

MA 485/585 -1C, Probability, Fall 2023.

Class meets: MWF 10.10 am -11.00 am., UH 2013.

Instructor: Dr Julia Karpeshina, karpeshi@uab.edu, UH 4030

Office Hours: Email is the preferred method of contact if you have questions. Please expect a response within 24 hours on weekdays and a slower response on weekends (emails received after 5 pm on Friday will be returned Monday morning). Include the course number on the subject line of your email for a faster response. I am available to meet with you in person or virtually via Zoom by appointment. Office hours will be in person in UH 4030. Virtual office hours will be hosted through Zoom. The Zoom meeting may be accessed by going to the course, clicking on Zoom in the course menu, and then selecting Join beside the office hours meeting.

Course content: Probability spaces, combinatorics, conditional probabilities and independence, Bayes rule, discrete and continuous distributions, mean value and variance, moment generation function, joint distributions, correlation, Central Limit Theorem, Law of Large Numbers, random walks, Poisson process. Credit: 3 hours.

Course Objectives: Upon successful completion of this course, you will know the foundations of Probability.

Textbook: There is **NO required textbook** for this course. Instead, a full set of **Lecture Notes** in pdf-format, originally written by Professor N. Chernov, is available on Canvas. The recommended (not required) book is

S. Ross, *A First Course in Probability*, Prentice Hall, any edition.

Grading policy: There will be three tests and the Final Exam. Each of them will be evaluated between 0% and 100%. The final grade is calculated as follows:

$$\textit{Test 1} : 20\%, \quad \textit{Test 2} : 20\%, \quad \textit{Test 3} : 20\%, \quad \textit{Final Exam} : 40\%;$$

$$A \geq 90\%, \quad B \geq 80\%, \quad C \geq 70\%, \quad D \geq 60\%.$$

The tests and the final exam in this course are open-notes and open-books. You may use a calculator, a laptop or a tablet. There will be **no** make-up tests.

Here are the **tentative** dates for the tests:

Test 1: September 25;

Test 2: October 23;

Test 3: November 15.

The exact date will be announced two weeks before a test.

Final Exam: Friday, December 8; 8:00 AM - 10:30 AM

Homework: Problems will be assigned weekly through Canvas. All HW's are due the next Monday after assignment. HWs have to be submitted through Canvas. Please make sure that the quality of the scan/picture of your HWs is good. The HWs are not mandatory. There will be extra credits for HWs added to your test grades. Each returned HW assignment gives 0%– 3% (depending on the number of problems solved) added to your next test grade. There is **no** extra credit for a **late** homework.

Exercises marked as ‘Bonus’ can be attempted for more extra credit. Exercises marked as ‘Graduate’ can be attempted for more extra credit by MA 485 students.

Regular class attendance is important and strongly encouraged. The instructor will follow the lecture notes (but occasionally include different examples), so if you have to miss a class, study the notes thoroughly. Extra-credit points will be occasionally given for active class participation.

To MA 585 students: You are taking this course at the graduate level. You will need to do all homework exercises marked as Graduate (some of them require reading Chapter 18 from the class notes, which is marked for graduate students). You also will get **different or additional problems** on the tests and the final exam.

Time Commitment: You are expected to spend a substantial amount of time working through the course activities and assignments every week. Please know that time management and self-motivation are key components for success in this course and courses in general. There is a lot to be gained in this course, so approach it with an open mind. This class meets 3 times per week for 50 min each time. In addition to class time, you should spend about 6 hours per week reading, studying, preparing for class discussions, and completing assignments.

Class behavior: Success in this course requires you to be present and fully engaged. Therefore, you are expected to attend class, participate in discussions by sharing your ideas while also being respectful of others ideas. Additionally, you are expected to **refrain from distractions during class (texting, websites not pertinent to the discussion, etc.)**.

