

Foundation of Machine Learning Syllabus

Week/Module	Topics
Week 0	<ul style="list-style-type: none"> • Demo Video • Welcome to the course • Course Schedule • Grading Policy • Exam Details • FAQ
Week 1: Introduction to Machine Learning	<ul style="list-style-type: none"> • Welcome to Machine Learning for All • What is Machine Learning? • Historical perspective on AI and machine learning • The role of machine learning in today's world • Discussion: Share your understanding of AI and ML. • Types of Machine Learning • Supervised Learning • Unsupervised Learning • Reinforcement Learning • Real-world examples of each type and identify everyday applications of machine learning • Summary
Week 2: Data and its importance	<ul style="list-style-type: none"> • Weekly Overview • What is Data? • Types of data (structured, unstructured, and semi-structured) • Data sources and collection methods • The importance of quality data • Data Preprocessing Techniques • Cleaning and handling missing data. • Feature selection and engineering • Ethics in data collection and usage • Practical exercise: Exploring a dataset using a user-friendly Data visualization tool.

<p>Week 3: Supervised Learning</p>	<ul style="list-style-type: none"> • Weekly overview • Introduction to Supervised Learning • Examples of supervised learning: Predicting prices, classification, and recommendation systems • Discussion: Identify scenarios where you'd use supervised learning. • Hands-on Exercise: Using a user-friendly tool (e.g., a simplified machine learning platform) to create a basic supervised learning model. • Data preparation and model training • Evaluation metrics: Accuracy, precision, recall • Practical exercise: Build a simple model to predict an outcome
<p>Week 4: Unsupervised Learning</p>	<ul style="list-style-type: none"> • Weekly Overview • Introduction to Unsupervised Learning • Real-world examples of unsupervised learning: Clustering and dimensionality reduction • Identify applications of unsupervised learning in everyday life. • Hands-on Exercise: Using a user-friendly tool to apply clustering techniques to a provided dataset. • Present findings and insights from the clustering exercise • Ethical considerations in unsupervised learning • Summary
<p>Week 5: Evaluation and Interpretation</p>	<ul style="list-style-type: none"> • Weekly Overview • Introduction to Model Evaluation techniques • Understanding confusion matrices • Cross-validation techniques • Ethical considerations in model evaluation • Interpreting Model Results • Presenting results to non-technical stakeholders • Summary

Week 6: Future Trends and Responsible AI

- Weekly Overview
- Emerging Trends: The future of AI and machine learning
- Explainable AI and AI ethics
- Preparing for the future: Lifelong learning and AI's impact on careers
- Responsible AI: The importance of ethical and responsible AI
- Discussing AI bias and fairness
- How to stay informed about AI developments
- Leveraging AI responsibly in your personal and professional life
- Discussion: Predict future applications of AI in society.
- Summary