Introduction to Artificial Intelligence Course Curriculum

This course is designed for anyone looking to earn the AWS Certified AI Practitioner (AIF-C01) certification and add it to their professional toolkit — no prior AI or cloud experience required.
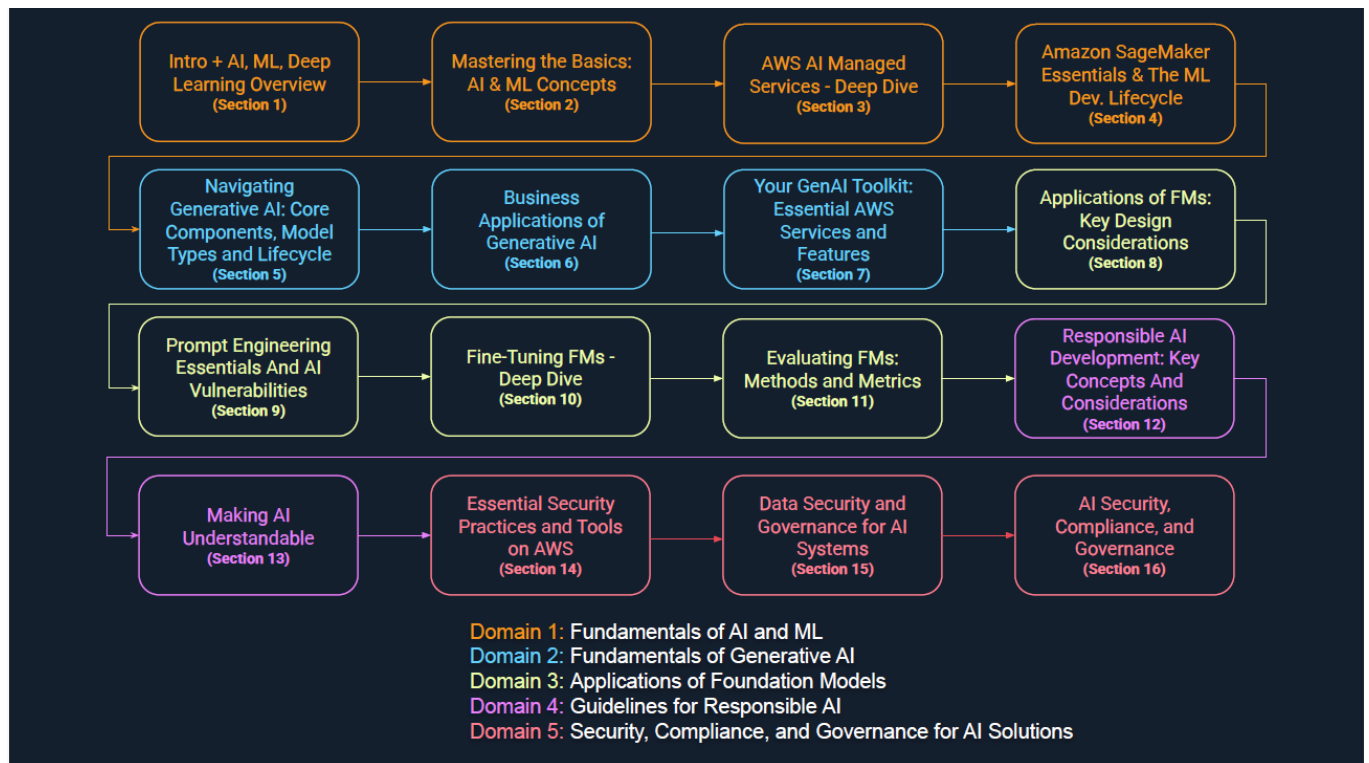
Whether you're aiming to understand how AI works in real-world business settings or preparing for your next role, this course will give you the knowledge and confidence to pass the exam, and get a job with your newly acquired Artificial Intelligence knowledge/skills.

Who is this course for?

- Newbies into IT as we will build your knowledge from scratch

- Business Analysts and IT support professionals

- Marketing professionals and product managers

- Cloud/DevOPS Engineers

- Cloud Security Engineers

- Project managers, Product Owners, and Scrum Masters

- IT managers, sales professionals, and anyone curious about AI and AWS

Intro + AI, ML, Deep Learning Overview (Section 1) → Mastering the Basics: AI & ML Concepts (Section 2) → AWS AI Managed Services - Deep Dive (Section 3) → Amazon SageMaker AI Essentials And The ML Dev. Lifecycle (Section 4)

Navigating Generative AI: Core Components, Model Types and Lifecycle (Section 5) → Business Applications of Generative AI (Section 6) → Your GenAI Toolkit: Essential AWS Services and Features (Section 7) → Applications of FMs: Key Design Considerations (Section 8)

Prompt Engineering Essentials And AI Vulnerabilities (Section 9) → Fine-Tuning FMs - Deep Dive (Section 10) → Evaluating FMs: Methods and Metrics (Section 11) → Responsible AI Development: Key Concepts And Considerations (Section 12)

Making AI Understandable (Section 13) → Essential Security Practices and Tools on AWS (Section 14) → Data Security and Governance for AI Systems (Section 15) → AI Security, Compliance, and Governance (Section 16)

Practice Exam #1 (Section 17) → Practice Exam 2 (Section 17) → Exam Tips & Final Words (Section 18) → aws certified AI Practitioner FOUNDATIONAL

