Approximate Schedule: (Subject to change over the semester)

Lecture	Topics
Lecture 1	Course Overview: Supervised and Unsupervised Learning
Unit 1: Optimization-Based Supervised Learning	
Lecture 2	Introduction to Optimization
Lecture 3	Maximum Likelihood and MAP Learning
Lecture 4	Linear and Logistic Regression
Lecture 5	Generalized Linear Models
Lecture 6	Multilayer Perceptrons
Lecture 7	Convolutional Networks
Lecture 8	Recurrent Networks and LSTMs
Lecture 9	Expected Risk Minimization, SVC and SVR
Lecture 10	Kernel Methods
Unit 2: Bayesian Inference-Based Supervised Learning	
Lecture 11	Bayesian Inference
Lecture 12	Bayesian Linear Regression
Lecture 13	Gaussian Process Regression
Lecture 14	Markov Chain Monte Carlo Methods
Lecture 15	Bayesian Generalized Linear Models
Unit 3: Optimization-Based Unsupervised Learning	
Lecture 16	Probabilistic Mixture Models
Lecture 17	Variational Inference and EM
Lecture 18	Latent Dirichlet Allocation
Lecture 19	Factor Analysis and PPCA
Lecture 20	Restricted Boltzmann Machines and Autoencoders
Lecture 21	Generative Adversarial Networks
Unit 4: Bayesian Inference-Based Unsupervised Learning	
Lecture 22	Bayesian Mixture Models
Lecture 23	Variational Autoencoders
Unit 5: Advanced Topics (Time Permitting)	
Lecture 24	Semi-supervised and Active Learning
Lecture 25	Reinforcement Learning
Lecture 26	Course Wrap-Up