Stats 345
Elements of Mathematical Statistics and Probability

Spring 2020

Instructor:	Anastasiia Kim	**Email:**	anastasiiakim@unm.edu
Class Time:	MWF 9.00-9.50 am	**Place:**	DSH 225
Office Hours:	MW TBD	**Place:**	SMLC 319

Course website:

1. https://anastasiiakim.github.io/teaching/stat345. All material I post will be located here.

Discussion/Tutoring hours: MW 5 pm - 6 pm, TR 4 pm - 5 pm at DSH TBD
Tutors: Jared DiDomenico (jdidomen@unm.edu), Md Rashidul Hasan (mdhasan@unm.edu)
During the discussion sessions, our graders will review the previous week's material in the form of supplemental lectures and/or answering questions.

Prerequisites: MATH 181 or MATH 163

Textbooks (not required): This is a list of various interesting and useful books that will be touched during the course. The material in this course will be based primarily on lectures so you don't need to consult them occasionally. The first three books are useful for covering probability in the first half of the course. The last two books are useful for covering statistical inference in the second half of the course. You can also use a free online book (https://www.probabilitycourse.com) that follows the order of our class fairly well.

- *A First Course in Probability*, by Sheldon Ross. Chapters 1 - 8.
- *Introduction to Probability*, by Joseph K. Blitzstein and Jessica Hwang. Chapters 1 - 10.
- *Statistical Inference*, by George Casella and Roger L. Berger. Chapters 1 - 9.
- *Applied Statistics and Probability for Engineering*, by Douglas C. Montgomery and George C. Runger. Chapters 2 - 9.

Course Overview: This course provides an introduction to probability theory and statistical inference. The class will cover combinatorics, Bayes' theorem, probability distributions, expectation, variance, correlation, descriptive statistics, point estimation, confidence intervals, and hypothesis testing.

Grading Policy:

Homeworks (50%)
Homeworks will be posted on the course web-page. Homeworks will be due approximately every two weeks. Some homework questions require coding in R statistical software https://www.r-project.org. Students are encouraged to work together on homework problems, but they must turn in their own write-ups.

Midterm Exam (25%)
The midterm exam will tentatively to be held on Wednesday, March 11^{th}.

Final Exam (25%)
The final exam will tentatively to be held on Wednesday, May 13^{th}, from 7.30-9.30 am. The exam will be comprehensive.

Tentative Course Outline:

- Fundamentals of Probability
- Probability Distributions
- Discrete Distributions
- Continuous Distributions
- Joint Distributions
- Descriptive Statistics
- Point Estimation of Parameters
- Statistical Intervals
- Statistical Testing

Missed exams:

- You can make up an exam if medical or other emergency prevent you from taking it (verified documents must be provided). You need to inform me in advance.

Attendance Policy:

- Attendance is not included directly as part of your grade. Regular attendance is expected. Attendance of discussion sections is encouraged (at least once per week) although not mandatory.

Electronic devices: Please don't disturb your fellow students during the class. Keep your electronic devices muted.

Academic Dishonesty Academic dishonesty, including cheating and plagiarism, will not be tolerated. It is a violation of the Student Code of Conduct and will be punished according to UNM procedures.

Accessibility: We will accommodate students with documented disabilities, through the UNM Accessibility Resource Center (ARC). During the first three weeks of the semester, those students should inform me of their particular needs.

Title IX In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered responsible employees by the Department of Education (http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf,pp15). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: https://policy.unm.edu/university-policies/2000/2740.html.