Math 487/887 Course Policies

Instructor: Xavier Pérez-Giménez (Avery 333, `xperez@unl.edu`)

Reference book: The main references for this course will be

- 'Lectures in Elementary Probability Theory and Stochastic Processes', first edition, by Jean-Claude Falmagne, McGraw-Hill, 2003.

- 'Introduction to Probability', 2nd edition, by Grinstead and Snell, published by the American Mathematical Society, 2003.
  This book is licenced under the terms of the GNU Free Documentation License, and can be freely obtained online at `https://math.dartmouth.edu/~prob/prob/prob.pdf`

Course Outline: We'll try to cover the following material:

1. Preliminaries

2. Sample Space and Events

3. Probability and Area

4. Probability Measures

5. Basic Rules of Probability Calculus

6. Sampling

7. Counting Subsets

8. Discrete Distributions

9. Conditional Probabilities

10. Independence and Bayes' Theorem

12. Random Variables

13. Distribution Functions

14. Continuous Random Variables

15. Expectation and Momemts

16. Covariance and Correlation

17. The Law of large Numbers

18. Moment Generating Functions

19. Multivariate Distributions

23. Random Walks

24. Poisson Processes

Office Hours: Tuesday & Thursday 8:30 am – 9:30 am and by appointment.

Prerequisites: Math 314 and one of Math 309, 310 or 325.

Exams: We'll have two 50-minute midterms and a two-hour comprehensive final. The tentative midterm dates are October 9 and November 20.

Final Exam: The final will be given 10:00 – 12:00, Friday, December 20.

Homework: Homework will be assigned regularly. A well-written solution to a homework problem earns you up to four points. You get one point for the writing and zero to three points for the mathematics. A poorly-written solution earns you one point at most. You get the point if the answer is correct and supported by suffcient work.

Grades: Each midterm counts for 25% of your grade, the homework, 10% and the final 40%.

Graduate Students: Students enrolled in Math 887 will be required to complete additional work to justify earning graduate credits. This will include independent reading of advanced topics that are appropriate to their background (such as conditional expectations, the Borel-Cantelli lemmas and 0-1 laws, and the measure-theoretic foundation of modern probability). They will also be assigned extra or more advanced homework problems and exam questions.

Course Log: You can find the course log on Canvas. If you miss class, you can check the log to find which topics and sections were covered, which problems assigned, etc.

The R Programming Language: R is a programming language created specifically for probability and statistics. You do not have to use it in this course, but you might want to. R is free. If you're running Linux you probably have it already. If you don't, you can download it from `https://www.r-project.org/`.

Grading Appeals: Students who believe their academic evaluation has been prejudiced or capricious have recourse for appeals in order, to: their instructor; the Chair of the Mathematics Department; the Mathematics Department grading appeals committee; and lastly, the College grading appeals committee.

ADA: Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide exible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

Course Evaluation: The Department of Mathematics Course Evaluation Form will be available through your Blackboard account during the last two weeks of class. You'll get an email when the form becomes available. Evaluations are anonymous and instructors do not see any of the responses until after final grades have been submitted. Evaluations are important—the department uses evaluations to improve instruction. Please complete the evaluation and take the time to do so thoughtfully.