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Azure AI Foundations

From Concepts to Cloud, Understanding AI the Microsoft Way - 1 day

FA-0115 · 1 day

Agentic & Generative AI · DevOps, Cloud & Infrastructure · Data & Analytics

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Introduction

Artificial intelligence has moved from abstract theory into everyday infrastructure—quietly shaping how systems see, speak, decide, and create. The Microsoft AI-901 (Azure AI Fundamentals) curriculum reflects this shift, focusing not just on what AI is, but how it is deployed responsibly at scale using cloud services. This one-day intensive course is designed to compress that landscape into a structured, practical learning experience. Participants will not only understand core AI concepts, but also how Microsoft Azure operationalizes them into real-world solutions—especially with the growing emphasis on generative AI and modern AI services introduced in recent updates.

This course is delivered by an instructor with over 30 years of industry experience, ensuring that every concept is grounded in real-world application and current industry demand rather than academic abstraction.

Learning outcomes

By the end of this course, participants will be able to:

- Describe core artificial intelligence workloads and real-world use cases
- Explain responsible AI principles and their importance in modern systems
- Understand fundamental machine learning concepts and lifecycle processes
- Identify Azure Machine Learning capabilities and deployment approaches
- Recognize key computer vision, NLP, speech, and document processing solutions
- Explain generative AI concepts including large language models and AI agents
- Map business problems to appropriate Azure AI services

- Understand how modern AI solutions are built, deployed, and scaled on Azure

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Prerequisites

- Basic familiarity with computers and internet technologies
- General awareness of cloud computing concepts (helpful but not mandatory)
- No prior programming or AI experience required
- Logical thinking and curiosity about emerging technologies

Training outline

1. Introduction to Artificial Intelligence and Azure Ecosystem

1. Definition and scope of artificial intelligence

   Categories of AI workloads

   1. Machine learning workloads
   2. Computer vision workloads
   3. Natural language processing workloads
   4. Conversational AI workloads
   5. Generative AI workloads

3. Real-world applications of AI across industries

   Overview of Microsoft Azure as an AI platform

   1. Cloud computing fundamentals
   2. Azure global infrastructure and services
   3. AI service categories in Azure

2. Responsible AI Principles and Considerations

1. Importance of ethical AI in production systems

   Core principles of responsible AI

   1. Fairness and bias mitigation
   2. Reliability and safety
   3. Privacy and security
   4. Inclusiveness and accessibility
   5. Transparency and explainability

6. Accountability and governance
3. Risk identification in AI solutions
4. Regulatory and compliance considerations

3. Fundamentals of Machine Learning

1. Definition and purpose of machine learning
   Types of machine learning
      Supervised learning
        1. Regression
        2. Classification
      Unsupervised learning
        1. Clustering
    3. Deep learning fundamentals
   Key machine learning concepts
     1. Features and labels
     2. Training vs validation datasets
     3. Overfitting and underfitting
     4. Model evaluation metrics
   Machine learning lifecycle
     1. Data ingestion and preparation
     2. Model training
     3. Model evaluation
     4. Deployment and monitoring

4. Azure Machine Learning Capabilities

1. Overview of Azure Machine Learning service
2. Automated Machine Learning (AutoML)
3. Data and compute resources in Azure
4. Model management and versioning
   Model deployment options
     1. Real-time endpoints
     2. Batch processing
6. MLOps concepts in Azure

5. Computer Vision Workloads and Services

1. Core concepts of computer vision
   Image analysis techniques
      1. Image classification
      2. Object detection
      3. Facial detection and analysis
3. Optical Character Recognition (OCR)
4. Azure AI Vision services
5. Multimodal models and visual AI
6. Image generation and video generation concepts

6. Natural Language Processing (NLP) Workloads

1. Fundamentals of NLP
   Text processing techniques
      1. Tokenization
      2. Statistical analysis
      3. Semantic understanding
   NLP use cases
      1. Sentiment analysis
      2. Entity recognition
      3. Language translation
4. Azure Language services
   Conversational AI fundamentals
      1. Chatbots and virtual assistants
      2. Language understanding systems

7. Speech AI Workloads

1. Speech recognition concepts
2. Text-to-speech synthesis
3. Speech translation
4. Azure Speech services
5. Voice-enabled applications and agents

8. Information Extraction and Document Intelligence

1. Overview of document processing
2. Structured vs unstructured data
3. OCR and form recognition
4. Field extraction and mapping
5. Azure document intelligence solutions

9. Generative AI and Modern AI Applications

1. Introduction to generative AI
2. Large Language Models (LLMs)
3. Prompt engineering fundamentals
4. AI agents and agentic workflows
5. Azure OpenAI and Foundry capabilities
6. Use cases of generative AI in business
7. Risks and responsible use of generative AI

10. Building AI Solutions on Azure

1. End-to-end AI solution architecture
2. Selecting appropriate Azure services for use cases
3. Integration with applications and APIs
4. Security and scalability considerations
5. Cost optimization strategies

11. Mapping AI Use Cases to Azure Services

1. Identifying problem types and AI approaches
2. Matching workloads to services
3. Evaluating trade-offs between solutions
4. Real-world solution design thinking

This one-day course is structured to mirror the full breadth of the Microsoft AI-901 curriculum while aligning it with the latest industry shifts—particularly the integration of generative AI and modern Azure AI services, ensuring participants leave with knowledge that is both certification-ready and industry-relevant.

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