

Math 37600: Mathematical Statistics

T R 10:00 – 11:40 AM, NAC 6/114

Instructor: Prof. Shirshendu Chatterjee
Office: NAC 4/114B
shirchat1@gmail.com

Grader: Arad Namin (namin.s.arad@gmail.com) will be the Grader for this course.

Office hours: Tuesdays 9 AM – 10 AM and Thursdays 5:30 – 6:30 PM

Text: *Introduction to Mathematical Statistics*, Seventh edition, by Hogg, McKean, and Craig. We will plan to cover selected sections of Chapters 3–8.

Topics: From the course description: “The gamma, chi-square, T, F, and bivariate normal distributions; Central Limit Theorem; confidence intervals and tests of hypothesis; the Neyman-Pearson Theorem; likelihood ratio test; estimation; sufficiency, unbiasedness, completeness; the Rao-Blackwell Theorem; the Rao-Cramér inequality; the method of maximum likelihood; the chi-square test; introduction to the analysis of variance and regression.”

Exams: There will be one Midterm Exam during the class period on March 21 and a Final Exam on May 21 (tentative) from 8 AM to 10:15 AM. Both exams will be held in the class. **No make-up exams** will be given except in serious circumstances with a **documented excuse**.

Homework: There will be weekly/biweekly written assignments. Assignments will be posted in Blackboard. Assignments will be due in class on Thursdays. Working together on the assigned problems is OK, but you must each submit your own write-up in your own words. Do not copy your homework directly from a solution manual, the internet, another person’s homework write-up, etc. You should show all work and justify all answers. **Late homework will not be accepted.**

Assignments will be graded partially on correctness and partially on completeness. All assigned problems will not be graded. From each assignment, few randomly chosen problems will be graded fully. Each problem will be graded out of 3 points. Additionally, there will be 4 points in each assignment to evaluate how many problems of the assignments have been solved. If one completes 25%, 50%, 75% or 100% of an assignment, one will get 1, 2, 3, and 4 points respectively.

Blackboard: I will be using Blackboard to disseminate homework assignments and announcements / reminders; please keep an eye on the class Blackboard page.

Grading: The breakdown of the course grade will be as follows:

Homework 25%; Midterm Exam 35%; Final Exam 40%. The lowest homework grade will be dropped. The weighted scores of 90%, 75% and 60% will correspond to letter grades A, B and C respectively. The boundaries between other grades will be based on relative performances.

Cell Phones: Cell phone use is not permitted in the classroom. If you need to use one (for a personal emergency, etc.), please leave the room while using it. If there is some situation which requires you to be excused from this policy, please speak with me.

Academic Integrity: All students should be familiar with and obey the CUNY policy on academic misconduct: https://www.cuny.edu/about/administration/offices/la/Academic_Integrity_Policy.pdf

Advice: Attending class is very important; if you miss too many classes, it is very easy to fall behind. Taking notes and keeping up with readings will be helpful as well.

Doing problems is probably the best way to cement your understanding of the material. In particular, it is a very good idea to do more problems than just the assigned homework! I am glad to give you extra problems if you run out of problems in the book.

If your knowledge of probability (on the level of Math 37500) is weak, it is extremely important you practice and master this material. Otherwise, you will find the class difficult to follow. Your 37500 textbook and notes will be helpful here. Another good resource is the (free!) textbook of Grinstead and Snell, which can be found at:
<https://www.math.dartmouth.edu/~prob/prob/prob.pdf>

It is also important to have a strong grasp of multivariable calculus.