Add/Drop and Course Withdrawal: Drop/Add: Deadlines for adding, dropping, or withdrawing from a course and for paying tuition are published in the Academic Calendar available online. Review the Institutional Refund Policy for information on refunds for dropped courses. It is the students responsibility to initiate add/drop procedures. Students may drop and add courses online after they have registered and until the drop/add deadline online using BlazerNET. Withdrawal: To avoid academic penalty, a student must withdraw from a course by the withdrawal deadline shown in the academic calendar and receive a grade of W (withdrawn). Failure to attend class does not constitute a formal drop or withdrawal. The official course withdrawal must be completed online in BlazerNET.

Diversity and Inclusion Statement: The University of Alabama at Birmingham considers the diversity of its students, faculty, and staff to be a strength and critical to its educational mission. In this class, we will strive to be an inclusive community where we can learn from the many perspectives and worldviews which may differ from our own. We are all expected to contribute to creating a respectful, welcoming, and safe environment that fosters a sense of belonging through open and honest dialogue. To this end, we should always conduct discussions in a way that honors, respects, and extends dignity to all class members.

Academic Integrity Code: Your success while at UAB and after graduation is valued by the University. To gain and grow in the knowledge and skills needed for your future

career, it is vital that you complete your own work in your courses and in your research. The purpose of the Academic Integrity Code is to support our academic mission and to maintain and promote academic integrity. All students in attendance at UAB are expected to pursue all academic endeavors with integrity, honor, and professionalism and to observe standards of conduct appropriate to a community of scholars. Please be sure you understand the different forms of "academic misconduct" covered by the code. See what UAB students say about academic integrity and review the FAQs about the code for details on the Student Academic Integrity webpage.

Artificial Intelligence Use: Academic misconduct is present in an academic work wherever AI assistance has been used when unauthorized, or when authorized, has not been disclosed as required. Such behavior is considered deceit and a violation of UABs shared commitment to truth and academic integrity. Deceit constitutes academic misconduct and is subject to review according to UABs Academic Integrity Code.

Student Conduct Code: The purpose of the University of Alabama at Birmingham (University) student conduct process is to support the vision, mission, and shared values of the University and the tenets of the Universitys creed, The Blazer Way. Through a student-focused and learning-centered lens, the process strives to uphold individual and community standards; foster an environment of personal accountability for decisions; promote personal growth and development of life skills; and care for the well-being, health, safety, and property of all members of the University community. The Student Conduct Code (Code) describes the standards of behavior for all students and student organizations and outlines students rights and the process for adjudicating alleged violations. It is set forth in writing in order to give general notice of non-academic prohibited conduct. The Code should be read broadly and is not designed to define non-academic conduct in exhaustive terms. All students and student organizations are expected to conduct themselves in accordance with the Code. The current version of the Code, which may be revised periodically, is available from the Office of Community Standards & Student Accountability.

Intellectual Property: My lectures and course materials, including PowerPoint presentations, quizzes, exams, outlines, and similar materials, are protected by copyright. You may take notes and make copies of course materials for your own use. You may not and may not allow others to reproduce or distribute lecture notes and course materials publicly, whether or not a fee is charged, without my expressed written consent.

DSS Accessibility Statement : Accessible Learning: UAB is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services for information on accommodations, registration, and procedures. Requests for reasonable accommodations involve an interactive process and consist of a collaborative effort among the student, DSS, faculty and staff. If you are registered with Disability Support Services, please contact me to discuss accommodations that may be necessary in this course. If you have a disability but have not contacted Disability Support Services,

please call(205) 934-4205 or visit the DSS website.

Title IX Statement: In accordance with Title IX, the University of Alabama at Birmingham does not discriminate on the basis of gender in any of its programs or services. The University is committed to providing an environment free from discrimination based on gender and expects individuals who live, work, teach, and study within this community to contribute positively to the environment and to refrain from behaviors that threaten the freedom or respect that every member of our community deserves. For more information about Title IX, policy, reporting, protections, resources and supports, please visit the UAB Title IX webpage for UABs Title IX Sex Discrimination, Sexual Harassment, and Sexual Violence Policy; UABs Equal Opportunity and Discriminatory Harassment Policy; and the Duty to Report and Non-Retaliation Policy.

