Course   Discussion   Lecture Slides (pdf)   R Sessions   R Resources   Progress

Statistical Learning

Resume Course

Dismiss

Statistical Learning is now available in a self paced mode!

For those who have not completed the course yet or who are just starting the course now, it is now available in a self paced mode which enables you to generate a Statement of Accomplishment on your own schedule. Once you have completed all of the exercises with a score of 50% or more, visit the Finishing Up section under Courseware for instructions on generating your statement.

The course will remain available for an extended period of time. We anticipate the content will be available until at least December 31, 2020. You will be notified by email of any changes to content availability beforehand.

Thanks!
Stanford Lagunita Support Team

Ch1 Introduction

1.1 Opening Remarks

1.2 Examples and Framework
Review & Quiz 1 ✎

Pre-Course Survey

Ch2 Overview of Statistical Learning

2.1 Introduction to Regression Models
Review & Quiz 2 ✎

Resume Course ➡

2.2 Dimensionality and Structured Models
Review & Quiz 3 ✎

2.3 Model Selection and Bias-Variance Tradeoff
Review & Quiz 4 ✐

2.4 Classification
Review & Quiz 5 ✐

2.R Introduction to R
Review & Quiz 6 ✐

Interview with John Chambers

Chapter 2 Quiz
Review & Quiz 7 ✐

Ch3 Linear Regression

3.1 Simple Linear Regression
Review & Quiz 8 ✐

3.2 Hypothesis Testing and Confidence Intervals
Review & Quiz 9 ✐

3.3 Multiple Linear Regression
Review & Quiz 10 ✐

3.4 Some important questions
Review & Quiz 11 ✐

3.5 Extensions of the linear model
Review & Quiz 12 ✐

3.R Linear Regression in R
Review & Quiz 13 ✐

Chapter 3 Quiz
Review & Quiz 14 ✐

Ch4 Classification

4.1 Introduction to Classification Problems
Review & Quiz 15 ✐

4.2 Logistic Regression
Review & Quiz 16 ✎

4.3 Multivariate Logistic Regression
Review & Quiz 17 ✎

4.4 Logistic Regression - Case-Control Sampling and Multiclass
Review & Quiz 18 ✎

4.5 Discriminant Analysis
Review & Quiz 19 ✎

4.6 Gaussian Discriminant Analysis - One Variable
Review & Quiz 20 ✎

4.7 Gaussian Discriminant Analysis - Many Variables
Review & Quiz 21 ✎

4.8 Quadratic Discriminant Analysis and Naive Bayes
Review & Quiz 22 ✎

4.R Classification in R
Review & Quiz 23 ✎

Chapter 4 Quiz
Review & Quiz 24 ✎

Ch5 Resampling Methods

Interview with Brad Efron

5.1 Cross-validation
Review & Quiz 25 ✎

5.2 K-fold Cross-Validation
Review & Quiz 26 ✎

5.3 Cross-Validation: the wrong and right way
Review & Quiz 27 ✎

5.4 The Bootstrap
Review & Quiz 28 ✎

5.5 More on the Bootstrap
Review & Quiz 29 ✎

5.R Resampling in R
Review & Quiz 30 ✎

Chapter 5 Quiz
Review & Quiz 31 ✎

Ch6 Linear Model Selection and Regularization

Interviews with statistics graduate students

6.1 Introduction and Best-Subset Selection
Review & Quiz 32 ✎

6.2 Stepwise Selection
Review & Quiz 33 ✎

6.3 Backward stepwise selection
Review & Quiz 34 ✎

6.4 Estimating test error
Review & Quiz 35 ✎

6.5 Validation and cross-validation
Review & Quiz 36 ✎

6.6 Shrinkage methods and ridge regression
Review & Quiz 37 ✎

6.7 The Lasso
Review & Quiz 38 ✎

6.8 Tuning parameter selection
Review & Quiz 39 ✎

6.9 Dimension Reduction Methods
Review & Quiz 40 ✎

6.10 Principal Components Regression and Partial Least Squares
Review & Quiz 41 ✎

6.R. Model Selection in R
Review & Quiz 42 ✎

Chapter 6 Quiz
Review & Quiz 43 ✎

Ch7 Moving Beyond Linearity

7.1 Polynomials and Step Functions
Review & Quiz 44 ✎

7.2 Piecewise-Polynomials and Splines
Review & Quiz 45 ✎

7.3 Smoothing Splines
Review & Quiz 46 ✎

7.4 Generalized Additive Models and Local Regression
Review & Quiz 47 ✎

7.R Nonlinear Functions in R
Review & Quiz 48 ✎

Chapter 7 Quiz
Review & Quiz 49 ✎

Ch8 Tree-Based Methods

Interview with Jerome Friedman

8.1 Tree-based methods
Review & Quiz 50 ✎

8.2 More details on Trees
Review & Quiz 51 ✎

8.3 Classification trees
Review & Quiz 52 ✎

8.4 Bagging and Random forests
Review & Quiz 53 ✎

8.5 Boosting
Review & Quiz 54 ✎

8.R Tree-Based Methods in R
Review & Quiz 55 ✎

Chapter 8 Quiz
Review & Quiz 56 ✎

Ch9 Support Vector Machines

9.1 Optimal Separating Hyperplanes
Review & Quiz 57 ✎

9.2 Support Vector Classifier
Review & Quiz 58 ✎

9.3 Feature Expansion and the SVM
Review & Quiz 59 ✎

9.4 Example and Comparison with Logistic Regression
Review & Quiz 60 ✎

9.R SVMs in R
Review & Quiz 61 ✎

Chapter 9 Quiz
Review & Quiz 62 ✎

Ch10 Unsupervised Learning

10.1 Principal Components
Review & Quiz 63 ✎

10.2 Higher Order Principal Components
Review & Quiz 64 ✎

10.3 k-means Clustering
Review & Quiz 65 ✎

10.4 Hierarchical Clustering
Review & Quiz 66 ✎

10.5 Breast Cancer Example
Review & Quiz 67 ✎

10.R Unsupervised in R
Review & Quiz 68 ✎

Chapter 10 Quiz
Review & Quiz 69 ✎

Finishing Up

Post-Course Survey

Course Completion

Course Tools
🔖 Bookmarks
📰 Updates

Important Course Dates

Today is Jan 14, 2019 13:44 CST