

# STAT 6301 Probability for Statistical Inference

Autumn Semester 2025

## Lecture

MWF 11:30AM-12:25PM in Cockins Hall 232, first instructional day is Aug 27

## Instructor

Paul Wiemann

Office: Cockins Hall 219

Office Hours: M 12:30PM -- 1:30PM or by appointment

Email: wiemann.3 at osu.edu

## Grader

Qian Zhou

Email: zhou.3132 at buckeyemail.osu.edu

## Prerequisites

Math 4547 or Math 548 or permission of instructor.

## Short description

Introduction to probability, random variables, and distribution theory; intended primarily for students in MAS degree program.

## Textbook

*Mathematical Statistics and Data Analysis* (Third Edition) by John Rice (ISBN 978-0-534-39942-9).

Note: The international edition has different exercise problems and is therefore not recommended.

## Website

The course has a web page on CarmenCanvas. You will find the class schedule, homework assignments, and other course announcements on the web page. Please check it on a regular basis.

## Course delivery

The class is scheduled to be delivered in person.

## Classroom engagement

To make our time together more focused and productive, this will be a “dumb” classroom, which simply means that smart devices (e.g., phones, tablets, laptops) should stay closed unless you’re using them for class purposes. You’re welcome to use your device if it helps you, for example,

- to take notes in a way that works best for you,
- to answer polls or in-class questions,
- view class materiel

If you’re using your device for anything outside of these purposes (like texting, browsing, or checking social media), it can be distracting for both you and others. In those cases, I may ask you to close it or step out for the rest of class.

## Use of recording devices in class

In accordance with Ohio Administrative Code Rule 3357-15-13-37, electronic recording (for example, photo, audio, or video) of class lectures or activities is prohibited. Exceptions may only be granted when a student has a documented accommodation approved by Student Life Disability Services and has informed the instructor of the accommodation, or has obtained prior written permission from the instructor.

## Homework

There will be approximately one assignment every week. Homework problems and will be posted on Carmen. They are to be submitted online through Carmen by 11:30am on the due dates. No late assignments will be accepted. It is your job to ensure that your homework is easy to grade. Answers without work will not receive full credit. See below for the tentative homework assignment schedule.

### *Grading-related Questions*

The grader is the primary point of contact for grading-related inquiries. Should additional clarification be needed after consulting with the grader, or if the issue remains unresolved, you are welcome to bring the matter to the instructor.

## Exams

No make-up exams will be given. The final exam will be cumulative but will emphasize the more recent material. Exam rules will be announced in class.

## Attendance

Students are expected to attend as the class is delivered in person.

## Grading

Your course grade will be based on in-class quizzes, homework assignments, two midterms, and a comprehensive final exam.

<b>Homework</b>	20%	(lowest grade dropped)
<b>Midterm I</b>	25%	tentatively on October 6 (Monday) in class
<b>Midterm II</b>	25%	tentatively on November 10 (Monday) in class
<b>Final</b>	30%	December 17 (Thursday) 10:00AM-11:45AM

## Faculty feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call 614-688-HELP at any time if you have a technical problem.)

### *Grading and feedback*

For assignments, you can generally expect feedback within 7-14 days.

### *Email*

I aim to reply to emails within 2 school days.

## Tentative Course Schedule

Topics	Chapters	No. of Lectures
Sample space and probability	1	6
Univariate random variables	2	9
Joint distributions	3	9
Expectations and variances	4	9
Law of large numbers and central limit theorem	5	4
Normal-derived distributions	6	2

## Tentative Homework Assignment Schedule

HW	Due Date	Chapters Covered
1	September 10	1
2	September 17	1
3	September 24	2
4	October 3	2
5	October 10	2, 3
6	October 17	3
7	October 24	3

HW	Due Date	Chapters Covered
8	October 31	3, 4
9	November 5	4
10	November 12	4
11	November 19	4, 5
12	December 3	5

Homework assignments will be posted on the course website. The schedule and chapters covered are tentative; actual due dates will be announced on the website.

## Academic integrity policy

The main purpose of this course is for you to learn the material and to increase your understanding of Probability and Statistics. For the homework assignments, you are encouraged to talk with fellow students and to work on the problems with them. However, your write-up should be your own. For exams, you are to work solely on your own, and you may not use materials other than those designated by the instructor. Note that this policy of open discussion on the homework is specific to this course. Other instructors and other courses may well have a different policy. Make sure that you understand the policy for each course that you take.

**Ohio State's academic integrity policy:** 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 3335-5-48.7 (B)). For additional information, see the Code of Student Conduct<sup>1</sup>.

## Generative Artificial Intelligence Statement

Given that the learning goals of this class are to develop skills in probability theory and statistical reasoning, in this course, students are welcome to explore innovative tools and technologies for deepening their understanding of concepts, checking derivations, or seeking alternative explanations of proofs, including generative artificial intelligence (GenAI). Students are permitted to use GenAI tools as they desire for most coursework outside of class.

All in-class assignments will be completed without access to computers or AI tools. Moreover, all submitted work must be written by you, in your own words, even if you consulted AI in the process of finding answers or clarifying ideas.

If I suspect that you have used GenAI on an assignment for which it is prohibited, I will ask you to explain your process for completing the assignment in question. Submission of

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<sup>1</sup> <http://studentlife.osu.edu/csc/>

GenAI-generated content as your own original work is considered a violation of Ohio State's Academic Integrity policy and Code of Student Conduct because the work is not your own. The unauthorized use of GenAI tools will result in referral to the Committee on Academic Misconduct.

### Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

### Statement on Title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator at [titleix@osu.edu](mailto:titleix@osu.edu).

### OSU statement on religious accommodations

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are

strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the Office of Institutional Equity. (Policy: Religious Holidays, Holy Days and Observances)

## Accessibility accommodations for students with disabilities

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. 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. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

If you are ill and need to miss class, including if you are staying home and away from others while experiencing symptoms of a viral infection or fever, please let me know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations. You can connect with them at [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; or [slds.osu.edu](http://slds.osu.edu).

## Mental health statement

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting [ccs.osu.edu](http://ccs.osu.edu)

or calling 614-292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

## Diversity statement

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.