Violence Prevention and Response Policy: The University of Alabama at Birmingham (UAB) is committed to maintaining a safe and secure educational environment and workplace, one which seeks to ensure the well-being and safety of faculty and staff, employees, students and visitors. Violence and threatened violence are prohibited by UAB. Each member of the UAB community has the responsibility to understand, prevent and respond appropriately to campus/workplace violence. View the Violence Prevention and Response Policy.

Technology: Access technical support and view privacy policies and accessibility statements for Canvas and other technologies on the Student Academic Technologies website. Additionally, view information about the Minimum System Requirements and Technical Skills.

Canvas Alerts: I may send alerts to students based on Canvas course information, such as current grades in the course, assignment due dates, and assignment scores. The alert is sent as an email to the students UAB email address.

Health and Safety: UAB is very concerned for your continued health and safety. Please consult the Students section of UAB United for up-to-date guidance because the following information is subject to change as circumstances require. We strongly urge you to be fully vaccinated. Here is information on the safety of vaccines and on how to get vaccinated at UAB. Mask-wearing has proven to be one of the most successful mitigation strategies used to combat spread of the various variants of the COVID-19 virus. Please check UAB United for mask-wearing requirements and other safety protocols for this semester.

Student Academic and Support Services:

- One Stop Student Services provides a single point of professional integrated service to students. The One Stop serves students who need assistance with academic records, financial aid, registration, student accounting, ONE card, and other related topics.
- Student Assistance and Support provides individualized assistance to promote student safety and well-being, collaboration and resilience, personal accountability, and self-advocacy. The Care Team consults and collaborates with campus part-

ners to balance the needs of individual students with those of the overall campus community. The UAB Care Team helps find solutions for students experiencing academic, social, and crisis situations including mental health concerns.

- Disability Support Services assists students with in reaching accommodations for their educational experiences at UAB that ensure that they have equal access to programs, services, and activities at UAB.
- The Vulcan Materials Academic Success Center provides tutoring, supplemental instruction, and other services that encourage goal achievement and degree completion.
- The University Writing Center offers free writing assistance for all UAB students. Get help at any stage of the writing process and with any type of writing. Students may meet with a tutor in person or via Zoom. Students may also upload a paper for feedback (called eTutoring in the online system). During in-person and Zoom sessions, tutors can help you understand your assignment, develop and organize your ideas, use and cite sources, revise and edit your draft, and more. When you upload a draft for eTutoring, tutors can provide feedback on both big-picture issues and detail-oriented concerns; please note that you must upload a draft and assignment sheet to use eTutoring. To make an appointment or get more information, please see the UWC website, email writingcenter@uab.edu, or call 205-996-7178. Follow the UWC on Facebook, Instagram, and LinkedIn for daily news and quick writing tips.
- UAB Student Health Services delivers comprehensive, high quality, confidential, primary healthcare to students. Student Health provides testing services and vaccination clinics.
- Student Counseling Services offers students a safe place to discuss and resolve issues that interfere with personal and academic goals. UAB has created a new app (available in the App Store and Google Play) called B Well, that is designed to easily access resources on mobile devices and build a self-care plan. Kognito is a free, interactive simulation-based platform designed to help you talk with someone when you are worried about your mental health.
- UAB Blazer Kitchen at the Hill Student Center provides food and basic supplies for any UAB student in need through in-person or online shopping. Students who can are also able to donate food and supplies to assist their peers. To get more information, call 205-975-9509, email studentoutreach@uab.edu, or visit Student Assistance & Support website.
- eLearning and Professional Studies provides numerous academic technologies and learning resources for students whose learning may be affected by COVID.

- UAB Emergency Management will be the official source of UAB information during any actual emergency or severe weather situation. The following are the various websites describing additional student academic and technology resources:
 - UAB Policies for Students
 - Student Academic and Support Services
 - Technology Resources
 - See also the Student Assistance & Support website of Student Affairs for a description of Covid-19-related resources, including the laptop loaner program. Peers Contact Information

- I encourage students to reach out and obtain contact information of up to three classmates. This will be helpful in the event of an absence, forming study groups, or communicating schedule changes, etc.

Welcome to MA 485/585 and best of luck to you all.