

Python Basics for Data Science

Provider: IBM (Coursera / Skills Network)

Completion Date: July 2, 2025

Overview

This course introduced the fundamentals of Python programming with a focus on its applications in data science. It covered core syntax, variables, data structures, programming concepts, and libraries that form the foundation for analytics and cybersecurity workflows. Through guided labs in Jupyter, I gained practical experience in writing code, manipulating data, and using Python's built-in tools and libraries to solve problems.

Key Topics Covered

- Python basics: variables, expressions, operators, comments
- Data types: integers, floats, strings, booleans
- Data structures: lists, tuples, sets, dictionaries
- Programming fundamentals: conditionals, loops, functions, objects, exceptions
- File handling: reading, writing, and loading data
- Libraries: NumPy and pandas for numerical computing and data analysis
- APIs and data collection: REST APIs and simple web scraping

Practical Applications

- Writing and debugging Python scripts in Jupyter
- Using typecasting and operators for calculations and logic
- Applying loops and conditionals for control flow in programs
- Managing and transforming data with lists, dictionaries, and sets
- Automating data workflows with file I/O
- Using pandas and NumPy for structured data handling
- Pulling external data through APIs and HTTP requests

Personal Reflection

Python was my most challenging course, but working through the labs helped me build confidence in coding fundamentals. By committing my Jupyter notebooks to GitHub, I created a permanent record of my progress, from simple print statements to structured data analysis. These skills directly support my cybersecurity path by enabling me to automate tasks, parse log data, and integrate Python into compliance, forensics, and security workflows.