create Function Apps and related resources.

Training Topics

Python for Experienced Programmers

- Python syntax and semantics compared to other languages
- Dynamic typing, names, and the object model
- Core data types: lists, tuples, dictionaries, sets, and strings
- Control flow, comprehensions, and iteration

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- Writing idiomatic, readable Python

Python Environments and Tooling

- Installing Python and managing versions
- Virtual environments and dependency management with uv and pip
- Project layout and packaging basics
- Formatting and linting with ruff
- Running and debugging in Visual Studio Code

Functions, Modules, and Type Hints

- Defining functions, arguments, and return values
- Modules, packages, and imports
- Type hints and static checking with mypy
- Dataclasses and structured data
- Docstrings and code organization

Working with Data and JSON

- Dictionaries and JSON serialization
- Reading and writing files
- Parsing and validating input data
- Dates, times, and environment variables
- Making HTTP requests from Python

Errors, Logging, and Testing

- Exceptions and error-handling patterns
- The logging module and structured logs
- Writing unit tests with pytest
- Mocking external services
- Practical debugging techniques

Introduction to Azure Functions and Serverless

- What serverless computing is and when to use it
- The Azure Functions hosting and execution model
- Supported Python versions and the language worker
- Hosting plans: Consumption, Premium, and Dedicated
- Azure Functions within the Azure ecosystem

Building Functions with the v2 Model

- The v2 programming model and `function_app.py`



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- Defining functions with decorators
- Passing input and returning results
- Application settings and configuration
- Managing dependencies with requirements.txt

Triggers and Bindings

- HTTP triggers and routing
- Timer triggers for scheduled work
- Blob and Queue storage bindings
- Service Bus and Event Grid
- Input and output bindings

Local Development and Deployment

- The Azure Functions Core Tools and local runtime
- Debugging locally in Visual Studio Code
- Deploying with the Azure CLI and Visual Studio Code
- Configuration and application settings in Azure
- Infrastructure and configuration as code

Observability and Operations

- Logging and Application Insights
- Metrics and alerts
- Distributed tracing
- Error handling, retries, and poison messages
- Cold starts, scaling, and performance tuning