



# ClearML Data Scientist Certification (CLEARML-DS)

## COURSE OVERVIEW

Master machine learning (ML) experimentation and reproducibility with ClearML in this hands-on, scenario-driven course. Designed for data scientists you will learn to log and compare experiments, version datasets and models, and perform exploratory data analysis (EDA) in an existing ClearML environment. The course covers ClearML SDK usage, data-centric workflows, and model interpretability, with labs progressing from basic tracking to advanced experimentation. Culminating in a capstone project building a predictive model (e.g., inventory forecasting), this course ensures collaboration with ML Engineers and Developers. Ideal for data scientists with Python and ML experience, it offers ClearML Data Scientist Certification from Alta3 Research, empowering rapid iteration without operational overhead.

## WHO WILL BENEFIT FROM THIS COURSE?

- Data Scientists
- ML Researchers
- Data Analysts
- AI Specialists

## PREREQUISITES

- Python - PCEP Certification or Equivalent Experience
- Familiarity with ML frameworks (e.g., PyTorch, scikit-learn) and basic statistics
- Basic Linux command-line skills

## COURSE OBJECTIVES

- Log and compare ML experiments with auto-logged artifacts in  $\leq 15$  minutes.
- Version datasets and models for reproducibility and drift handling.
- Perform EDA, feature engineering, and model interpretability using ClearML.
- Collaborate with ML Engineers and Developers for seamless handoffs.
- Optimize models with hyperparameter tuning and visualization.
- Apply governance practices (e.g., model cards) for compliance.

## COURSE OUTLINE

Introduction to ClearML for Data Scientists

- What is MLOps? Role in Experimentation Workflows
- ClearML Overview for Data Scientists
- Introduction to ML Experimentation and Reproducibility
- Set Up Python Environment with ClearML SDK
- Connect to ClearML Server and Configure SDK
- Log a Baseline ML Experiment
- Explore ClearML Dashboards for Experiment Metrics



### Dataset and Model Versioning

- Treating Data as Code: Lineage and Reproducibility
- Detecting Data Drift Using External Tools (e.g., Evidently)
- Model Versioning and Formats
- Version a Dataset
- Detect Drift and Log Reports
- Register and Query a Model Artifact

### Collaboration and Governance

- Collaborating with ML Engineers and Developers
- ClearML Projects, Sharing, and Visibility
- Documentation Strategies with Model Metadata
- Share a Project with Simulated ML Engineer
- Upload Model Documentation as Metadata
- Troubleshoot Experiment Failures

### Advanced Experimentation

- Hyperparameter Tuning with ClearML and Optuna Wrapper
- Model Interpretability Workflows
- Visualizing Metrics in ClearML Dashboards
- Tune Hyperparameters for a Neural Network
- Log SHAP Plots for Model Insights
- Compare Experiment Variants in Dashboard

### Data-Centric ML

- Importance of Data Quality in ML
- Feature Engineering and Preprocessing Techniques
- EDA Workflows with ClearML Auto-Logging
- Preprocess a Messy Dataset
- Engineer Features for Improved Model Accuracy
- Track EDA Visualizations with Auto-Logger

### Capstone: Build a Real-World AI Model

- Capstone Overview: Inventory Forecasting Model
- Simulating Handoff to ML Engineer
- Certification Prep: Scenarios and Best Practices
- Build and Log Forecasting Model
- Detect Simulated Data Drift and Alert
- Prepare Model for Production Handoff
- Practice Certification Exam Tasks

---

## WHY TRAIN WITH SUNSET LEARNING INSTITUTE?

Sunset Learning Institute (SLI) has been an innovative leader in developing and delivering authorized technical training since 1996. Our goal is to help our customers optimize their technology investments by providing convenient, high quality technical training that our customers can rely on. We empower students to master their desired technologies for their unique environments.

What sets SLI apart is not only our immense selection of trainings options, but our convenient and consistent delivery system. No matter how complex your environment is or where you are located, SLI is sure to have a training solution that you can count on!

#### **Premiere World Class Instruction Team**

- All SLI instructors have a four-year technical degree, instructor level certifications and field consulting work experience
- Sunset Learning has won numerous Instructor Excellence and Instructor Quality Distinction awards since 2012

#### **Enhanced Learning Experience**

- The goal of our instructors during class is ensure students understand the material, guide them through our labs and encourage questions and interactive discussions.

#### **Convenient and Reliable Training Experience**

- You have the option to attend classes live with the instructor, at any of our established training facilities, or from the convenience of your home or office
- All Sunset Learning Institute classes are guaranteed to run – you can count on us to deliver the training you need when you need it!

#### **Outstanding Customer Service**

- You will work with a dedicated account manager to suggest the optimal learning path for you and/or your team
- An enthusiastic student services team is available to answer any questions and ensure a quality training experience

**Interested in Private Group Training?**

[Contact Us](#)