

MSSC 6250

SPRING 2026

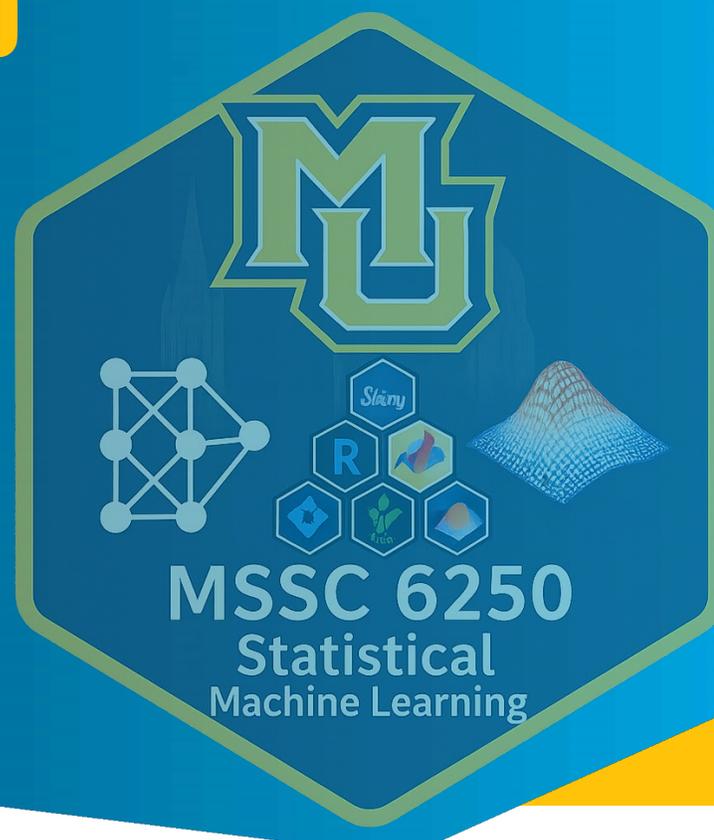
Statistical Machine Learning

Gareth James
Daniela Witten
Trevor Hastie
Robert Tibshirani

An Introduction to Statistical Learning

with Applications in R

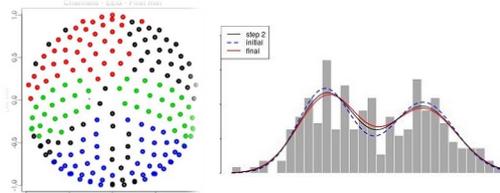
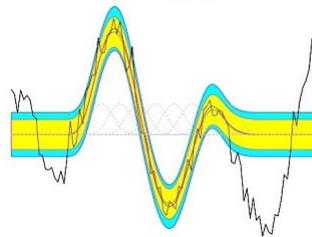
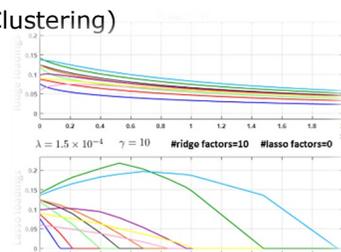
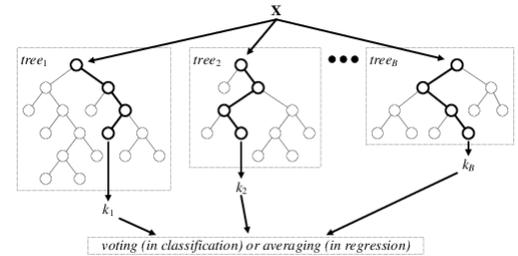
Second Edition



MSSC 6250
Statistical
Machine Learning

Tentative topics :

- **Multivariate Data and Exploratory Analysis**
- **Multivariate Normal Distribution**
- **Supervised Learning:**
 - Classification and Regression
 - Logistic Regression and Linear Discriminant Analysis
 - Ridge Regression and Lasso
 - Tree Based Methods
 - Classification tree and Regression tree
 - Bagging, Random Forests, Boosting
 - Support Vector Machine
- **Unsupervised Learning (Dim. Reduction and Clustering)**
 - Principal Component Analysis (PCA)
 - Human genetic clustering
 - Google PageRank
 - Independent Component Analysis (ICA)
 - Blind Source Separation
 - K-Means and Hierarchical Clustering
- **Moving Beyond Linearity (Smoothing Splines)**
- **Natural Language Processing (NLP)**
 - Bag of Words; TF-IDF; Word2Vec
- **Neural Networks**
 - Introduction to Deep Learning
 - TensorFlow and Keras, or
 - PyTorch and fast.ai
 - Convolutional Neural Networks (CNN)
 - Recurrent Neural Networks (RNN)



Prerequisites:

- A course in Statistical Methods
- A course in Linear Algebra

For more information, email the instructor:

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