

Advanced Probability, STAT:7300

The University of Iowa
The College of Liberal Arts and Sciences
Fall, 2025

Course meeting time and place: MWF 10:30–11:20; 221 JH

Department of Statistics and Actuarial Science <https://stat.uiowa.edu/>

Instructor

Osnat Stramer

Phone

3193353182

Email

osnat-stramer@uiowa.edu

Office location

370 SH

Student drop-in hours

11:30 am -12:30 pm MW , 11:30-12:10 pm F or by appointment.

Departmental Executive Officer (DEO)/Department Chair

Kung-Sik Chan

Email

kung-Sik-Chan@uiowa.edu

Student Complaints

Students with a complaint about a grade or a related matter should first discuss the situation with the instructor and/or the course supervisor (if applicable), and finally with the DEO (Chair) of the department, school or program offering the course. Sometimes students will be referred to the department or program's Director of Undergraduate Studies (DUS) or Director of Graduate Studies (DGS).

Undergraduate students should contact [CLAS Undergraduate Programs](#) for support when the matter is not resolved at the previous level. Graduate students should contact the [CLAS Graduate Affairs Manager](#) when additional support is needed.

Course's College (Administrative Home)

For undergraduate courses

The College of Liberal Arts and Sciences (CLAS) is the home of this course, and CLAS governs the add and drop deadlines, academic misconduct policies, and other undergraduate policies and procedures. Other UI colleges may have different policies.

For graduate courses

The College of Liberal Arts and Sciences (CLAS) is the home of this course, and CLAS governs the policies and procedures for its courses. Graduate students, however, must adhere to the [academic deadlines set by the Graduate College](#).

Drop Deadline for this Course

You may drop an individual course before the drop deadline; after this deadline you will need collegiate approval. You can look up the drop deadline for this course [here](#). When you drop a course, a “W” will appear on your transcript. The mark of “W” is a neutral mark that does not affect your GPA. To discuss how dropping (or staying in) a course might affect your academic goals, please contact your Academic Advisor. **Directions for adding or dropping a course and other registration changes can be found on the [Registrar's website](#). Undergraduate students can find policies on dropping CLAS courses [here](#).** Graduate students should adhere to the [academic deadlines](#) and policies set by the Graduate College.

UI Email

Students are responsible for all official correspondences sent to their UI email address (uiowa.edu) and must use this address for any communication with instructors or staff in the UI community. For the privacy and the protection of student records, UI faculty and staff can only correspond with UI email addresses.

Attendance

Attendance at lectures and participation in discussions are expected. Failure to attend class regularly will adversely affect your grade, and no help will be offered on homework problems requiring material in class that you miss (unless you have a valid excuse).

Description of Course

The goal of this course is to cover the first six sections in Rosenthal's book that is considered a "core" of essential material in advanced probability. After learning them, the student will have a precise mathematical understanding of probabilities and sigma-algebras; random variables, distributions, and expected values; and inequalities and laws of large numbers

Prerequisites. STAT 5120. As a prerequisite to reading this class, the student should have a solid background in basic undergraduate-level real analysis (*not* including measure theory). In particular, the mathematical background summarized in Appendix A should be very familiar. If it is not, then books such as those in Subsection B.1 should be studied first.

Learning Outcomes

To have a precise mathematical understanding of probabilities and sigma-algebras; random variables, distributions, and expected values; and inequalities and laws of large numbers

Textbooks/Materials

The required textbook for this course is:

A First Look at Rigorous Probability (edition: 2nd), Author: Rosenthal, Publisher: World Scientific Pub Co., Incorp. ©2006

Course ICON site

To access the course site, log into [Iowa Courses Online \(ICON\)](#) using your Hawk ID and password.

Course Grades

There will be three in-class exams, tentatively scheduled for the class periods on Friday, September 26; Friday, October 24; and Wednesday November 19. The final exam schedule will be announced during the semester. All exams are cumulative, with greater weight on recently introduced topics/materials. Exams are closed book. The final grade will be determined 15% by the homework, 45% by the class exams, and 40% by the final exam. Grades may be made available on ICON. A "plus-minus" grading scale will be used for this class. As a rough guide, the scale is as follows: 60% F[0, 40); D-[40, 45); D[45, 50); D+[50, 55); C-[55, 60); C[60, 65); C+[65, 70); B-[70, 75); B[75, 80); B+[80, 85); A-[85, 90); A[90, 95); A+[95, 100]

Homework

Several homework assignments will be given. Homework submission will be online (via ICON), and the students are expected to upload a scanned (or typed) copy of their

homework. Discussion with fellow students on the exercises of the homework is allowed, but each student must write their own solutions.

