

STAT 410 / MATH 464

Spring 2021

Statistics and Probability II

1GR, 1UG
2GR, 2UG

T R

2:00 – 3:20 p.m.
ONLINE

1404 Siebel Center

Instructor: Alexey Stepanov E-mail: stepanov@illinois.edu

Office hours: Monday 11:00 a.m. – 12:00 noon, Tuesday 9:00 – 10:00 a.m.,
Wednesday 8:00 – 9:00 p.m., Thursday 4:00 – 5:00 p.m.,
Friday 1:00 – 2:00 p.m. (on Zoom) or by appointment.

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

Cumulative distribution function, moment-generating function, joint probability distributions, conditional distributions and expected values, functions of random variables, order statistics, gamma distribution, multivariate normal distribution, normal sampling theory, 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.

Some (most) examples, homework assignments and solutions will be posted on Compass2g. Pre-recorded lecture videos will be posted on Illinois Media Space (with links on Compass2g): [https://mediaspace.illinois.edu/channel/STAT 410 Spring 2021/](https://mediaspace.illinois.edu/channel/STAT%20410%20Spring%202021/). Instructor and Teaching Assistant office hours will be held on Zoom: <https://illinois.zoom.us/>. We will also be using Piazza for class discussion: <https://piazza.com/illinois/spring2021/stat410math464>.

Examinations: There will be **two** Midterm Exams worth 80 points each. The exam dates:

Exam 1: Thursday, March 11, 7:00 – 8:50 p.m. CST (CBTF);

Exam 2: Thursday, April 22, 7:00 – 8:50 p.m. CDT (CBTF).

Exams will be administered with online proctoring with Zoom and CBTF proctors (CBTF Online Student Guides: <https://cbtf.engr.illinois.edu/cbtf-online/students/>) and submitted on Gradescope: <https://www.gradescope.com/>.

A comprehensive Final Exam worth 140 points will be given during the final exam week. It will also be administered with online proctoring with Zoom and CBTF proctors.

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 will be submitted on Gradescope: <https://www.gradescope.com/>. **Late homework will not be accepted 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.

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

Midterm Exams	–	$2 \times 80 = 160$ points	40% (20% each)
Homework	–	$10 \times 10 = 100$ points	25%
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.html.

In short, **do not cheat**. Given the situation, detecting cheating will be difficult. If we do detect cheating, that means it will have been an extremely flagrant violation, and we will seek the maximum possible punishment.

Safety: The university values your safety. Please read this document: <http://police.illinois.edu/dpsapp/wp-content/uploads/2017/08/syllabus-attachment.pdf> or watch this video: <http://police.illinois.edu/emergency-preparedness/run-hide-fight/>.

The instructor reserves the right to make any changes he considers academically advisable. Such changes, if any, will be announced through Compass2g. Please note that it is your responsibility to keep track of the proceedings.