

CS 689 NOTESHEET

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- 1 Define supervised and unsupervised ML tasks
 - 1.1 Notation
 - 1.2 Classification Task Definition
 - 1.3 Regression Task Definition
 - 1.4 Regression and Classification Prediction Function models
 - 1.5 Regression and Classification Loss
- 2 Optimization frameworks including exact and iterative methods
- 3 Algorithm, Derivations, Scalability
 - 3.1 OLS Linear regression
 - 3.2 Logistic regression
 - 3.3 Support vector classifier
 - 3.4 Support vector regression
 - 3.5 Perceptrons
 - 3.6 Basis expansions
 - 3.7 Feature selection
- 4 Custom Models
 - 4.1 Closed form solution for custom prediction function models and/or loss functions
 - 4.2 Deriving gradients for custom prediction function models and/or loss functions
- 5 Concepts for Generalization, Evaluation, Capacity Control
 - 5.1 Bias of an estimator
 - 5.2 Generalization
 - 5.3 Capacity control
 - 5.4 Overfitting
 - 5.5 Training error