

General features:

- The book is *A first course in probability* by Sheldon Ross, 8th edition (Pearson/Prentice Hall, 2009; ISBN-10: 013603313X ISBN-13: 978-0136033134).
- 14 homeworks (due on most Tuesdays) 20% total.
- 11 quizzes (on most Thursdays): 20% total.
- Experimental project (due WEDNESDAY, DECEMBER 2 at the lecture): 5%.
- Theoretical project (due WEDNESDAY, DECEMBER 2 at the lecture): 5%.
- 1 midterm (WEDNESDAY, OCTOBER 21): 15%.
- 1 comprehensive final exam (MONDAY, DECEMBER 14): 35%.

AUGUST 24. Counting, permutations, combinations.

AUGUST 25. Counting, permutations, combinations.

AUGUST 26. The rest of combinatorics.

AUGUST 27. The rest of combinatorics.

AUGUST 28. Axioms of probability.

AUGUST 31. Computing probability: basic.

September 1. Computing probability. HW1 due.

SEPTEMBER 2. Computing probability: advanced.

September 3. Computing probability. QUIZ 1.

SEPTEMBER 4. Conditioning, independence, and the Bayes formula.

September 7. *Labor Day, no class.*

September 8. Conditioning, independence, and the Bayes formula. HW2 due.

SEPTEMBER 9. Tables and trees.

September 10. Tables, trees, and the Bayes formula. QUIZ 2.

SEPTEMBER 11. Examples.

SEPTEMBER 14. Examples.

September 15. Examples. HW3 due.

SEPTEMBER 16. Discrete random variables: basic definitions.

September 17. Discrete random variables. QUIZ 3.

SEPTEMBER 18. Expectation and variance.

SEPTEMBER 21. Binomial distribution.

September 22. Examples. HW4 due.

SEPTEMBER 23. Poisson distribution.

September 24. Examples. QUIZ 4.

SEPTEMBER 25. Hypergeometric, negative binomial, and zeta distributions.

SEPTEMBER 28. (Absolutely) continuous random variables.

September 29. Continuous random variables. HW5 due.

SEPTEMBER 30. Uniform distribution.

October 1. Examples. QUIZ 5.

OCTOBER 2. Normal (Gaussian) and exponential distributions.

OCTOBER 5. All other distributions and change of variables.

October 6. Examples. HW6 due.

OCTOBER 7. Joint probability distribution.

October 8. Joint probability distribution. QUIZ 6.

OCTOBER 9. Joint distribution and independence.

OCTOBER 12. Sums of independent random variables.

October 13. Examples. HW7 due.

OCTOBER 14. Joint distribution and conditioning.

October 15. Examples. QUIZ 7.

OCTOBER 16. Change of variables.

OCTOBER 19. Midterm review.

October 20. Midterm review. HW8 due.

October 21. Midterm Exam. Covers what we did so far.

OCTOBER 22. Discuss the exam and the project.

OCTOBER 23. Discuss the exam and the project.

OCTOBER 26. Method of indicator functions.

October 27. Examples. HW9 due.

OCTOBER 28. Examples.

October 29. Examples. QUIZ 8.

OCTOBER 30. Covariance and correlation.

NOVEMBER 2. Conditional expectation.

November 3. Covariance, correlation, and conditional expectation. HW10 due.

NOVEMBER 4. Prediction.

November 5. Examples. QUIZ 9.

NOVEMBER 6. Moment generating function.

NOVEMBER 9. Advanced topics.

November 10. Examples. HW11 due.

NOVEMBER 11. Inequalities, WLLN, and CLT.

November 12. Inequalities, WLLN, and CLT. QUIZ 10.

NOVEMBER 13. SLLN. DROP DAY.

NOVEMBER 16. More inequalities and limit theorems.

November 17. Examples. HW12 due.

NOVEMBER 18. Applications of limit theorems.

November 19. Examples. QUIZ11.

NOVEMBER 20. Poisson process.

NOVEMBER 23. Discrete time Markov chains.

November 24. Poisson process and Markov chains. HW13 due.

NOVEMBER 25. Entropy and Benford's law.

November 26, 27. *Thanksgiving, no classes.*

NOVEMBER 30. Simulating randomness: general methods.

December 1. Simulating randomness: general methods. HW14 due.

December 2. Simulating discrete random variables. The Project is due.

DECEMBER 3. Simulating discrete random variables/Final review.

DECEMBER 4. Final review.

Monday, December 14. Final Exam, 11am–1 pm.

Covers everything we studied. Contributes 35 percent to the final grade.