# Building Intelligent Web Applications with Azure OpenAI - TTAI2363

Master AI Insights with Azure OpenAI! Dive into Integrating AI and Web Development to Create Responsive and Individualized User Experiences

**Duration:** 3 Days
**Skill Level:** Intermediate
**Available Format:** Instructor-Led Online ; On Public Schedule

Building Intelligent Web Applications using Azure OpenAI is a three-day hands-on course that explores the exciting fusion of Generative AI, Machine Learning, and AI in web development. This immersive event will guide you through the end-to-end, cutting edge skills required to create sophisticated machine learning applications that crunch, wrangle and analyze data.

# What You'll Learn

## Overview

**Building Intelligent Web Applications using Azure OpenAI** is a three-day hands-on course that explores the exciting fusion of Generative AI, Machine Learning, and AI in web development. This immersive event will guide you through the end-to-end, cutting edge skills required to create sophisticated machine learning applications that crunch, wrangle and analyze data. You'll learn how to skillfully handle and interpret data from a variety of sources, including user interfaces, web applications, and APIs. You'll immerse yourself in the Azure OpenAI ecosystem, leveraging the most current standards, skills and practices, while learning about recommendation engines, and understanding classification through a mix of statistical algorithms, neural networks, and deep learning. All of this is made approachable and practical, with Python code examples guiding you on how to use intelligent algorithms to draw meaningful insights from data.

The course focuses heavily on practical real-world scenario-based hands-on labs, providing you with ample practice to apply your newly learned skills to scenario-based labs under the valuable guidance of our AI expert instructor. You'll start by building your foundation in Azure OpenAI, then progress to constructing your own APIs, powered by Azure's AI capabilities. Imagine orchestrating these APIs in a middle layer, bringing to life robust business applications. The course culminates with you learning how to weave these AI functionalities into a comprehensive web application. This step-by-step approach is tailored to ensure that by the end, even those new to Azure OpenAI will be able to construct a full-fledged GPT-based application.

By the end of this course, you'll be equipped with the knowledge and confidence required to apply these skills in real-world scenarios. With a newfound understanding and hands-on experience in Azure OpenAI, you'll be ready to enhance your organization's tech capabilities, bringing a fresh perspective to the intelligent web.

## Objectives

Our engaging instructors and mentors are highly experienced practitioners who bring years of current, **modern "on-the-job" modern applied data science, AI and machine learning experience** into every classroom and hands-on project. Our instructors are Certified Microsoft Data Scientists.

Working in a hands-on lab environment led by our expert instructor, you'll explore

- Design patterns for developing Azure OpenAI web solutions
- Building applications for the intelligent web using Azure OpenAI
- Extracting structure from data: clustering and transforming your data
- Recommending relevant content
- Classification: placing things where they belong
- Relevant Case Study: click prediction for online advertising
- Making the right Machine Learning choices for your web apps
- The future of the intelligent web and Azure AI

# Audience

This foundation level course is geared for experienced technical professionals eager to meld the capabilities of AI with the dynamism of web applications. Roles might include developers, architects, and data scientists who want to learn algorithms that capture, store, and structure data streams coming from the web and web applications, as well as recommendation engines and dive into classification via statistical algorithms, neural networks, and deep learning.

# Pre-Requisites

To ensure a smooth learning experience and maximize the benefits of attending this course, you should have the following prerequisite skills:

- Prior programming or scripting experience. Labs are Python-centric, so Python experience would be the most beneficial. Attendees without scripting experience would be able to watch and follow along with the hands-on portion of the training.
- Basic web development experience is recommended (working with HTML5 / CSS3, etc.)
- Comfort with elementary data concepts, such as databases, data structures, and basic data manipulation.

**Take Before**: Students should have incoming practical skills aligned with those in the course(s) below, or should have attended the following course(s) as a pre-requisite:

- TTPS4872 Python Primer for Data Science and Machine Learning (2 days)

TTML5503         Introduction to AI & Machine Learning JumpStart

# Agenda

*Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most. Course agenda, topics and labs are subject to adjust during live delivery in response to student skill level, interests and participation.*

**Getting Started: Building applications for the intelligent web with Azure OpenAI**

- An intelligent algorithm in action
- The intelligent-algorithm lifecycle
- Further examples of intelligent algorithms

- Things that intelligent applications are not
- Classes of intelligent algorithm
- Evaluating the performance of intelligent algorithms
- Important notes about intelligent algorithms

## Extracting structure from data: clustering and transforming your data

- Data, structure, bias, and noise
- The curse of dimensionality
- K-means
- The relationship between k-means and GMM
- Transforming the data axis

## Recommending relevant content

- Setting the scene: an online movie store
- Distance and similarity
- How do recommendation engines work?
- User-based collaborative filtering
- Model-based recommendation using singular value decomposition
- The Netflix Prize
- Evaluating your recommender

## Classification: placing things where they belong

- The need for classification
- An overview of classifiers
- algorithms
- Fraud detection with logistic regression
- Are your results credible?
- Classification with very large datasets

## Case study: click prediction for online advertising

- History and background

- The exchange
- What is a bidder?
- What is a decisioning engine?
- Click prediction with Vowpal Wabbit
- Complexities of building a decisioning engine
- The future of real-time prediction

## Developing APIs from Azure OpenAI

- An intuitive approach to building application logic
- Flask APIs and Microservices
- Creating Business Use Cases for Generative AI and Azure OpenAI

## Building an End-to-End GPT based Web Application

- External API Layer
- Microservices / Web Services Layer + OpenAI + Azure AI
- Business Process Flow Layer (VoiceFlow)
- Front End Layer
- Testing

## The future of the intelligent web

- Future applications of the intelligent web
- Social implications of the intelligent web

All applicable course software, digital courseware files or course notes, labs, data sets and solutions, live coaching support channels, CodeCoach.AI anytime tutor access, and rich extended learning and post training resources are provided for you in our "easy access, single source, no install required" online **Learning Experience Platform (LXP),** remote lab and content environment. Access periods vary by course. We'll collaborate with you to ensure your team is set up and ready to go well in advance of the class. Please inquire about set up details and options for your specific course of interest.

# For More Information

Please contact us or call 844-475-4559 toll free for more information about our training services (instructor-led, self-paced or blended), coaching and mentoring services, public course enrollment or questions, partner programs, courseware licensing options and more.