uCertify

Course Outline

Learn AI with Python

04 Aug 2025

1. Exercises, Quizzes, Flashcards & Glossary

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

   Syllabus

   Chapter 1: Preface

   Chapter 2: Introduction to AI and Python

   Chapter 3: Machine Learning and Its Algorithms

   Chapter 4: Classification and Regression Using Supervised Learning

   Chapter 5: Clustering Using Unsupervised Learning

   Chapter 6: Solving Problems with Logic Programming

   Chapter 7: Natural Language Processing with Python

   Chapter 8: Implementing Speech Recognition with Python

   Chapter 9: Implementing Artificial Neural Network (ANN) with Python

   Chapter 10: Implementing Reinforcement Learning with Python

   Chapter 11: Implementing Deep Learning and Convolutional Neural Network

   Videos and How To

1.  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.

2.  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.

3.  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.

4.  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

5. 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: Preface

Chapter 2: Introduction to AI and Python

- Introduction
- Introduction to Artificial Intelligence (AI)
- Why to learn AI?
- Understanding intelligence
- Various fields of study in AI
- Applications of AI in various industries

- How does artificial intelligence learn?
- AI agents and environments
- AI and Python – how do they relate?
- Python3 - installation and setup
- Conclusion
- Questions

Chapter 3: Machine Learning and Its Algorithms

- Introduction
- Understanding Machine Learning (ML)
- The Landscape of Machine Learning Algorithms
- Components of a Machine Learning algorithm
- Different learning styles in machine learning algorithms
- Popular machine learning algorithms
- Questions

Chapter 4: Classification and Regression Using Supervised Learning

- Introduction
- Classification

- Various steps to build a classifier using Python
- Lazy learning versus eager learning
- Performance metrics for classification
- Regression
- Various steps to build a regressor using Python
- Performance metrics for regression
- Conclusion
- Questions

Chapter 5: Clustering Using Unsupervised Learning

- Introduction
- Clustering
- Various methods to form clusters
- Important ML clustering algorithms
- Conclusion
- Questions

Chapter 6: Solving Problems with Logic Programming

- Introduction

- Logic programming
- Building blocks of logic programming
- Useful Python packages for logic programming
- Implementation examples
- Conclusion
- Questions

Chapter 7: Natural Language Processing with Python

- Introduction
- Natural Language Processing (NLP)
- Installing Python's NLTK Package
- Understanding tokenization, stemming, and lemmatization
- Understanding chunking
- Understanding Bag-of-Words (BoW) model
- Understanding stop words
- Understanding vectorization and transformers
- Some examples
- Conclusion

Chapter 8: Implementing Speech Recognition with Python

- Introduction
- Basics of speech recognition
- Building a speech recognizer
- Conclusion
- Questions

Chapter 9: Implementing Artificial Neural Network (ANN) with Python

- Introduction
- Understanding of Artificial Neural Network (ANN)
- Optimizers for training the neural network
- Regularization
- Installing useful Python package for ANN
- Examples of building some neural networks
- Conclusion
- Questions

Chapter 10: Implementing Reinforcement Learning with Python

- Understanding reinforcement learning
- Markov Decision Process (MDP)

- Building blocks of reinforcement learning
- Constructing an environment using Python
- Constructing an agent using Python
- Conclusion
- Questions

Chapter 11: Implementing Deep Learning and Convolutional Neural Network

- Introduction
- Understanding Deep Learning
- Elucidation of Convolutional Neural Networks
- The Architecture of Convolutional Neural Network
- Localization and object recognition with deep learning
- Image classification using CNN in Python
- Conclusion
- Questions