Syllabus

Contact Information

Instructor: Vitaly Druker Email: vdruker@ccny.cuny.edu Office Hours: TBD

Text Book

Mendenhall, W., Beaver, R. J., & Beaver, B. M. (2019). Introduction to probability and statistics (15th ed.). CENGAGE Learning Custom Publishing.

Available at CCNY Store

ISBN: 9781337554428

Topics

Descriptive statistics and frequency histograms; measures of location and dispersion; elementary probability; permutations and combinations; multiplication rule and conditional probability; Bayes' Theorem; independent events; random variables, expected values; applications to binomial, uniform and normal distributions; the Central Limit Theorem; linear regression and least squares.

Grades

- Quizzes (6/~10) 20%
- Exams (2) 20% Each
- Final Exam 40%
- Extra credit Project (5%)

Overview

This course is designed to give an overview of the key concepts in probability and statistics. We will cover new material every class according the tentative schedule below. There will be a short quiz once a week (generally Tuesdays) unless otherwise stated (we will have about 10 during the semester). Only the top 6 will count towards your grade - makeups will not be available. Suggested homework problem will be assigned.

We will primarily use calculators in this course for arithmatic. However, a number of calculations are not possible to do on a calculator or take too long (adding 100 numbers for example). We will therefore learn how to do a lot of the work in the Excel as well. If there is interest/time I will also show how some work may be done using R (a programming language).

Calculators

You are required to obtain and know how to use a scientific calculator capable of handling square-root expressions and exponential expressions (e.g. $\sqrt{2}$, 1.063, etc.). An affordable calculator that I recommend is the TI-30X IIS. It sells for $15.99 on Amazon. Graphing calculators can also be borrowed from the library for free. Your cell phone cannot be used as a calculator during a quiz/exam.

Attendance

Every lecture will be held in person unless announced otherwise. Please be sure to attend every lecture so you are better prepared for the homework/quizes. If any unexpected event occurs, be prepared to meet remotely via Blackboard Collaborate Ultra. Such a switch will be announced in advance.

Academic Integrity

From The City College's website:

> Academic integrity is an essential part of the pursuit of truth, and of your education. We are all are all responsible for maintaining academic integrity at City College – it is the rock on which the value of your degree is built. If you cheat on a test or plagiarize by using someone else's work or ideas, you defeat the purpose of your education. In addition, academic dishonesty is prohibited in the City University of New York, and is punishable by failing grades, suspension and expulsion.

Disabilities

Under the Americans with Disabilities Act, all members of the campus community are entitled to equal access to the programs and activities of The City College of New York. If you have (or think that you might have) a disability that may impact your participation in the activities, coursework, or assessment of this course, you may be entitled to accommodations through the Accessability Center/Student Disability Services. You can contact them at 212-650-5913, or at disabilityservices@ccny.cuny.edu.

Schedule

Lecture Number	Date	Lecture Topic
1	Tue, 8/29	Welcome, 1.4 Relative Frequency Histograms
2	Thu, 8/31	2.1 Measures of Center, 2.2 Measures of Variability
3	Tue, 9/5	2.2 continued, 2.3 Understanding and Interperting the Standard Deviation
4	Thu, 9/7	4.1 Probility: Events and Sample Space
5	Tue, 9/12	4.2 Calculating Probabilities Using Simple Events
6	Thu, 9/14	4.3 Useful Counting Rules
7	Tue, 9/19	4.3 continued
8	Thu, 9/21	4.4 Rules for Calculating Probabilities
9	Tue, 9/26	4.4 continued
10	Thu, 9/28	
11	Tue, 10/3	4.5 Bayes Rule
12	Thu, 10/5	5.1 Discrete Random Variables and their probability
	Tue, 10/10	
13	Thu, 10/12	5.1 continued + review
14	Tue, 10/17	Exam 1 (1.4, 2.2-3, 4.2-5)
15	Thu, 10/19	5.2 The Binomial Probability Distribution
16	Tue, 10/24	6.1-2 Normal Distribution for Continuous Random Variables
17	Thu, 10/26	6.1-2 continued
18	Tue, 10/31	6.3 Normal Approximation to the Binomial Probability Distribution
19	Thu, 11/2	6.3 Cont.
20	Tue, 11/7	7.3, 7.5 Central Limit Theorem and Sampling Distribution of the Sample Me
21	Thu, 11/9	7.6 Sampling Distribution of the Sample Proportion
22	Tue, 11/14	7.6 continued
23	Thu, 11/16	Review
24	Tue, 11/21	Exam 2 (5.2, 6.1-4, 7.3, 7.5, 7.6)
	Thu, 11/23	
25	Tue, 11/28	8.2-3 Point estimation, Interval Estimation, Project assigned
26	Thu, 11/30	8.4 Difference between two means, 8.5 difference between proportions
27	Tue, 12/5	8.7 Choosing Sample Size, Describing Bi-variate data

28	Thu, 12/7	Review
	Tue, 12/12	Reading Day
		Final Exam (Date TBD)