

Artificial Intelligence Fundamentals

Course Overview

This four-session course introduces you to Artificial Intelligence (AI), a growing and rapidly changing field that is becoming increasingly vital to business survival, job stability, and national security. Each session is approximately two hours of instructional content.

Course Approach

The content is laid out in a workshop format structured to provide a holistic learning experience leading to proficiency. This is not a self-paced course. This course also contains case study material based on real-life scenarios but does not reference any particular company or situation.

Content Types

There are three content types in this course:

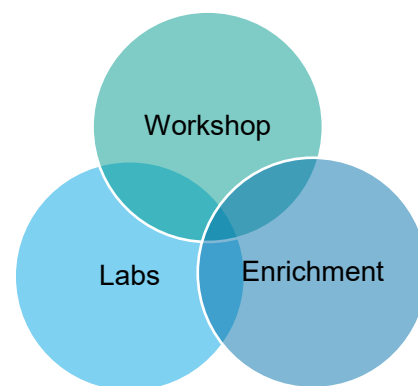
Workshop: Main course content, typically in a slide deck or recorded, lecture-style format.

Enrichment: Additional content provided for the learning experience in the course. These are items that, while not required, may provide a bigger picture or more context around content presented in the course. These are content elements including (but not limited to) learning aids, journal articles, podcasts, whitepapers, webinars or links from other trusted sources.

Labs: This course has a performance-based lab component that is highly recommended for learners to complete. Completion of the labs is in addition to the instructor led course and will reinforce the learning in a hands-on, skill building approach.

Each Certificate Exam assesses and affirms both knowledge and the ability to perform IT-related tasks that the real-world workplace demands. The exams include multiple choice questions and specific skills that are assessed in a virtual lab environment.

Access to the labs is available through the ISACA PERFORM learning experience platform.



Session 1 – AI Concepts

Learning Objectives:

- Explain the basics of AI
- Describe properties of AI
- Identify resource requirements for adopting AI

Session Topics:

- 1.2 Properties of Artificial Intelligence
- 1.3 Resource Requirements for Adopting AI

Enrichment

- Understanding Artificial Intelligence, ISACA White Paper (https://www.isaca.org/bookstore/bookstore-wht_papers-digital/whpuai)
- Is Artificial Intelligence a Career Path for You?, ISACA Journal (<https://www.isaca.org/resources/isaca-journal/issues/2018/volume-6/is-artificial-intelligence-a-career-path-for-you>)

Session 2 – Expert Systems and Machine Learning Models

Learning Objective:

- Articulate expert systems (e.g., temporal reasoning, logic and inference)
- Distinguish machine learning models (e.g., decision trees, regression models, Bayesian)

Session Topics:

- 1.4 Expert Systems
- 1.5 Machine Learning Models

Enrichment

- IoT, Machine Learning and Artificial Intelligence: Nothing to Fear, ISACA Podcast (<https://www.isaca.org/resources/news-and-trends/isaca-podcast-library/iot-machine-learning-and-artificial-intelligence--nothing-to-fear>)
- Understanding Artificial Intelligence, ISACA White Paper (https://www.isaca.org/bookstore/bookstore-wht_papers-digital/whpuai)

Session 3 – Algorithms

Learning Objective:

- Describe machine learning algorithms (e.g., supervised learning, unsupervised learning, deep learning)

Session Topics:

- 1.6 Statistical Modeling
- 1.7 Machine Learning Algorithms

Enrichment

- Preparing for the AI Revolution, ISACA Journal (https://www.isaca.org/bookstore/bookstore-wht_papers-digital/whpuai)
- Artificial intelligence and covid-19: Can the machines save us?, Washington Post (https://www.washingtonpost.com/health/covid-19-artificial-intelligence/2020/10/30/7486db84-1485-11eb-bc10-40b25382f1be_story.html)

Session 4 – AI Implementation

Learning Objectives:

- Describe enterprise usage of artificial intelligence (e.g., RPA, log analysis, image processing, NLP, fraud detection, cybersecurity, healthcare)
- Identify consumer usage of artificial intelligence (e.g., autonomous vehicles, digital assistants, freelance mobile marketplace)
- Identify risks associated with artificial intelligence (e.g., cybersecurity, privacy, data loss)
- Articulate ethical dilemmas in artificial intelligence (e.g., privacy, bias, nefarious usage)

Session Topics:

- 2.2 Enterprise Usage of Artificial Intelligence
- 2.3 Consumer Usage of Artificial Intelligence
- 2.4 Risks Associated with Artificial Intelligence
- 2.5 Ethics in Artificial Intelligence

Enrichment

- Ethics and Morality in the Fourth Industrial Revolution: Rethinking Ethics, Values and Innovation in the Digital Age, ISACA Journal (<https://www.isaca.org/resources/isaca-journal/issues/2021/volume-2/ethics-and-morality-in-the-fourth-industrial-revolution>)
- Ethical Considerations of Artificial Intelligence, ISACA Now Blog (<https://www.isaca.org/resources/news-and-trends/isaca-now-blog/2019/ethical-considerations-of-artificial-intelligence>)
- The Automation Conundrum, ISACA Podcast (<https://www.isaca.org/resources/news-and-trends/isaca-podcast-library/the-automation-conundrum>)

Practice Labs

- Robotic Process Automation
- Security Implementations of AI
- Machine Learning Models