uCertify

Course Outline

Using Data Science Tools in Python



28 Mar 2024

1. Course Objective
2. Pre-Assessment
3. Exercises, Quizzes, Flashcards & Glossary

   Number of Questions
4. Expert Instructor-Led Training
5. ADA Compliant & JAWS Compatible Platform
6. State of the Art Educator Tools
7. Award Winning Learning Platform (LMS)
8. Chapter & Lessons

   Syllabus

   Chapter 1: Introduction

   Chapter 2: Setting Up a Python Data Science Environment

   Chapter 3: Managing and Analyzing Data with NumPy

   Chapter 4: Transforming Data with NumPy

   Chapter 5: Managing and Analyzing Data with pandas

   Chapter 6: Transforming and Visualizing Data with pandas

   Chapter 7: Visualizing Data with Matplotlib and Seaborn

   Chapter 8: Appendix A: Scraping Web Data Using Beautiful Soup

   Videos and How To
9. Practice Test

   Here's what you get

   Features
10. Live labs

    Lab Tasks

    Here's what you get
11. Post-Assessment

1. Course Objective

Enroll yourself in the Using Data Science Tools in Python course and lab to gain hands-on expertise on using Python for data science. Python's robust libraries have given data scientists the ability to load, analyze, shape, clean, and visualize data in easy use, yet powerful, ways. The course and lab provide the skills you need to successfully use these key libraries to extract useful insights from data, and as a result, provide great value to the business.

2. Pre-Assessment

Pre-Assessment lets you identify the areas for improvement before you start your prep. It determines what students know about a topic before it is taught and identifies areas for improvement with question assessment before beginning the course.

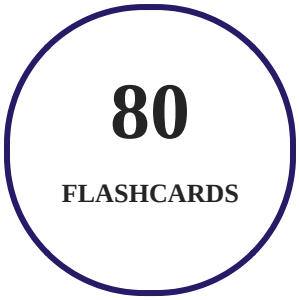
3. Quizzes

Quizzes test your knowledge on the topics of the exam when you go through the course material. There is no limit to the number of times you can attempt it.



4. flashcards

Flashcards are effective memory-aiding tools that help you learn complex topics easily. The flashcard will help you in memorizing definitions, terminologies, key concepts, and more. There is no limit to the number of times learners can attempt these. Flashcards help master the key concepts.



5. Glossary of terms

uCertify provides detailed explanations of concepts relevant to the course through Glossary. It contains a list of frequently used terminologies along with its detailed explanation. Glossary defines the key terms.



6. Expert Instructor-Led Training

uCertify uses the content from the finest publishers and only the IT industry's finest instructors. They have a minimum of 15 years real-world experience and are subject matter experts in their fields. Unlike a live class, you can study at your own pace. This creates a personal learning experience and gives you all the benefit of hands-on training with the flexibility of doing it around your schedule 24/7.

7. ADA Compliant & JAWS Compatible Platform

uCertify course and labs are ADA (Americans with Disability Act) compliant. It is now more accessible to students with features such as:

- Change the font, size, and color of the content of the course
- Text-to-speech, reads the text into spoken words
- Interactive videos, how-tos videos come with transcripts and voice-over
- Interactive transcripts, each word is clickable. Students can clip a specific part of the video by clicking on a word or a portion of the text.

JAWS (Job Access with Speech) is a computer screen reader program for Microsoft Windows that reads the screen either with a text-to-speech output or by a Refreshable Braille display. Student can easily navigate uCertify course using JAWS shortcut keys.

8. State of the Art Educator Tools

uCertify knows the importance of instructors and provide tools to help them do their job effectively. Instructors are able to clone and customize course. Do ability grouping. Create sections. Design grade scale and grade formula. Create and schedule assessments. Educators can also move a student from self-paced to mentor-guided to instructor-led mode in three clicks.

9. Award Winning Learning Platform (LMS)

uCertify has developed an award winning, highly interactive yet simple to use platform. The SIIA CODiE Awards is the only peer-reviewed program to showcase business and education technology's finest products and services. Since 1986, thousands of products, services and solutions have been recognized for achieving excellence. uCertify has won CODiE awards consecutively for last 7 years:

- **2014**
    1. Best Postsecondary Learning Solution

- **2015**
    1. Best Education Solution

2. Best Virtual Learning Solution
3. Best Student Assessment Solution
4. Best Postsecondary Learning Solution
5. Best Career and Workforce Readiness Solution
6. Best Instructional Solution in Other Curriculum Areas
7. Best Corporate Learning/Workforce Development Solution

- **2016**
    1. Best Virtual Learning Solution
    2. Best Education Cloud-based Solution
    3. Best College and Career Readiness Solution
    4. Best Corporate / Workforce Learning Solution
    5. Best Postsecondary Learning Content Solution
    6. Best Postsecondary LMS or Learning Platform
    7. Best Learning Relationship Management Solution

- **2017**
    1. Best Overall Education Solution
    2. Best Student Assessment Solution
    3. Best Corporate/Workforce Learning Solution
    4. Best Higher Education LMS or Learning Platform

- **2018**
    1. Best Higher Education LMS or Learning Platform
    2. Best Instructional Solution in Other Curriculum Areas
    3. Best Learning Relationship Management Solution

- **2019**
    1. Best Virtual Learning Solution
    2. Best Content Authoring Development or Curation Solution
    3. Best Higher Education Learning Management Solution (LMS)

- **2020**

1. Best College and Career Readiness Solution
2. Best Cross-Curricular Solution
3. Best Virtual Learning Solution

10. Chapter & Lessons

uCertify brings these textbooks to life. It is full of interactive activities that keeps the learner engaged. uCertify brings all available learning resources for a topic in one place so that the learner can efficiently learn without going to multiple places. Challenge questions are also embedded in the chapters so learners can attempt those while they are learning about that particular topic. This helps them grasp the concepts better because they can go over it again right away which improves learning.