Curriculum

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Responsible AI Development: Key Concepts And Considerations (Section 12)

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Essential Security Practices and Tools on AWS (Section 14)

Data Security and Governance for AI Systems (Section 15)

AI Security, Compliance, and Governance (Section 16)

Domain 1: Fundamentals of AI and ML
Domain 2: Fundamentals of Generative AI
Domain 3: Applications of Foundation Models
Domain 4: Guidelines for Responsible AI
Domain 5: Security, Compliance, and Governance for AI Solutions

Core Topics

- *What is Artificial Intelligence*

- *Differentiate between Artificial Intelligence, Machine Learning, and Deep Learning.*

- *Understand the foundational principles of Neural Networks.*

- *Explore the applications of Computer Vision and Natural Language Processing (NLP).*

- *Grasp fundamental AWS services and core concepts.*

- *Learn the key steps involved in the Machine Learning process.*

- *Identify and understand different data types used in Machine Learning.*

- *Distinguish and apply the main types of Machine Learning: Supervised, Unsupervised, Reinforcement, and Semi-Supervised Learning.*

- *Understand the concept of Inference in Machine Learning.*

- *Explore value-adding applications of Artificial Intelligence.*

- *Recognize scenarios where Artificial Intelligence may not be the appropriate solution.*

- *Gain practical understanding of Amazon Rekognition for image and video analysis.*

- *Learn how to utilize Amazon Transcribe for accurate speech-to-text conversion.*

- *Discover the capabilities of Amazon Translate for multilingual text translation.*

- *Explore Amazon Comprehend for natural language understanding and insights.*

- *Understand how to build conversational interfaces with Amazon Lex.*

- *Learn to generate lifelike speech with Amazon Polly.*

- *Discover how to leverage Amazon Fraud Detector to identify potential fraud.*

- *Explore Amazon Personalize for creating personalized recommendations.*

- *Understand how to use Amazon Kendra for intelligent search over documents.*

- *Learn to extract text and data from documents with Amazon Textract.*

- *Learn how to leverage Amazon Forecast for time-series forecasting.*

- *Understand the fundamentals of Amazon Mechanical Turk (MTurk) for crowdsourcing tasks.*

- *Explore how to implement human review workflows for machine learning predictions with Amazon Augmented AI (A2I).*

- *Gain a comprehensive overview of Amazon SageMaker AI and its key components.*

- *Understand the different phases of the Machine Learning Development Lifecycle.*

- *Learn the distinction between the ML Development Lifecycle and an ML Pipeline.*

- *Grasp the fundamental concepts of MLOps.*

- *Discover how AWS SageMaker AI tools map to different stages of the ML Pipeline.*

- *Explore model sources and selection strategies within Amazon SageMaker AI.*

- *Understand key technical performance metrics for classification problems.*

- *Learn essential technical performance metrics for regression problems.*

- *Understand the overview and significance of Foundation Models (FMs).*

- *Gain insights into the world of Large Language Models (LLMs).*

- *Learn about tokens, embeddings, and vectors as fundamental building blocks of language models.*

- *Explore the capabilities and applications of Multimodal Models.*

- *Discover the principles behind Diffusion Models.*

- *Understand the different phases of the Foundation Model Lifecycle.*

- *Gain a comprehensive overview of Amazon Bedrock.*

- *Understand the purpose and capabilities of Amazon SageMaker JumpStart.*

- *Explore Amazon Q Business and Amazon Q Developer for generative AI applications.*

- *Understand important inference parameters like Temperature, Top K, Top P, and Output Length.*

- *Grasp the concept of Retrieval Augmented Generation (RAG).*

- *Explore how to implement RAG and Knowledge Bases using Amazon Bedrock.*

- *Understand the different vector database options for storing embeddings.*

- *Learn about Foundation Model customization methods, including cost and implementation considerations.*

- *Discover how Amazon Bedrock Agents can help accomplish multi-step tasks.*

- *Learn fundamental Prompt Engineering techniques to build a strong foundation.*

- *Identify and understand various AI vulnerabilities, including exposure, poisoning, hijacking, and prompt injection.*

- *Discover various methods for fine-tuning Foundation Models to specific tasks.*

- *Understand the crucial steps involved in preparing data for effective Foundation Model fine-tuning.*

- *Understand key evaluation metrics for Foundation Models, including Perplexity, BLEU, ROUGE, BERTScore, Accuracy, and F1-Score.*

- *Understand the key concepts of Responsible AI.*

- *Learn about the legal and ethical concerns surrounding Generative AI.*

- *Understand the concepts of Model Fit, Bias, and Variance (Underfitting and Overfitting).*

- *Understand AWS AI Service Cards: what they are, why they are important, and see an example.*

- *Explore AWS SageMaker Clarify for detecting and mitigating bias in ML models.*

- *Understand AI System Security within the context of the AWS Shared Responsibility Model.*

- *Learn about Identity and Access Management (IAM) concepts: Users, Groups, Roles, Policies, and Permissions.*

- *Explore AWS Encryption Capabilities for securing data at rest and in transit.*

- *Understand network security considerations for AI workloads, including AWS PrivateLink.*

- *Understand the concepts of data provenance and lineage.*

- *Discover governance protocols and frameworks specifically designed for Generative AI.*