uCertify

Course Outline

Artificial Intelligence for Cybersecurity

20 May 2024

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3. Exercises, Quizzes, Flashcards & Glossary

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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

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   Chapter 9: GANs - Attacks and Defenses

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   Videos and How To

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11. Post-Assessment

1. 📖 Course Objective

In today's rapidly evolving digital landscape, the intersection of artificial intelligence (AI) and cybersecurity is crucial for safeguarding organizations against ever-growing cyber threats. This course is designed to equip you with the knowledge and skills needed to leverage AI techniques for enhancing cybersecurity measures. This course will help you understand the fundamentals of artificial intelligence and its applications in cybersecurity.

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. ⌖ Exercises

There is no limit to the number of times learners can attempt these. Exercises come with detailed remediation, which ensures that learners are confident on the topic before proceeding.

155

EXERCISES

4. ⏱ Quiz

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.

105
QUIZ

5. ⚡ 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.

63
FLASHCARDS

6. 📖 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.

63
GLOSSARY OF TERMS

7. 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.

8. 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.

9. 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.

10. 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

11. ⚙ 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

- Who this course is for

- What this course covers

Chapter 2: Introduction to AI for Cybersecurity Professionals

- Applying AI in cybersecurity

- Evolution in AI: from expert systems to data mining

- Types of machine learning

- Algorithm training and optimization

- Getting to know Python's libraries

- AI in the context of cybersecurity

- Summary

Chapter 3: Setting Up Your AI for Cybersecurity Arsenal

- Getting to know Python for AI and cybersecurity

- Python libraries for cybersecurity

- Enter Anaconda – the data scientist's environment of choice

- Playing with Jupyter Notebooks

- Installing DL libraries

- Summary

Chapter 4: Ham or Spam? Detecting Email Cybersecurity Threats with AI

- Different ML algorithms for botnet detection

- Summary

Chapter 7: Securing User Authentication

- Authentication abuse prevention

- Account reputation scoring

- User authentication with keystroke recognition

- Biometric authentication with facial recognition

- Summary

Chapter 8: Fraud Prevention with Cloud AI Solutions

- Introducing fraud detection algorithms

- Predictive analytics for credit card fraud detection

- Getting to know IBM Watson Cloud solutions

- Importing sample data and running Jupyter Notebook in the cloud

- Evaluating the quality of our predictions

- Summary

Chapter 9: GANs - Attacks and Defenses

- Ensuring security and reliability

- Summary

12. ◎ Practice Test

Here's what you get

50	**50**
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.

13. ❀ 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

Introduction to AI for Cybersecurity Professionals

- Creating a Linear Regression Model
- Creating a Clustering Model
- Using Neural Networks for Spam Filtering

Setting Up Your AI for Cybersecurity Arsenal

- Performing Matrix Operations
- Using a Linear Regression Model for Prediction

Ham or Spam? Detecting Email Cybersecurity Threats with AI

- Creating a Perceptron-based Spam Filter
- Creating an SVM Spam Filter
- Creating a Phishing Detector with Logistic Regression
- Creating a Phishing Detector with Decision Trees
- Creating a Spam Detector with NLTK

Malware Threat Detection

- Using the k-Means Clustering Algorithm for Malware Detection
- Creating a Decision Tree and a Random Forest Malware Classifier
- Detecting Malware using an HMM Model

Network Anomaly Detection with AI

- Detecting Botnet
- Performing Gaussian Anomaly Detection

Securing User Authentication

- Detecting Anomaly Using Keystrokes
- Creating an Image Classification Model
- Understanding Covariance Matrix

Fraud Prevention with Cloud AI Solutions

- Performing Oversampling and Undersampling
- Comparing Different Models for Detecting Credit Card Frauds

Evaluating Algorithms

- Performing Feature Normalization
- Dealing with Categorical Data
- Using Different Measures to Evaluate Algorithms
- Creating a Learning Curve to Measure Performance of an Algorithm
- Performing K-Folds Cross Validation

Assessing your AI Arsenal

- Handling Missing Values in a Dataset
- Performing Hyperparameter Optimization

Here's what you get

27	**27**	**56**
LIVE LABS	VIDEO TUTORIALS	MINUTES

14. 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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