Introduction to Machine Learning

Course Syllabus

Days	What You Will Learn	Topics
Day 0	Getting started	Machine Learning, Classifications of ML problems (Supervised, Reinforcement and Unsupervised) with examples
Day 1	Tools for Machine Learning	Python, Conda, JupyterLab, Python libraries for ML(SciPy, NumPy, Matplotlib, Pandas), Data visualization, Linear Algebra for ML
Day 2	Linear regression	Cost function, Model and hypotheses representation, Gradient Descent, Feature scaling and Mean normalization
Day 3	Logistic regression	Classification and decision boundary, Sigmoid function, Multiclass classification, Bias and Variance, Regularization
Day 4	[Title?]	Linear Discriminant Analysis, K-Nearest Neighbors, Decision Trees
Day 5	Performance measurement	Learning curves, Training/Test/Cross Validation sets, Error Metrics (Precision, Recall, F1 Score), Confusion matrix, K-fold improvement
Day 6	Support Vector Machines	Large Margin classifiers, Kernels (Gaussian and Linear), SVM software packages
Day 7	Unsupervised Learning Algorithms	K-means clustering, Dimensionality reduction and Principal Component Analysis
Day 8	Anomaly Detection	Density estimation, Gaussian distribution, Multivariate Gaussian distribution
Day 9	Recommender systems	Content-based recommendations, Collaborative filtering, Predicting content ratings
Day 10	Hands on project	[Insert Ideas Here]
Day 11	What to do next?	Advice for applying Machine Learning, Deep Learning and Neural Networks, Project ideas and future plans