

AI Wednesday: Introduction to Machine Learning Syllabus

Week 1: Introduction to Machine Learning

- Jupyter notebooks: installation and environment set up
- Types of ML
- Examples of ML
- Overview of ML Algorithm

Week 2: Introduction to Machine Learning (2)

- Numpy, Pandas, Matplotlib basics
- Data Preprocessing
 - Handling Missing Data
 - Encoding Categorical Variable
- Introduction to Regression
- Homework

Week 3: Supervised ML: Regression Analysis

- Concept of Regression
- Assumptions of Regression
- Regression Equation
- Regression Algorithm
- Decision Tree/ Random Forest Regressor
- Evaluation of Regression Model Performance
- Quiz and Homework

Week 4: Supervised ML: Classification

- Classification Intuition
- Binary/ Multi-class classification
- Classification Algorithms
- Evaluation of Classification Models Performance
 - Error/ Cost function
 - Confusion matrix
 - Precision, AUC etc.
- Homework and Classification Challenge

Week 5: Unsupervised ML: Clustering

- What is Clustering
- Application areas of Clustering
- Clustering Algorithms (K-Means and Hierarchical Clustering)
- Evaluation Metrics for Clustering Algorithm
- Homework
- Project topics and proposal submission

Week 6: Association Rule Learning

- Application areas of AR
- Market Basket Analysis with Apriori Algorithm
- ARL and Sequential Pattern Mining

Week 7: Introduction to Deep Learning

- What is Deep Learning
- Machine Learning Versus Deep Learning
- Application of DL
- DL with Dog Classification Task
- Kahoot Quiz and Exercises

Week 8: Projects Presentation

Award/ certificate presentation