

Syllabus ISE 500
Statistics for Engineering Managers
Spring 2023

Lecture: 5:00 P.M. – 6:20 P.M. on Tuesdays and Thursdays [RTH 115]
Instructor: Niloufar Izadinia
Email: izadinia@usc.edu
Office Hours: Tuesdays, 6:30 P.M. – 7:15 P.M [GER202]
Wednesdays, 12:30 P.M. – 1:15 P.M [GER202 or Zoom]

Teaching Assistant: Christopher Henson
Email: cmhenson@usc.edu
Office Hours: TBD

Prerequisites: None

Text:

Jay L. Devore “Probability and Statistics for Engineering and the Sciences “, 8th Edition, Brooks/Cole, 2009, ISBN-13:978-0-538-73352-6

References:

Schmuller, Joseph “Statistical Analysis with R for Dummies”, John Wiley and Sons, 2017, ISBN-978-1-119-33706-5

Andrie de Vries and Joris Meys, “R for Dummies”, 2nd Edition, John Wiley and Sons, 2015, ISBN 978-1-119-05580-8

Sheldon M. Ross “Probability and Statistics for Engineers and Scientists”, 4th Editions, Academic Press, 2009, ISBN 13:978-0-12-370483-2

Roger B. Myerson “Probability Models for Economic Decisions”, Thomson Brooks/Cole, 2005 ISBN 0-534-42381-7

Grading Policy:

Homework Assignments	15%
Midterm Exam 1	15%
Midterm Exam 2	15%
Final Exam	35%
Participation (Attendance, discussion, preparedness for class)	5%
Quizzes	15%

Test Schedule:

Midterm 1	Tuesday, February 14, 2023	5:00 P.M. – 6:20 P.M.
Midterm 2	Thursday, March 30, 2023	5:00 P.M. – 6:20 P.M.
Final	Thursday, May 4, 2023	4:30 P.M. – 6:30 P.M.

Course Objectives:

The major objective of this course is to have you understand, interpret, and verify the results obtained from statistical analyses and make appropriate decisions based on them. Secondly, given a situation or problem, you will learn which statistical tools are the appropriate ones to assess the problem or situation.

This course is intended to train future engineering managers in the most used statistical methods in decision making with partial information in an uncertain environment. Such decisions include (i) data analyses that are appropriate for generating information useful in decision making and (ii) a framework for analyzing decisions based on partial information.

The specific course objectives include enabling the student to:

- Be familiar with the basics of decision making.
- Understand the importance of statistical analysis in managerial decisions.
- Understand the importance and limitations of data gathering
- Use statistical tools in decision making.
- Interpret the outcome and meaning of statistical information.
- Understand the limitations of the use of statistical methods.
- Have knowledge of the use of statistical tools in contemporary management.

Exams:

The midterms and final will be based on homework assignments, quizzes, and the discussions in class. Students are expected to apply what they should have learned up to that point to analyzing situations, identifying the problems, and applying the appropriate techniques to solve them or interpreting computer solutions.

Assignments:

The assignments are assigned on Thursdays and are due on the following **Thursdays at midnight on Blackboard.**

Late homework submissions **are not accepted** unless **prior** arrangements have been made.

It's OK to work on individual homework together but finish it by yourself and indicate whom you worked with. Each student must turn in a separate homework. Do not give your files to others, and do not use others' files. Do not copy solutions from people you have worked with or from anyone else. Generated data and essay questions must be unique to each student. If you use solutions from prior semesters, indicate that. **If the answer is given in a book, don't just copy it, explain how you got it.**

The assignments should be as professional in appearance as if you were preparing reports at work or for publication.

Attendance Requirements:

This is intended to be an interactive class and your participation should increase as the semester progresses. Attendance at **all** classes for the **whole** class is expected of everyone. Frequent absences will result in a reduction in grade. Punctuality is expected.

Quizzes:

We will have about 9 quizzes during the semester. These are short, usually with one or two problems or about 10 True and False or fill in the blank. There are no make-up quizzes so be sure to show up for them.

Course Topics:

- Introduction and overview
- Decision making, descriptive statistics
- Probability theory

- Probability distributions
- Confidence, sampling, and decision-making
- Regression
- ANOVA
- SPC
- Acceptance sampling
- Bayesian analysis

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” <https://policy.usc.edu/scampus-part-b/>. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

ALWAYS BE SURE TO GIVE THE SOURCE OF ALL YOUR INFORMATION. ANYTHING TAKEN VERBATIM FROM SOMEONE ELSE MUST BE IN QUOTATION MARKS AND REFERENCED. THIS INCLUDES PARTIAL SENTENCES.

Support Systems:

Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. <https://engemannshc.usc.edu/counseling/>

National Suicide Prevention Lifeline - 1-800-273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. <http://www.suicidepreventionlifeline.org>

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm. <https://engemannshc.usc.edu/rsvp/>

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: <http://sarc.usc.edu/>

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around issues of protected class. <https://equity.usc.edu/>

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. <https://studentaffairs.usc.edu/bias-assessment-response-support/>

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. <http://dsp.usc.edu>

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student. EX: personal, financial, and academic. <https://studentaffairs.usc.edu/ssa/>

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. <https://diversity.usc.edu/>

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible, <http://emergency.usc.edu>

USC Department of Public Safety – 213-740-4321 (UPC) and 323-442-1000 (HSC) provides overall safety to USC community with 24-hour emergency assistance or to report a crime. <http://dps.usc.edu>