Session 1~5	교육 내용(세부 내용)	구분	시간(8hr/day)	주체(교수, 실습조교)
Probability & Information Theory	- probability - random variable - distribution of random variable - joint probability - conditional probability - chain rule, total probability - independence, - Bayes rule	이론	2hr	최진영
	(joint) moment - mean, (co)variance, (conditional) expectation - weak law of large numbers - central limit theorem - random vectors - random process - gaussian process - Markov process	이론	1hr	최진영
	- definition of information, entropy - mutual information - Kullback-Leibler divergence - cross-entropy loss - derivative of cross entropy loss for ML - evaluation Metrics - concept of independent component analysis	이론	1hr	최진영

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Regression Analysis	- linear regression - simple linear regression - multiple linear regression - nonlinear regression - logistic regression - high-order regression - basis-function regression - matrix vector form regression - least squares - recursive least squares(RLS)	이론	1hr	최진영
	- partial least squares - over-fitting and underfitting - bias/variance - principle component regression - partial least squares algorithm - ridge regression - lasso, elastic regression - Gaussian process regression	이론	2hr	최진영

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Bayesian Decision	- Bayes formula - Priori, likelihood, posterior probability - Bayes decision - risk formulation - conditional risk, likelihood ratio test - zero-one risk function - decision region and classifiers - Bayes classifier: normal density classifier - error probability	이론	1hr	최진영
Density Estimation	- parametric density estimation - maximum likelihood estimation - Bayesian learning - nonparametric density estimation - histogram - K_n nearest neighbor estimation (KNN) - Parzen window estimation - gaussian mixture estimation (GMM) - Expectation-Maximization (EM) - Markov-chain Monte Carlo (MCMC)	이론	2hr	최진영