STAT 410 / MATH 464 Spring 2026

Statistics and Probability II

1GR, 1UG	Tu Th	2:00 – 3:20 a.m.	1090 Lincoln Hall
4GR, 4UG	Tu Th	9:30 – 10:50 a.m.	1090 Lincoln Hall

Instructor: Jeff Douglas E-mail: jeffdoug@illinois.edu

Textbook: *Introduction to Mathematical Statistics,* 8th edition,
(not required) by Robert V. Hogg, Joseph W. McKean, Allen T. Craig.

Mathematical Statistics: Old School, by Prof. John Marden
(not required) http://www.istics.net/pdfs/mathstat.pdf .

Cumulative distribution function, moment-generating function, joint probability distributions, conditional distributions and expected values, functions of random variables, order statistics, multivariate normal distribution, normal sampling theory, gamma distribution, point estimation, maximum likelihood estimators, method of moments estimators, properties of estimators, convergence in probability, consistent estimators, convergence in distribution, central limit theorem, confidence intervals, sufficient statistics, efficiency of estimators, hypothesis testing, power of a hypothesis test, most powerful tests, Bayesian estimation.

Examinations: There will be **two** Midterm Exams worth 80 points each given on

Exam 1: **Thursday**, **March 5**, 7:00 – 8:20 p.m., 1404 Siebel Center for CS,
Exam 2: **Thursday**, **April 23**, 7:00 – 8:20 p.m., 1404 Siebel Center for CS.

A cumulative Final Exam worth 140 points given during the final exam week.

If you are unable to take an exam, you must contact the instructor in advance. All excuses must be verifiable. The make-up exams will be given only under exceptional circumstances.

Homework: There will be **twelve** homework assignments worth 10 points each that will be given during the semester as we cover the corresponding material. The lowest **two** homework score will be dropped. Homework must be submitted by 11:59 p.m. on the day it is due on Gradescope: https://www.gradescope.com/. **Late homework will NOT be accepted by the instructor or the TAs regardless of the reason.**

Please put your final answers at the end of your work and mark them clearly. Show all

work leading to your answers. No credit will be given without supporting work.

Homework assignments are meant to be learning experiences. You may discuss the exercises with other students in the class, but you must write-up the solutions on your own. It should be **your** work, not your friend's work or work of an artificial intelligence.

Policies:

- The exams are closed book and closed notes. For an exam, you are allowed to use **one** 8.5" by 11" sheet (both sides) with notes.
- You are allowed to use calculators for exams and homework assignments.
- Please put your final answers at the end of your work and mark them clearly.
- Show all work leading to your answers. **No credit will be given without supporting work.**
- The answers must be in a closed-form expression.
- Decimals answers must contain at least **four** significant digits.
- If the answer is a function, and its support must be included.
- You do not have to simplify the *function* answers after evaluating integrals, even though it is a polite thing to do.

Course Grade: The final course grade will be based on the total number of points earned by a student during the term in

Homework	–	$10 \times 10 = 100$ points	25%
Midterm Exams	–	$2 \times 80 = 160$ points	40% (20% each)
Final Exam	–	140 points	35%
Total	**–**	**400 points**	

The grading scale will be as follows:

A+	TBD – 100% TBD – 400	A	93% – TBD 372 – TBD	A–	90% – 92.9% 360 – 371.5
B+	87% – 89.9% 348 – 359.5	B	83% – 86.9% 332 – 347.5	B–	80% – 82.9% 320 – 331.5
C+	77% – 79.9% 308 – 319.5	C	73% – 76.9% 292 – 307.5	C–	70% – 72.9% 280 – 291.5
D+	67% – 69.9% 268 – 279.5	D	63% – 66.9% 252 – 267.5	D–	60% – 62.9% 240 – 251.5

Grades are not curved or adjusted. This is not to dishearten students, but to let them know that their grade is based on individual effort and not on comparative effort.

Academic Integrity: The official University of Illinois policy related to academic integrity can be found in Article 1, Part 4 of the Student Code. Section 1-402 in particular outlines behavior which is considered an infraction of academic integrity: http://studentcode.illinois.edu/article1/part4/1-402/.

Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Violations of these rules as detailed in the above link will not be tolerated. Violations of academic integrity include, but are not limited to, copying any part of another student's homework, allowing another student to copy any part of your homework, or copying from online solutions (including AI).

Disability Accommodations: To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TTY), or send an e-mail to disability@illinois.edu. For further information please check the DRES website at https://dres.illinois.edu/.

Sexual Misconduct Policy and Reporting: The University of Illinois is committed to combating sexual misconduct. Faculty and staff members are required to report any instances of sexual misconduct to the University's Title IX and Disability Office. In turn, the Title IX and Disability Office will provide the individual information about rights and options, including accommodations, support services, the campus disciplinary process, and law enforcement options.

A list of the designated University employees who, as counselors, confidential advisors, and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found here:
https://wecare.illinois.edu/resources/students/#confidential.
Other information about resources and reporting is available here:
https://wecare.illinois.edu/.

Safety: The university values your safety. Please watch this video:
https://police.illinois.edu/community-outreach/run-hide-fight/.

The instructor reserves the right to make any changes he considers academically advisable. Such changes, if any, will be announced in class and on Canvas. Please note that it is your responsibility to attend the class and keep track of the proceedings.