STAT 325 Introduction to Probability Models Spring 2012

Exam 3 Preparation

Logistical details:

- Date/time/location
  - Thur May 17 from 9:10-10am
- Coverage
  - Sections 5.1-5.2, 6.1-6.2
  - Handouts 15-18
  - HW 15-18
- Open book, notes, handouts, assignments, solutions
  - You may use anything that I have provided or that you have produced yourself
- Bring calculator

Advice for preparing:

- Organize your notes
  - Helpful to have well-organized notes during exam
  - Very effective way to study regardless
- Make use of online resources
  - Handouts, HWs, HW solutions, previous exam solutions
- Review key ideas, definitions, results from handouts
- Re-work questions from handouts, assignments
  - Without looking at answers first
- Work on odd-numbered exercises from text
  - Check answers in back
- Don't study less because it's open book/notes
  - Might refer to book, notes less than you expect
- Ask questions
  - In class, in office hours

Advice during exam:

- Show method of solution
  - Use clear notation
  - State any assumptions
  - Indicate what rules you are using
  - Be on lookout for simplest way to solve problem
- Read carefully
  - Answer what is asked for
  - Make use of information provided
- Be cognizant of time constraint
  - Don't spend too long on a question
  - Make note of point allocations
  - Five questions, with multiple parts, each worth 10 points

Outline of key ideas:

- Continuous random variables
  - Probability density function (pdf)
    - Properties
  - Cumulative distribution function (cdf)
    - Definition
    - Properties
  - Probability calculations
    - Area using geometry, calculus
    - From cdf directly
    - Inverse (percentile) calculations
  - Expected values
    - Definition
    - Variance
    - Properties/rules
    - Median
- Special continuous distributions
  - Uniform distribution
    - Definition
    - Expected value
    - Variance
  - Exponential
    - Pdf, cdf, expected value, variance
    - Memoryless property
    - Distribution of sample minimum
  - Normal (Gaussian)
    - Pdf, cdf, expected value, variance
    - Standard normal, *z*-score, $\phi(z)$, $\Phi(z)$
    - Probability calculations, percentile calculations
    - Two types of errors
    - Linear combinations