Learners can do Flashcards, Exercises, Quizzes and Labs related to each chapter. At the end of every lesson, uCertify courses guide the learners on the path they should follow.

Syllabus

Chapter 1: Introduction

- Course Description
- How To Use This Course
- Course-Specific Technical Requirements

Chapter 2: Setting Up a Python Data Science Environment

- Topic A: Select Python Data Science Tools
- Topic B: Install Python Using Anaconda
- Topic C: Set Up an Environment Using Jupyter Notebook

- Summary

Chapter 3: Managing and Analyzing Data with NumPy

- Topic A: Create NumPy Arrays
- Topic B: Load and Save NumPy Data
- Topic C: Analyze Data in NumPy Arrays
- Summary

Chapter 4: Transforming Data with NumPy

- Topic A: Manipulate Data in NumPy Arrays
- Topic B: Modify Data in NumPy Arrays
- Summary

Chapter 5: Managing and Analyzing Data with pandas

- Topic A: Create Series and DataFrames
- Topic B: Load and Save pandas Data
- Topic C: Analyze Data in DataFrames
- Topic D: Slice and Filter Data in DataFrames
- Summary

Chapter 6: Transforming and Visualizing Data with pandas

- Topic A: Manipulate Data in DataFrames
- Topic B: Modify Data in DataFrames
- Topic C: Plot DataFrame Data
- Summary

Chapter 7: Visualizing Data with Matplotlib and Seaborn

- Topic A: Create and Save Simple Line Plots
- Topic B: Create Subplots
- Topic C: Create Common Types of Plots
- Topic D: Format Plots
- Topic E: Streamline Plotting with Seaborn
- Summary

Chapter 8: Appendix A: Scraping Web Data Using Beautiful Soup

- Topic A: Scrape Web Pages

11.  Practice Test

Here's what you get

60	60
PRE-ASSESSMENTS QUESTIONS	POST-ASSESSMENTS QUESTIONS

Features

Each question comes with detailed remediation explaining not only why an answer option is correct but also why it is incorrect.

Unlimited Practice

Each test can be taken unlimited number of times until the learner feels they are prepared. Learner can review the test and read detailed remediation. Detailed test history is also available.

Each test set comes with learn, test and review modes. In learn mode, learners will attempt a question and will get immediate feedback and complete remediation as they move on to the next question. In test mode, learners can take a timed test simulating the actual exam conditions. In review mode, learners can read through one item at a time without attempting it.

12. Live Labs

The benefits of live-labs are:

- Exam based practical tasks
- Real equipment, absolutely no simulations
- Access to the latest industry technologies
- Available anytime, anywhere on any device
- Break and Reset functionality

- No hardware costs

Lab Tasks

Setting Up a Python Data Science Environment

- Setting Up a Jupyter Notebook Environment

Managing and Analyzing Data with NumPy

- Creating a NumPy Array
- Using the NumPy Array Attributes
- Loading and Saving NumPy Data
- Analyzing Data in a NumPy Array
- Using Fancy Indexing
- Using the NumPy Statistical Summary Functions

Transforming Data with NumPy

- Manipulating Data in a NumPy Array
- Using the reshape Function
- Using the ravel and flip Functions
- Using the transpose and concatenate Functions
- Using the sort and argrsort Functions
- Using the insert and delete Functions
- Using the Arithmetic Functions and Operators
- Using the Comparison Functions and Operators
- Modifying Data in NumPy Arrays

Managing and Analyzing Data with pandas

- Creating Series and DataFrames

- Using the Series and DataFrame Attributes
- Loading and Saving DataFrame Data
- Analyzing Data in a DataFrame
- Slicing and Filtering Data in a DataFrame

Transforming and Visualizing Data with pandas

- Manipulating Data in a DataFrame
- Modifying Data in a DataFrame
- Using the DataFrame Arithmetic Functions and Operators
- Creating a Scatter Plot

Visualizing Data with Matplotlib and Seaborn

- Creating a Line Plot
- Creating Subplots
- Creating Box Plots
- Creating a 3-D Scatter Plot
- Creating a Histogram
- Formatting Plots
- Creating a JointGrid
- Creating a Linear Regression Plot

Here's what you get

33	4	13
LIVE LABS	VIDEO TUTORIALS	MINUTES

13. Post-Assessment

After completion of the uCertify course Post-Assessments are given to students and often used in conjunction with a Pre-Assessment to measure their achievement and the effectiveness of the exam.

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