Academic Honesty and Misconduct

All students in CLAS courses are expected to abide by the college's standards of academic honesty. Undergraduate academic misconduct must be reported by instructors to CLAS according to these procedures. Graduate academic misconduct must be reported to the Graduate College according to Section F of the Graduate College Manual.

Artificial Intelligence (AI) Policy

Students are free to use AI when solving homework problems, but it will not be available for use on exams.

Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit the instructor, then the course supervisor, and then the departmental DEO. Complaints must be made within six months of the incident. See the CLAS Student Academic Handbook.

Accommodations for Students with Disabilities

The University of Iowa is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (which include but are not limited to mental health, attention, learning, vision, and physical or health-related conditions). A student seeking academic accommodations should first register with Student Disability Services and then meet with the course instructor privately in the instructor's office to make particular arrangements. Reasonable accommodations are established through an interactive process between the student, instructor, and SDS. See <http://sds.studentlife.uiowa.edu/> for more information.

Absences from Class

University regulations require that students be allowed to make up examinations which have been missed due to illness, religious holy days, military service obligations, including service-related medical appointments, jury duty, or other unavoidable circumstances or other university-sponsored activities. Students should work with their instructors regarding making up other missed work, such as assignments, quizzes, and classroom attendance.

Absences for Religious Holy Days The university is prepared to make reasonable accommodations for students whose religious holy days coincide with their classroom assignments, test schedules, and classroom attendance expectations. Students must notify their instructors in writing of any such religious holy day conflicts or absences within

the first few days of the semester or session, and no later than the third week of the semester. If the conflict or absence will occur within the first three weeks of the semester, the student should notify the instructor as soon as possible. See Policy Manual 8.2 Absences for Religious Holy Days for additional information.

Absences for Military Service Obligations

Students absent from class or class-related requirements due to U.S. veteran or U.S. military service obligations (including military service–related medical appointments, military orders, and National Guard Service obligations) shall be excused without any grading adjustment or other penalty. Instructors shall make reasonable accommodations to allow students to make up, without penalty, tests and assignments they missed because of veteran or military service obligations. Reasonable accommodations may include making up missed work following the service obligation; completing work in advance; completing an equivalent assignment; or waiver of the assignment without penalty. In all instances, students bear the responsibility to communicate with their instructors about such veteran or military service obligations, to meet course expectations and requirements.

Free Speech and Expression

The University of Iowa supports and upholds the First Amendment protection of freedom of speech and the principles of academic and artistic freedom. We are committed to open inquiry, vigorous debate, and creative expression inside and outside of the classroom. Visit the Free Speech at Iowa website for more information on the university's policies on free speech and academic freedom.

Non-discrimination Statement

The University of Iowa prohibits discrimination in employment, educational programs, and activities on the basis of race, creed, color, religion, national origin, age, sex, pregnancy (including childbirth and related conditions), disability, genetic information, status as a U.S. veteran, service in the U.S. military, sexual orientation, gender identity, or associational preferences. The university also affirms its commitment to providing equal opportunities and equal access to university facilities. For additional information on nondiscrimination policies, contact the Senior Director, Office of Civil Rights Compliance, the University of Iowa, 202 Jessup Hall, Iowa City, IA 52242-1316, 319-335-0705, ui-ocrc@uiowa.edu. Although not required, students have the option to share their pronouns and chosen/preferred names in class and through MyUI. Instructors and advisors can find information about a student's chosen/preferred name in MyUI.

Classroom Expectations

Students are expected to comply with university policies regarding appropriate classroom behavior as outlined in the Code of Student Life. While students have the right to express themselves and participate freely in class, it is expected that students will behave with the same level of courtesy and respect in the virtual class setting (whether asynchronous or synchronous) as they would in an in-person classroom. Failure to follow behavior expectations as outlined in the Code of Student Life may be addressed by the instructor and may also result in discipline under the Code of Student Life policies governing E.5 Disruptive Behavior or E.6 Failure to Comply with University Directive.

For the UI policy regarding severe weather, see

<https://opsmanual.uiowa.edu/communitypolicies/extreme-weather-protocol>

For policies on sexual harassment and other items, see

<https://provost.uiowa.edu/studentcourse-policies>