

STA 5166: Statistics in Applications I

Course objectives: Statistics is an applied science whose focus is upon the collection, analysis, and interpretation of data. It is also a mathematically based theoretical science in which the theory necessary to carry out data analysis is developed. This course will focus on the design of experiments which is the most valuable aspect of statistical methods. Conclusions are frequently drawn from a well-designed experiment, even when rather elementary methods of analysis are employed. Conversely, even the most sophisticated statistical analysis cannot salvage a badly designed experiment. The topics of this course will include comparisons of two and more means, random sampling, randomization and blocking with paired comparisons, statistical inference for means, variance, proportions and frequencies, and two-way factorial designs and Latin square design.

Prerequisites:

Readings:

A First Course in Probability (9th Edition), by Sheldon Ross, Pearson Education, 2014;
Introduction to Business Statistics (7th Edition), by Ronald M. Weiers, Cengage Learning, 2010;
MAC 3312; or consent of the instructor.

Lecture: 1:20–2:35 PM, Tuesday & Thursday, HWC 3100.

Instructor: Lifeng Lin

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Office: OSB 411

Office Hour: 4:30–5:30 PM, Tuesday (preferably by appointment)

Teaching Assistant: Harshita Dogra

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Office: OSB 333A

TA Office Hour: 3:00–4:00 PM, Wednesday

Class Website: <https://fsu.instructure.com/>.

Textbook:

Statistics for Experimenters: Design, Innovation, and Discovery (2nd Edition), by George E. P. Box, J. Stuart Hunter, William G. Hunter, John Wiley & Sons, 2005.

Homework: Please do your homework on standard size paper (8.5 x 11 in). If there is more than one page, staple the pages together. In data analysis problems, do not turn in reams of computer output. Include only those parts of the output which are most relevant for a final report. Tell in clear English the purpose of each step of the analysis, and tell what the plot or statistic shows.

Exams: There will be one midterm exam and one final exam. Tentative schedules are as follows.

- Midterm exam: 1:20–2:35 PM, Thursday, October 7
- Final exam: 12:30–2:30 PM, Thursday, December 9

There will be no makeup exams. If you must miss one, please notify the instructor as early as possible.

Final grade: It will be determined by a weighted average of the following items: (1) quizzes 10%; (2) homework 20%; (3) midterm 30%; and (3) final exam 40%. The overall percentage will correspond to grades as 90–100 = at least A or A-, 80–89 = at least B- to B+, 70–79 = at least C- to C+, 60–69 = at least D- to D+, < 60 = F. Final grades may be adjusted.

Course Policies

- **Attendance:** You are required to attend all classes, either synchronously or asynchronously. The class activities will help you assimilate the lessons more easily, giving you an opportunity for active learning. Do not let this opportunity slip away.
- **Collecting returned homework/project:** It is the student's responsibility to retrieve his or her homework/project whenever they are returned and to check grades on the class website. If you notice any mistake in recording grades, please inform the instructor about it as soon as possible but no later than one week from grades being posted online.
- **Homework re-grade:** You have one week to request a re-grade of a homework from the date on which the graded homework is available to the students of the class. Submit a written request detailing the nature of the grading error to the instructor along with the relevant homework.
- **Contacting the instructor or TA outside the class time:** You are encouraged to make an appointment if you have any questions about the course materials. You may ask the instructor or TA brief questions by e-mail; if the questions are better answered in person, please schedule a Zoom meeting with the instructor or TA. When you send e-mails remember the following: always send e-mails from your FSU accounts. The e-mails from non-FSU accounts may not reach me due to filters. Please always write your full name at the end of each e-mail message you send.
- **Academic honor policy:** The Florida State University Academic Honor Policy outlines the University expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "... be honest and truthful and ... [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy)
- **Students with disabilities:** Students with disabilities in need of academic accommodation should: 1. Register with and provide documentation to the Student Disability Resource Center; 2. Bring a letter to the instructor indicating the type of accommodation needed. This should be done during the first week of class. See <https://dos.fsu.edu/sdrc/> for more information.