• Exam 2 is on April 5, Thursday, 7:00 PM to 8:20 PM in Room 314 Altgeld Hall (the large lecture hall in Altgeld).

• DRES exams must be scheduled for Friday April 6 for any time that is convenient to you.

• If you have a university approved reason for requesting a conflict exam, please talk to me in person by Monday April 2 class time. Be prepared to show evidence. Conflict Exam 2 will be on Friday April 6, 3:00 PM to 4:20 PM in Room 143 Altgeld Hall.

• Two old exams are being posted on Compass. Also try two problems from old Exams 1:
  – In Exam2/Fall 2016 Exam 2 by me: ignore Problem 7
  – In Exam2/Fall 2016 Exam 2 by another instructor: ignore Problem 7
  – In Exam1/Fall 2016 Exam 1 by me: try Problem 5
  – In Exam1/Fall 2015 Exam 1 from another instructor: try Problem 6

• The exam is closed book and closed notes.

• The following types of devices must remain inside your backpack during the exam: phone, laptop, tablet (such as iPad), watch.

• You are allowed a pencil, pen, eraser. You will also need a calculator. A calculator that is permitted on standardized tests (such as SAT and ACT) is allowed. For example, TI-83 Plus, TI-84 Plus are OK, as are several other models and makes. Check the manufacturer’s website to see if the calculator is permitted on SAT and ACT.

• Exam 2 covers material in lectures 16 to 30. That includes everything covered after Exam 1 and up to and including Monday April 2 lecture.

• The above lectures correspond to Chapter 4 (Sections 4.3 to 4.10), all of Chapter 5 and Section 6.1. You are also expected to know the concepts and formulas that were in Exam 1 information sheet (repeated below) since the material for Exam 2 builds on the concepts covered for Exam 1.

• Here are the formulas, concepts and notations from Exam 1 material that you are still expected to know and remember for Exam 2:
  1. Binomial and multinomial coefficients.
  2. Binomial and multinomial theorems.
  3. Number of integer solutions of an equation.
5. Definition of mutually exclusive events.
6. The 3 axioms of probability.
7. Inclusion-exclusion identity for $n$ events.
8. Boole's inequality.
10. Multiplication rule for computing probability of intersection of $n$ events using conditional probabilities.
11. Definition of odds of an event.
12. Law of total probability for expressing probability by conditioning.
15. Random variables.
17. Cumulative distribution function.
18. Expected value of a random variable.

• Here are the new formulas, concepts and notations that you are expected to know and remember for Exam 2:

1. Expected value of a function of discrete or continuous random variable.
2. Variance of a random variable.
3. The meaning and uses of linearity of expectation.
4. Properties of the cumulative density function (Section 4.10) but not the proof of these properties.
5. The meaning, probability mass function, expected value, variance and applications of the following discrete random variables: Bernoulli, binomial, Poisson, geometric, negative binomial, hypergeometric.
6. The meaning (but not the exact wording) of the 3 axioms for events occurring over time that lead to the Poisson distribution for the number of events in a time interval of length $t$ (equation 7.5 on page 145 in 9th Edition). This material is the content of the last part of Section 4.7, pages 144-146 just before Section 4.7.1 in the 9th Edition. You don't need to know the proof of how the axioms lead to the Poisson distribution.
7. The meaning, probability density function, expected value, variance and applications of the following continuous random variables: uniform, normal, and exponential random variable.
8. You should also know the following other continuous random variables, but you are not expected to memorize the facts about these: gamma, Weibull, Cauchy, beta random variable.
9. Approximating the binomial random variable by Poisson random variable.

10. Statement and meaning of the Laplace-DeMoivre central limit theorem for approximating a binomial random variable by a normal random variables.

11. Deriving probability density function from a cumulative distribution function (c.d.f) via differentiation.

12. Hazard rate function and derivation of c.d.f and hence p.d.f from such a function.

13. Theorem 5.7.1 and examples from Section 5.7 for deriving the distribution function of a function of a random variable.

• The exam will contain problems similar to the homework problems. There will be problems of both type: some that are like those in the “Problems” following each chapter, and some that are like those in the “Theoretical Exercises” following each chapter.

• Preparing for the exam:
  
  – If you have less than 5 hours to study for the exam: make sure you know the above listed concepts and formulas and try the old exams.
  
  – If you have between 5 and 10 hours to study for the exam: do the above PLUS go over the problems in your homeworks that you found hard. Try to do some of these and other homework problems on your own again. Look at my solutions if posted or talk to me or the TAs.
  
  – If you have over 10 hours to study for the exam: do the above PLUS try some Self-Test Problems and Exercises at the end of each chapter. The book has complete solutions for these. Then if you still have time, try some problems from the book that were not assigned as homework problems.

• Good luck!