MATH 755/855: Probability and Stochastic Processes

Fall 2022; Section 01

Lecture times: Monday and Wednesday; 9:40-11:00am and Friday 9:40-10:40am

Location: Kingsbury Hall, S320 or through *Zoom* at URL: https://unh.zoom.us/j/94387403224

Instructor: Linyuan Li, N321C, Kingsbury Hall (office); Office phone: (603) 862-4592; Email: Linyuan.Li@unh.edu

Office hours: Monday, Wednesday, Thursday and Friday 11:10-12:00pm and/or by appointment. (in person in my office or in zoom with the same lecture zoom link)

Text book: "Mathematical Statistics and Data Analysis", 3rd edition; by John A. Rice, Duxbury Press, 2007.

Course outline: This course is an intermediate introduction to the theory of probability for students in mathematics, statistics, engineering, computer sciences, etc. who possess the working knowledge of the techniques of both single variable and multivariate calculus. It attempts to present not only the mathematics of probability theory, but also, through numerous examples, the many diverse possible applications of this subject. The textbook for the course supports this approach.

The construction of sample spaces and probabilities of random events will be carefully developed. Random variables, both discrete and continuous, probability functions and densities are then discussed and distributions of more complex variables such as statistical estimators will be derived using transformation methods. Finally, joint and conditional distributions as well as limiting or large-sample distributions will be examined. We will cover Chapters 1 to 5.

Computer usage: We will use statistical software R to illustrate the concepts and theories.

Homework: You are expected to attend every class session and the weekly assignments will be given in the lectures, which are related to that week's material. It is very important that exercises be completed in a timely manner. Doing your homework and finding your own mistakes is an important activity for understanding the course material. Late homework is not accepted. It is essential that you start working from the very beginning. We will keep using the material covered in earlier parts of the term later and therefore you need to understand it.

Exams: There will be two (2) midterm exams and one final exam in this course. Each exam will take one and half hours. Exam 1 covers Chapter 1 and the part of Chapter 2. Exam 2 covers Chapters 2 and 3. The final exam is comprehensive or accumulative, covers Chapters 1 to 5, but mostly emphasizes on Chapters 3 and 4. The times of midterm exams will be announced in the lecture (at least one week before the exam time) and the final exam takes place according to University final exam schedule.

Assessment: The student's grade will be determined on the basis of about eight (8) homework assignments (30% of the grade), 1st mid-term exam (20% of the grade), 2nd mid-term exam (25% of the grade) and one cumulative final exam (25% of the grade).

Tentative grading scale:

A.	92% - 100%;	**A-.**	90% - 91.9%;		
B+.	88% - 89.9%;	**B.**	82% - 87.9%;	**B-.**	80% - 81.9%;
C+.	78% - 79.9%;	**C.**	72% - 77.9%;	**C-.**	70% - 71.9%;
D+.	68% - 69.9%;	**D.**	62% - 67.9%;	**D-.**	60% - 61.9%;
F.	0% - 59.9%.				

In the case that the final scores will be curved, you are guaranteed to receive an **A** if your overall scores is higher than 92%, and a **B** if it is between 82% - 87.9%, etc.

Web Page: All the additional course material will be put at UNH mycourse web-site, where you can download the lecture notes, handouts, solutions of homework assignments and other information.