

Study Summary: Machine Learning Basics

- Machine learning is a subfield of AI where models learn patterns from data.
- Types of ML include: Supervised, Unsupervised, and Reinforcement Learning.
- Supervised learning uses labeled data; common algorithms include Linear Regression and SVM.
- Unsupervised learning uncovers hidden patterns; algorithms include K-Means and PCA.
- Overfitting occurs when a model learns noise; mitigated by regularization or cross-validation.
- The bias-variance tradeoff explains the balance between model complexity and generalization.
- Classification vs Regression: classification predicts categories; regression predicts quantities.
- Common evaluation metrics include accuracy, precision, recall, and F1-score.
- Gradient descent is used to minimize loss functions and update model weights.