Date	Lectures	Labs	Assignment/Exams	Technical Paper (Submission)	Weight
16/08 - 20/08	Introduction to Machine Learning, Supervised Learning, Classification, Regression, Overfitting, Underfitting, Bais-varaince Tradeoff	Setting up the programming Environment, Important Libraries, Importing and splitting datasets, Handling Text and Categorical Attributes, Feature Scaling, Visualizing Data			
23/08 - 27/08	Linear Regression, LR Objective, Method of Least Squares, Closed Form Solution, Polynomial Regression	Practice applying Linear/Multi/Polynomial Regression, and play with models to experiece underfitting vs. overfitting.			
30/08 - 03/09	Gradient Descent, Logistic Regression, LoR Objective, Confusion Metrics, Accuracy, Precision, Recall, F1	Practice applying Logistic Regression: Different Classification Examples to see Accuracy vs. Precision & Recall		Part 1: Problem	5%
06/09 - 10/09	Bayes, Navie Bayes, KNN, Regularization, Cross validation	Practice applying all topics	A1-Out (For example, Solving regression problems - students will decide which form of regression to apply, whether to use regularizatoin and then implement their approach using their own implementation of Gradient Descent)		20%
13/09 - 17/09	Dimensionality Reduction, Principal Component Analysis	Practice applying PCA			
20/09 - 24/09	Separating Hyperplanes, Support Vector Machines	Practice applying SVMs	A1-In		
27/09 - 01/10	Artificial Neural Nets, Back Propogation	Intro to TensorFlow/Pytorch, practice applying ANNs			
04/10 - 08/10	Midterm	-	Theoratical assessment during the lecture time using MCQ's		25%
11/10 - 15/10	Convolutional Neural Neworks	Practice applying CNNs	A2-Out (1. Solving classification problems - students will decide which classifier to apply, how to tune hyper-parameters, whether to reduce to dimensions or not, etc) (2. Solving a clustering problem) (3. Bonus Task on GANs)		35%
18/10 - 22/10	DNNs (State of the art techniques): Batch Normalization, Gradient Clipping, Learning Rate Scheduling, Early Stopping, Dropput, Data Augmentation, Using Pretrained Layers)	Practice applying all topics			
25/10 - 29/10	Decision Trees, Random Forest	Practice applying all topics			
01/11 - 05/11	Ensemble Learning, Boosting	Practice applying all topics			
08/11 - 12/11	Unsupervised Learning: Clustering: K-means, Hierarchical	Practice applying all topics			
15/11 - 19/11	Generative Models (GANs)	Practice applying all topics	A2-In		
22/11 - 26/11	Scientific Report	**5 minute Oral Evaluation with TA (2 Grade Points as Bonus Point)**		Part 2: Solution + Comparison	15%
		Less than 80% attendance in Labs ---> 0 Points in Technical Report			