IEOR 165 – Engineering Statistics, Quality Control, and Forecasting

Spring 2021

Instructor:

Anil Aswani
Office hours – TuTh 11-12P
aaswani [at] berkeley [dot] edu

GSI:

Yoon Lee
yllee [at] berkeley [dot] edu

SangWoo Park
spark111 [at] berkeley [dot] edu

Lectures:

TuTh 1230-2P, on Zoom

Discussions:

Section 1: W 4-5P, on Zoom
Section 2: F 4-5P, on Zoom

Website:

http://courses.ieor.berkeley.edu/ieor165

Optional Textbook:

Introduction to Probability and Statistics for Engineers and Scientists, by Sheldon Ross

Prerequisites:

IEOR 172 or STAT 134 or an equivalent course in probability theory

Grading:

Project (20%); homeworks (20%); midterm (20%); final exam (40%)

Grades will be determined using a fixed scale. A raw percentage will be computed using the above breakdown, and the raw percentage will be rounded down. The letter grade will be determined using the rounded down percentage and the below given scale.

Grade Scale: A 94-100, A- 90-93, B+ 87-89, B 83-86, B- 80-82, C+ 77-79, C 73-76, C- 70-72, F 0-69

Midterm:

Thursday, March 18, 2021, using Gradescope

Final Exam:

Thursday, May 13, 2021, using Gradescope

Description:

This course will introduce students to basic statistical techniques such as parameter estimation, hypothesis testing, regression analysis, analysis of variance. Applications in forecasting and quality control.

Outline:

Specific topics that will be covered include:

- Estimation – Review of probability; method of moments; least squares regression; regularization; maximum likelihood estimation; support vector machines (SVMs); forecasting (about 6 weeks)
- Testing – null hypothesis testing; t-test; confidence intervals; Mann-Whitney U test; multiple testing; ANOVA; Kruskall-Wallis test; likelihood ratio tests; quality control (about 6 weeks)