Python Data Analysis

by Rice University

About this Course

This course will continue the introduction to Python programming that started with Python Programming Essentials and Python Data Representations. We'll learn about reading, storing, and processing tabular data, which are common tasks. We will also teach you about CSV files and Python's support for reading and writing them. CSV files are a generic, plain text file format that allows you to exchange tabular data between different programs. These concepts and skills will help you to further extend your Python programming knowledge and allow you to process more complex data.

By the end of the course, you will be comfortable working with tabular data in Python. This will extend your Python programming expertise, enabling you to write a wider range of scripts using Python.

This course uses Python 3. While most Python programs continue to use Python 2, Python 3 is the future of the Python programming language. This course uses basic desktop Python development environments, allowing you to run Python programs directly on your computer.

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Basic Info	Course 3 of 4 in the Introduction to Scripting in Python Specialization
Level	Beginner
Commitment	This is a four week class with an expected workload of 5-7 hours per week.
Language	English, **Subtitles:** Arabic, French, Bengali, Ukrainian, Chinese (Simplified), Greek, Italian, Portuguese (Brazil), Vietnamese, Dutch, Korean, German, Pashto, Urdu, Russian, Thai, Indonesian, Swedish, Turkish, Azerbaijani, Spanish, Dari, Hindi, Japanese, Kazakh, Hungarian, Polish
How To Pass	Pass all graded assignments to complete the course.
User Ratings	★★★★½ Average User Rating 4.7

Syllabus

Module 1

Dictionaries

This module will teach you about Python's dictionary data type and its capabilities. Dictionaries are used to map keys to values within programs.

7 videos, 2 readings

1. **Video:** Welcome!
2. **Video:** Class Structure
3. **Video:** Python Dictionaries
4. **Video:** Defining a Dictionary
5. **Video:** Dictionary Lookup and Update
6. **Video:** Checking Keys
7. **Reading:** Dictionaries - Example
8. **Video:** Handling Dictionary Errors
9. **Reading:** Practice Exercises for Dictionaries

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Graded: Dictionaries

Module 2

Tabular Data and Nested Data Structures

This module will teach you about storing tabular data within Python programs using lists and dictionaries.

4 videos, 2 readings

1. **Video:** Iteration over Dictionaries
2. **Reading:** Tabular Data
3. **Video:** Tabular Data as a Nested List
4. **Video:** Tabular Data as a Nested Dictionary
5. **Video:** Displaying Dictionaries
6. **Reading:** Practice Exercises for Nested Data Structures

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Graded: Nested Representations for Tabular Data

Module 3

Tabular Data and CSV Files

This module will teach you the basics of CSV files and how to read them from Python programs. We will discuss the use of Python's csv module to help you access tabular data in CSV files.

8 videos, 4 readings

1. **Video:** Tables and CSV Files
2. **Reading:** CSV Files
3. **Video:** Parsing CSV Files
4. **Video:** Python's CSV Module
5. **Video:** CSV DictReader
6. **Video:** CSV Reader Options
7. **Video:** Experimenting with CSV Methods - Part 1
8. **Video:** Experimenting with CSV Methods - Part 2
9. **Reading:** Practice Project: Loading Cancer-Risk Data
10. **Video:** Project Video for Part 1
11. **Reading:** Project Description: Reading and Writing CSV Files
12. **Reading:** OwlTest: Automated Feedback and Assessment
13. **App Item:** Project Submission History

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Graded: Project: Reading and Writing CSV Files

Module 4

Organizing Data

This module will teach you how to sort data in Python. You will organize and analyze tabular data.

6 videos, 3 readings

1. **Video:** Sorting
2. **Video:** Lambda
3. **Video:** Advanced Sorting
4. **Reading:** Dictionaries vs. Lists for storing data
5. **Video:** Refactoring Your Code - Part 1
6. **Video:** Refactoring Your Code - Part 2
7. **Reading:** Practice Project: Processing Cancer-Risk Data
8. **Video:** Project Video for Part 2
9. **Reading:** Project Description: Analyzing Baseball Data

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Graded: Project: Analyzing Baseball Data

View Less

How It Works

General

What do start dates and end dates mean?

Once you enroll,
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Course 3 of Specialization

Launch Your Career in Python Programming

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