

STAT 4201 (20110): Introduction to Mathematical Statistics I

Pomerene Hall 160 MWF 3:00pm – 3:55pm

The Ohio State University – Spring 2020

Instructor: Jiae Kim (kim.3887@osu.edu) **Office:** Cockins Hall 420

Office Hours: W 10:00am to 11:00am, F 4:30pm to 5:30pm at CH217 or by appointment

Recitation Instructors: Guowei Li (Th 4:10pm Th 5:20 pm) Xiao Zang (W 4:10pm W 5:20 pm)

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TA Tutoring Hours: <https://mslc.osu.edu/courses/stat/4201420253015302>

Course Description: This course introduces basic concepts in mathematical statistics, including probability, discrete and continuous distributions and densities, mathematical expectation, functions of random variables, transformation techniques, sampling distributions, order statistics. After successfully completing the course, students can understand basic concepts of statistics and probability, comprehend methods needed to analyze and critically evaluate statistical arguments, and recognize the importance of statistical ideas.

Textbook: *John E. Freund's Mathematical Statistics with Application*, 8th Edition, by I. Miller and M. Miller

References: *Mathematical Statistics with Applications, Cengage Learning, 2014 by Wackerly, Mendelhall and Scheaffer*

Statistical Inference, Vol.2. Pacific Grove, CA: Duxbury, 2002, Casella and Berger

I will be using examples and/or exercises from not only the above textbook but also the references above from time to time in order to make lecture notes, your homework problems etc. Previous instructors, Kevin Donges and Wasiur Bukhsh generously shared their teaching materials. I will use their materials whenever needed.

Topics: We will be covering chapters 1 (Introduction), 2 (Probability), 3 (Probability Distributions and Densities), 4 (Mathematical Expectation), most of chapter 5 (Special Probability Distributions), most of chapter 6 (Special Probability Densities), 7 (Functions of Random Variables), 8 (Sampling Distributions).

Prerequisite: C- or better in MATH 2153 (254), 2162.xx (263), 2182H (263.01H), or 4128H (264H), or permission of the instructor. Not open to students with credit for 6201 (520), 6301 (610), 6801 (620), 420, or MATH 4530 (530).

Website: The course website is carmen.osu.edu; please check it regularly. On the site you will find announcements, the syllabus, homework assignments, solutions, and grades. NOTE: The gradebook on Carmen is a gradebook. It is used solely as a place to record your grade and the default Carmen overall grade will not be correct; as such, it should be ignored.

Important Dates: The last day to drop a course without "W" is Friday, January 31st. The last day to withdraw from a course without petitioning is Friday, March 20th. There will be no class Monday, January 20th (MK Day), Monday, Wednesday and Friday of the week of March 9th (Spring Break).

Extra Help: The Mathematics and Statistics Learning Center provides group tutoring in Cockins Hall 134 beginning January 13th. More information can be found at <https://mslc.osu.edu/mslc-free-tutoring>.

Email Correspondence: In order to protect your privacy all email correspondence must be done through a valid OSU name.# account; any email from a non-osu.edu account will be ignored. Please make sure to

include "STAT 4201" in the subject line. In addition, I will not respond to questions which can be answered by looking at the syllabus or Carmen, by a quick search on osu.edu or Google, and/or were announced in class. Please allow me up to 48 hours for responses to other inquiries made via email.

Evaluation:

Homework	20%
Quizzes	10%
Exam 1 (Friday, February 14 th),	20%
Exam 2 (Friday, March 27 th)	20%
Final Exam (Friday, April 24 th 4:00 – 5:45pm)	30%

Homework

- Homework will be given (almost) every week. There will be approximately 11+1 homework assignments; each will have some problems graded for accuracy and some graded for completion. Homework is due by 11:59pm of (almost) every Saturday except the week of midterm exams.
- 20% of points will be deducted from the possible score for each day the submission is late.
- You are encouraged to discuss problems with each other, with TAs and the instructor. But you must write your own homework solutions.
- Homework must be turned in through Carmen. You must scan your work, make it as one pdf file and upload the file. Carmen will accept pdf files only. We will not accept the assignment through emails/we will not accept physical copies. Any assignment sent through emails or submitted in person will be ignored.
- I understand that illness and other unexpected emergencies often come up during the semester. So I will drop one of your lowest homework scores.

Quiz.

- There will be 4 quizzes throughout the semester on Jan 22nd /23rd, Feb 5th/6th, Mar 4th/5th and Apr 8th/9th (depending on your recitation date). You must take quizzes with your recitation section.

Exams

- There are two midterm exams and one final exam. Dates and times can be found above and in the course calendar. No makeup exams will be given
- You may bring one (for each midterm) or two (for the final) 8.5"x11" sheet of paper(s) (both sides) with whatever handwritten facts, formulas or explanations you find helpful.
- You must bring your Buck-id, pencils (no pen) and a scientific calculator. Please note that at no time will you be permitted to share a calculator with another student, use a calculator with a CAS, or use any internet enabled device (e.g., a cell phone) as a calculator.
- If you have an emergency and are going to miss an exam, please notify the instructor as soon as possible so arrangements can be made. Please have documentations (e.g. doctor's note) as to why you missed the exam.

Notes

- The coverages/due dates for the exams/quizzes are tentative and I reserve the right to change them; at least one week of notice will be provided in case of a change.
- If you are late to an exam/quiz, had a wrong day on your schedule or missed the exam/quiz for any unexcused reason, you might not be allowed to make it up and may receive zero. Any missed work with no communications to us (except for extreme emergencies) may receive 0.
- If you find a discrepancy in the grading of an assessment (e.g., incorrect addition/subtraction, correct answer marked incorrect, etc.) then you must bring it to instructor's attention no later

than one week from the day it is returned. After that no grade will be changed for any reason whatsoever.

The grading scale will be no harsher than the following scale:

A	A-	B+	B	B-	C+
[93,100]	[90,93)	[87,90)	[83,87)	[80,83)	[77,80)
C	C-	D+	D	E	
[73,77)	[70,73)	[67,70)	[60,67)	[0,60)	

Attendance: While I will not be taking attendance, you are expected to attend every class session. If you miss class then it is your responsibility to get any and all material covered from a classmate. Arriving late or leaving early is distracting to your classmates, and me and will not be tolerated.

Electronic devices: Use of communication devices and technology for activities other than class work disrupt the learning process for you and others in the class and will not be tolerated. Cell phones and other electronic devices should be turned off or silenced during class.

Recording of Class: Audio, video, and photographic recording of class content (e.g., lectures) is strictly prohibited without written authorization from the instructor. The transmission or dissemination of all course content onto public, commercial, or social media sites is strictly prohibited.

Accommodation: The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. You are also welcome to register with Student Life Disability Services to establish reasonable accommodations. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. (**SLDS contact information:** slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.)

Academic Misconduct: It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

Final Comment: It is crucial that we have a mutual respect for one another as members of the OSU community and that we conduct ourselves accordingly. My responsibilities include coming to class prepared to teach you statistics, giving clear lectures, assigning carefully chosen homework problems that are relevant to our course, and carefully preparing quiz and exam questions that accurately measure your progress in the course. Additionally, I am responsible to be available to you outside of class for consultation in office hours and by appointment. Likewise, I expect you to come to class motivated to learn the material. This involves reading the material ahead of time, promptly starting the homework assignments, and seeking additional help before it is too late. Ultimately, you are responsible for your university education and what you take from it.