

MLOps Enablement with Red Hat AI Enterprise

OEM: Red Hat • Code: AI500

COURSE DESCRIPTION

Experience the possibilities of MLOps through proven open culture and practices used by Red Hat to support customer innovation. MLOps Enablement with Red Hat AI Enterprise (AI500) is a five-day immersive class, offering attendees an opportunity to experience and implement a successful MLOps adoption journey. While many AI or data science training programs focus on a particular framework or technology, this course covers how the best Open Source tools fit together in a full MLOps workflow, blending continuous discovery, continuous training, and continuous delivery in a highly engaging experience simulating real-world machine learning scenarios.

This course is based on Red Hat OpenShift AI, Red Hat OpenShift GitOps and Predictive AI. It takes you on an end-to-end journey of a Predictive Intelligent Application use case, from ideation to inner loop experimentation to production, bringing different personas together to collaborate on a single platform.

AUDIENCE PROFILE

- This experience demonstrates how individuals across different roles must learn to share, collaborate, and work toward a common goal to achieve positive outcomes and drive innovation. It is especially valuable for:
- MLOps Platform Users: Data scientists, data engineers, and application developers.
- MLOps Platform Providers: Machine learning engineers, MLOps engineers, and platform engineers.
- MLOps Platform Stakeholders: Architects and IT managers.

PREREQUISITES

- Containers, Kubernetes and Red Hat OpenShift Technical Overview (DO080), or a basic understanding of OpenShift/Kubernetes and containers, is helpful
- A high-level understanding of AI or Red Hat AI Foundations is beneficial

COURSE OBJECTIVES

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

- Apply MLOps principles to streamline the development and deployment of machine learning models.
- Gain hands-on experience with modern tools and processes, covering the entire lifecycle from inner loop development to outer loop operations.
- Enhance your skills in collaborative coding styles with pair and mob programming style.

Module 1: What is MLOps?

- Brainstorm and explore what principles, practices, and cultural elements make up a MLOps model for ML model developments and deployments.

Module 2: Inner Loop

- Familiarize ourselves with the necessary tools for experimenting and building our model; we will create a workbench, explore the dataset, start tracking our experiments, and deploy our models.

Module 3: Training Pipelines

- Transition to automating the previous steps for productionizing our model training.

Module 4: Outer Loop

- Introduction to MLOps: a set of practices that automate and simplify machine learning workflows and deployments.
- Here we will create our MLOps environment where the continuous training pipeline, automated deployment, and the supporting toolings will be running.

Module 5: Monitoring

- Machine learning models can be influenced by various factors, including changes in data patterns, shifts in user behavior, and evolving external conditions. By implementing continuous monitoring, we will proactively identify these changes, assess their impact on model accuracy, and make necessary adjustments to maintain optimal performance.

Module 6: Data Versioning

- Enhance traceability by introducing versioning for our datasets as they change over time.

Module 7: Advanced Deployments

- Properly handle pre- and post-processing for data and predictions, explore autoscaling to handle loads, and introduce advanced deployment patterns like canary and blue-green deployments to ensure safe and seamless model rollouts.

Module 8: Feature Stores

- Robust ways of dealing with data features and their changes, as well as making sure features are homogeneous between training and serving.

Module 9: Security

- Implement automated security guardrails to stay compliant with the organization's security practices and extend them to the models.