



BAFAI
BLOOM ACADEMY FOR AI

Agentic AI Curriculum

Industry-Relevant AI Training for Career Advancement

SCHOLARSHIPS AVAILABLE
T&C Applies

Course Objective

Equip learners with the skills to architect, build, deploy, and maintain autonomous AI agent systems using modern frameworks, integrating reasoning, memory, tool use, multi-agent orchestration, safety guardrails, and cloud deployment into production-ready applications

Monthly Salary Expectation



Nigeria

₦500,000 – ₦900,000



Canada

\$5,400 – \$7,900 CAD



United States

\$9,700 to \$12,500+



Denmark

DKK 52,000 – DKK 56,000



United Kingdom

£4,000 – £6,500



Kenya

KES 48,000 – KES 100,000

Learning Model

Course Mode

**Online and
Project-based**

Course Duration

12 weeks

Programme Level

Beginner to Intermediate

Certificate

Certificate of completion



Module 01

Foundations of Agentic AI

- What is AI? From rule-based systems to modern LLMs
- Introduction to Large Language Models (LLMs)
- What is an AI agent? (Autonomy, reactivity, goals)
- The perception-action loop explained simply
- Single-turn vs. multi-step AI systems
- Real-world examples of AI agents in business and daily life

Module 02

Prompting & Basic Reasoning Techniques

- Prompt engineering fundamentals
- Zero-shot vs few-shot prompting
- Introduction to Chain-of-Thought (CoT) reasoning
- Structured prompting for better outputs
- Reducing hallucinations with better instructions
- Building your first simple reasoning agent
- Hands-on: Create a structured problem-solving assistant.

Module 03

Introduction to Agent Frameworks

- Why frameworks are needed
- Overview of:

LangChain

CrewAI

Microsoft AutoGen

- Installing and setting up a development environment
- Creating a simple agent using LangChain
- • Understanding agents vs chains
- • Observing the reasoning + acting loop

Module 04

Tool Use & API Integration

- What are tools in agent systems?
- Function calling basics
- Defining simple tool schemas
- Connecting agents to:

Web search

Calculators

Simple external APIs

- Error handling and fallback strategies
- Intro to secure tool design

Hands-on: Build a tool-using research assistant

Module 05

Memory & Context Management

- Why agents need memory
- Short-term vs long-term memory
- Buffer memory and summary memory
- Introduction to vector databases
- Basics of Retrieval-Augmented Generation (RAG)
- Simple document retrieval system

Hands-on: Build a chatbot that remembers previous interactions.

Module 06

Planning & Multi-Step Task Execution

- From single-step to multi-step agents
- Plan-and-Execute workflows
- ReAct (Reasoning + Acting) simplified
- Task decomposition basics
- Introducing simple workflow graphs
- Debugging reasoning loops

Hands-on: Create a task-planning assistant.

Module 07

Multi-Agent Collaboration

- Failure modes: hallucination, goal misalignment, prompt injection
- Prompt injection attack vectors: direct, indirect, jailbreak
- Output filtering: OpenAI Moderation API, Llama Guard
- Guardrails frameworks: Guardrails AI, NeMo Guardrails
- Rate limiting, cost monitoring, and budget guardrails
- Logging, auditing, and explainability in production agents

Hands-on: Build a 3-agent content creation system.

Module 08

Safety, Guardrails & Responsible AI

- Common failure modes (hallucination, prompt injection)
- Safe prompting techniques
- Output filtering basics
- Rate limiting & cost awareness
- Logging and transparency
- Designing responsible AI workflows

Hands-on: Add safety guardrails to a previous project.

Module 09

Deployment & Production Basics

- Turning an agent into an API
- Intro to FastAPI
- Container basics with Docker
- Simple cloud deployment (beginner-friendly platform)
- Monitoring usage & performance
- Versioning and iteration

Hands-on: Deploy your agent to a public endpoint.

Capstone Project

End-to-End Agent Application

- Integrate at least 3 core modules (tools, memory, planning, or multi-agent)
- Include basic guardrails
- Deploy to a public cloud endpoint
- Demonstrate real-world use case

Activities:

- Proposal & scope validation
- Guided build sprint
- Peer testing & feedback
- 10-minute live demo + Q&A

Project Defence

- **Personal Project Presentations**

Note:

- **All modules, project work, project defense, and grading work will be completed in a total of 12 weeks from the course start date.**

Certificate Sample



CERTIFICATE OF COMPLETION IN AGENTIC AI

THIS CERTIFICATE IS PROUDLY PRESENTED TO

Emeka Adediran Audu

Who has successfully completed the Agentic AI course comprising: AI Foundations, Reasoning, Memory Systems & Context Management, Function Calling & API Integration, Multi-Agent Systems & Orchestration, Safety, Guardrails and Responsible Agentic AI.

Dr. Lola Olukewu
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