San José State University
College of Engineering
Electrical Engineering Department
EE 259, Selected Topics in Signal Processing – An Introduction to Statistical Learning, Spring 2015

Instructor:	Birsen Sirkeci
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Office Hours:	MW 12.30pm-1.30pm
Class Days/Time:	TTh 4.30pm-5.45pm
Classroom:	Clark Building 234
Prerequisites:	Basic knowledge of probability and statistics (EE250, EE102, or equivalents)

Faculty Web Page and MYSJSU Messaging

Copies of the course materials such as the syllabus, assignments, handouts, etc. may be found on the course web page hosted by SJSU Canvas, accessible through your account on http://www.sjsu.edu/at/ec/canvas/. Only officially registered students can access the website. You are responsible for regularly checking with the messaging system through MySJSU or SJSU Canvas.

Course Description

This course is an introduction to statistical learning for EE graduate students. The course covers statistical models for data analysis, inference, and prediction. The main topics are linear regression, classification, resampling methods, linear/nonlinear model selection, tree-based methods, support vector machined, unsupervised learning.

Required Texts/Readings

Textbook

An Introduction to Statistical Learning with Applications in R , Springer 2013, By: G. James, D. Witten, T. Hastie, and R. Tibshirani. ISBN-10: 1461471370 .

See: http://www-bcf.usc.edu/~gareth/ISL/

Additional Books:

- The Elements of Statistical Learning: Data Mining, Inference, and Prediction,Second Edition (Springer Series in Statistics) [Hardcover] by T. Hastie, R. Tibshirani, J. Friedman.
- An Elementary Introduction to Statistical Learning Theory (Wiley Series in Probability and Statistics) by S. Kulkarni, and G. Harman (Aug 2, 2011)

Other equipment / material requirements

Handouts posted on the webpage. Articles from newspapers, magazine, journals etc (links will be provided).

Classroom Protocol

Students should turn their cell phones off or put them on vibrate mode while in class. Students are expected to participate in class discussions as well as online discussion in the class website. Asking questions during class-time related to the lectures is encouraged.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's Catalog Policies section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the current academic calendar web page located at http://www.sjsu.edu/academic_programs/calendars/academic_calendar/. The Late Drop Policy is available at http://www.sjsu.edu/aars/policies/latedrops/policy/**.** Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the Advising Hub at http://www.sjsu.edu/advising/.

Assignments and Grading Policy

There will be two midterm exams and a final exam. Exams cover the assigned reading materials and class lecture notes. There will be no make-up exams. Exam solutions will be posted on the web site of the course.

Assignments will be given regularly and will be due one week from the assigned date. Late submissions will not be accepted. A project, which can be done using R programming, will be assigned.

- R and RStudio available for free.
- You get R for free from http://cran.us.r-project.org/
- You get RStudio from http://www.rstudio.com

Most data set we will use are provided in http://www-bcf.usc.edu/~gareth/ISL/data.html

GRADES:

Midterm 1 (March 5)	20 %
Midterm 2 (April 23)	20 %
Project (Due: May 12)	20 %
Final exam (May 15)	25 %
Assignments	10 %
Discussion Board in Canvas	5%
Total	**100 %**

Grading Percentage Breakdown (tentative):

90% and above	A	89% - 85%	A-
84% - 82%	B+	81% - 79%	B
78% - 75%	B-	74% - 72%	C+
71% - 69%	C	68% - 65%	C-
64% - 62%	D+	61% - 59%	D
58% - 55%	D-	below 55%	F

University Policies

Academic integrity

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The University's Academic Integrity policy, located at http://www.sjsu.edu/senate/S07-2.htm, requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The Student Conduct and Ethical Development website is available at http://www.sjsu.edu/studentconduct/.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy S07-2 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the Accessible Education Center (AEC) at http://www.sjsu.edu/aec/ to establish a record of their disability.

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Tentative Course Schedule

Table 1 Course Schedule (Subject to change with fair notice as announced by instructor in class)

Week	Date	Topics, Readings, Assignments, Deadlines
1	Jan 22	Introduction
2	Jan 27 Jan 29	Overview of Statistical Learning
3	Feb 3 Feb 5	Overview of Statistical Learning Linear Regression
4	Feb 10 Feb 12	Linear Regression Classification
5	Feb 17 Feb 19	Classification
6	Feb 24 Feb 26	Resampling Methods
7	March 3 **March 5**	Review **MIDTERM 1**
8	March 10 March 12	Linear Model Selection and Regularization
9	March 17 March 19	Linear Model Selection and Regularization
10	March 24 March 26	SPRING BREAK
11	**March 31** April 2	**Cesar Chavez Day – CAMPUS CLOSED** Moving Beyond Linearity
12	April 7 April 9	Moving Beyond Linearity
13	April 14 April 16	Tree-based Methods
14	April 21 **April 23**	Review **MIDTERM 2**

Week	Date	Topics, Readings, Assignments, Deadlines
15	April 28 April 30	Support Vector Machines
16	May 5 May 7	Unsupervised Learning
17	May 12	Overall Review
Final Exam	Friday, May 15, 1445-1700	

San Jose State University
Electrical Engineering Department

EE Department Honor Code

The Electrical Engineering Department will enforce the following Honor Code that must be read and accepted by all students.

"I have read the Honor Code and agree with its provisions. My continued enrollment in this course constitutes full acceptance of this code. I will NOT:

- *Take an exam in place of someone else, or have someone take an exam in my place*
- *Give information or receive information from another person during an exam*
- *Use more reference material during an exam than is allowed by the instructor*
- *Obtain a copy of an exam prior to the time it is given*
- *Alter an exam after it has been graded and then return it to the instructor for re-grading*
- *Leave the exam room without returning the exam to the instructor."*

Measures Dealing with Occurrences of Cheating

- *Department policy mandates that the student or students involved in cheating will receive an "F" on that evaluation instrument (paper, exam, project, homework, etc.) and will be reported to the Department and the University.*
- *A student's second offense in any course will result in a Department recommendation of suspension from the University.*