

# MATH 4510/5510-002 SPRING 2020

## Introduction to Probability Theory

### Course Information

- Time and location: MWF 12:00 p.m.-12:50 p.m. in ECCR 116
- Instructor: Yining Zhang
- E-mail: [Yining.Zhang@colorado.edu](mailto:Yining.Zhang@colorado.edu)
- Office: MATH 202
- Office Hours: Monday 2:30 p.m.-4:00 p.m., Wednesday 4:00 p.m.-5:30 p.m., or by appointment

### Course Description

- Prerequisite: MATH 2400 or APPM 2350, and MATH 2130 or MATH 2135.
- Topic to be included: Counting and combinatorics, axioms of probability, conditional probability, discrete and continuous random variables, distributions of random variables, expectation of random variables, laws of large numbers and central limit theorems (as time allows).

### Textbook

*A First Course in Probability* by Sheldon Ross (9th edition).

### Grading

|           |     |
|-----------|-----|
| Homework  | 25% |
| Quizzes   | 5%  |
| Midterm 1 | 20% |
| Midterm 2 | 20% |
| Final     | 30% |

### Course Work

- Homework: Homework will be assigned weekly and posted on **Canvas**, and will typically be due at the beginning of class on Friday. **No late assignments will be accepted.** Any assignment not turned in on time will receive a zero. To allow for unexpected conflicts, two of the lowest assignment scores will be dropped. Your homework papers are to be **neatly and stapled together.**
- Quizzes: There will be about one quiz per chapter. The lowest quiz score will be dropped. If you miss a quiz for any reason you will receive a zero. **There will be no make-up quizzes.**
- Exams: There will be two in-class exams and a final. **No make up exams will be given** without official documentation or prior arrangement, and you should contact me at least **two weeks prior** to the exam.

## Exam Dates

Midterm 1    **Monday, February 24**  
Midterm 2    **Monday, April 13**  
Final Exam   **Wednesday, May 6, 1:30 p.m.-4:00 p.m.**

## Calculator Policy

You are allowed to use a calculator on homework, quizzes, and exams. A scientific, non-graphing calculator should be enough, and it is your responsibility to bring a calculator to the class.

If your answers are decimals, you need to round them to **at least four** decimal places if necessary.

## Help Outsides of Class

There will not be enough time to answer all questions from the material, homework assignments, quizzes, and tests. Several options for help outside of class are available

- Come to class a few minutes early. Your instructor may be available for a few questions.
- Visit your instructor during office hours or make an appointment to meet with them.
- Math help is available in the Mathematics Academic Resource Center (MARC) in MATH 175. The MARC is a free service provided by the Department of Mathematics that offers students additional support for their CU Mathematics courses. To find out more about the MARC tutoring schedule and other general information, please visit the web page at <http://math.colorado.edu/marc>.
- You can find other useful information, such as tutor list, at <https://www.colorado.edu/math/undergraduate-program/resources-undergraduate-students>.

## No Class Dates

Jan. 20                    Martin Luther King, Jr. Holiday  
Mar. 23 & 25 & 27    Spring Break  
May. 1                     Reading Day

## **Syllabus Statements**

### **ACCOMMODATION FOR DISABILITIES**

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website. Contact Disability Services at 303-492-8671 or [dsinfo@colorado.edu](mailto:dsinfo@colorado.edu) for further assistance. If you have a temporary medical condition or injury, see Temporary Medical Conditions under the Students tab on the Disability Services website.

### **CLASSROOM BEHAVIOR**

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on classroom behavior and the Student Code of Conduct.

### **PREFERRED STUDENT NAMES AND PRONOUNS**

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

### **HONOR CODE**

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code ([honor@colorado.edu](mailto:honor@colorado.edu)); 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the Honor Code Office website.

### **SEXUAL MISCONDUCT, DISCRIMINATION, HARASSMENT AND/OR RELATED RETALIATION**

The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct, intimate partner abuse (including dating or domestic violence), stalking, protected-class discrimination or harassment by members of our community. Individuals who believe they

have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or cureport@colorado.edu. Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the OIEC website.

Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

## **RELIGIOUS HOLIDAYS**

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, you should contact me at least **two weeks prior** to the conflict for making appropriate arrangements.

See the campus policy regarding religious observances for full details.