## About this Course

This course introduces fundamentals concepts related to artificial intelligence (AI), and the services in Microsoft Azure that can be used to create AI solutions. The course is not designed to teach students to become professional data scientists or software developers, but rather to build awareness of common AI workloads and the ability to identify Azure services to support them. The course is designed as a blended learning experience that combines instructor-led training with online materials on the Microsoft Learn platform (https://azure.com/learn). The hands-on exercises in the course are based on Learn modules, and students are encouraged to use the content on Learn as reference materials to reinforce what they learn in the class and to explore topics in more depth.

## Prerequisites

Prerequisite certification is not required before taking this course. Successful Azure AI Fundamental students start with some basic awareness of computing and internet concepts, and an interest in using Azure AI services.

Specifically:

- Experience using computers and the internet.
- Interest in use cases for AI applications and machine learning models.
- A willingness to learn through hands-on exploration.

## Audience profile

The Azure AI Fundamentals course is designed for anyone interested in learning about the types of solution artificial intelligence (AI) makes possible, and the services on Microsoft Azure that you can use to create them. You don't need to have any experience of using Microsoft Azure before taking this course, but a basic level of familiarity with computer technology and the Internet is assumed. Some of the concepts covered in the course require a basic understanding of mathematics, such as the ability to interpret charts. The course includes hands-on activities that involve working with data and running code, so a knowledge of fundamental programming principles will be helpful.

## Course Outline

### Get started with AI on Azure
With AI, we can build solutions that seemed like science fiction a short time ago; enabling incredible advances in health care, financial management, environmental protection, and other areas to make a better world for everyone.

### Learning objectives
In this module, you'll learn about the kinds of solution AI can make possible and considerations for responsible AI practices.

## Use Automated Machine Learning in Azure Machine Learning

learning model is an iterative process that requires time and compute resources. Automated machine learning can help make it easier.

### Learning objectives
Learn how to use the automated machine learning user interface in Azure Machine Learning

## Create a regression model with Azure Machine Learning designer

Regression is a supervised machine learning technique used to predict numeric values. Learn how to create regression models using Azure Machine Learning designer.

### Learning objectives
Learn how to train and publish a regression model with Azure Machine Learning designer.

## Create a classification model with Azure Machine Learning designer

Classification is a supervised machine learning technique used to predict categories or *classes*. Learn how to create classification models using Azure Machine Learning designer.

### Learning objectives
Train and publish a classification model with Azure Machine Learning designer

## Create a clustering model with Azure Machine Learning designer

Clustering is an unsupervised machine learning technique used to group similar entities based on their features. Learn how to create clustering models using Azure Machine Learning designer.

### Learning objectives
Train and publish a clustering model with Azure Machine Learning designer

## Analyze images with the Computer Vision service

The Computer Vision service enables software engineers to create intelligent solutions that extract information from images; a common task in many artificial intelligence (AI) scenarios.

### Learning objectives
Learn how to use the Computer Vision cognitive service to analyze images.

## Classify images with the Custom Vision service

Image classification is a common workload in artificial intelligence (AI) applications. It harnesses the predictive power of machine learning to enable AI systems to identify real-world items based on images.

### Learning objectives
Learn how to use the Custom Vision service to create an image classification solution

## Detect objects in images with the Custom Vision service

Object detection is a form of computer vision in which artificial intelligence (AI) agents can identify and locate specific types of object in an image or camera feed.

### Learning objectives
Learn how to use the Custom Vision service to create an object detection solution.

## Detect and analyze faces with the Face service

Face detection, analysis, and recognition are important capabilities for artificial intelligence (AI) solutions. The Face cognitive service in Azure makes it easy integrate these capabilities into your applications.

### Learning objectives
Learn how to use the Face cognitive service to detect and analyze faces in images.

### Read text with the Computer Vision service

Optical character recognition (OCR) enables artificial intelligence (AI) systems to read text in images, enabling applications to extract information from photographs, scanned documents, and other sources of digitized text.

### Learning objectives

Learn how to read text in images with the Computer Vision service

### Analyze receipts with the Form Recognizer service

Processing invoices and receipts is a common task in many business scenarios. Increasingly, organizations are turning to artificial intelligence (AI) to automate data extraction from scanned receipts.

### Learning objectives

Learn how to use the built-in receipt processing capabilities of the Form Recognizer service

### Analyze text with the Language service

Explore text mining and text analysis with the Language service's Natural Language Processing (NLP) features, which include sentiment analysis, key phrase extraction, named entity recognition, and language detection.

### Learning objectives

Learn how to use the Language service for text analysis

### Recognize and synthesize speech

Learn how to recognize and synthesize speech by using Azure Cognitive Services.

### Learning objectives

In this module you will:
- Learn about speech recognition and synthesis
- Learn how to use the Speech cognitive service in Azure

### Translate text and speech

Automated translation capabilities in an AI solution enable closer collaboration by removing language barriers.

### Learning objectives

After completing this module, you will be able to perform text and speech translation using Azure Cognitive Services.

### Create a language model with Conversational Language Understanding

In this module, we'll introduce you to Conversational Language Understanding, and show how to create applications that understand language.

### Learning objectives

In this module, you'll:
- Learn what Conversational Language Understanding is.
- Learn about key features, such as intents and utterances.
- Build and publish a natural-language machine-learning model.

### Build a bot with the Language Service and Azure Bot Service

Bots are a popular way to provide support through multiple communication channels. This module describes how to use a knowledge base and Azure Bot Service to create a bot that answers user questions.

### Learning objectives

After completing this module, you'll be able to create a knowledge base with an Azure Bot Service bot.