Exam Time: Tuesday February 14, 12:30-1:45 p.m.
Midterm Room: BRDA 1610 (regular room)
What to bring: 1. Picture ID – will be checked as you turn your exam in. NO ID = NO EXAM
2. Calculator
3. Textbook and notes
4. Scratch paper

The exam will cover: Chapters 1 – 5 and will be based on the material discussed in lectures

Comments:
1. If you miss the midterm you will receive a grade of “zero” for the exam, unless you have a well documented legitimate excuse.
2. Turn off cell phones. Cell phone cheating will be considered as academic misconduct.
3. If you are a student with disabilities and need special arrangements, please speak to the instructor AS SOON AS POSSIBLE.

Specific Topics:
- inference process - six steps
- population, sample
- experimental units, variables, measurements
- variables - univariate, bivariate, multivariate
- types of variables - qualitative
  - quantitative
  - discrete
  - continuous
- descriptive methods - graphs
  - for qualitative data: pie and bar charts
  - for quantitative data: scatterplot, stem and leaf, relative frequency histogram (Note: different from the book)
- describing data distribution
  - shape - symmetric, skewed left or right
  - proportion of measurements in certain intervals
  - outliers
- descriptive methods - numerical measures
  - measures of central tendency: mean, median, mode
  - measures of variability: range, variance (both population and sample), standard deviation
  - measure of relative standing: percentile, quartiles, interquartile range
  - boxplot (Note: different from the book)
Experiment, event, simple events, mutually exclusive event, sample space
probability and properties
sum of simple events
event relations: union, intersection, complementary
conditional probability, independent and dependent events
additive and multiplicative rules
law of total probability
Bayes rule

random variable: discrete
- probability distribution
- mean
- variance and standard deviation

Binomial random variables
- five characteristics
  - n identical trials
  - two outcomes
  - probability of success remains constant
  - trials are independent
  - x is the number of successes
- computation
  - formula
  - Table 1
- mean and standard deviation

Poisson random variables
- computation
  - formula
  - Table 2
- mean and standard deviation

Random variable: continuous probability distribution
- smooth curves
- area under the curve between a and b represents the probability that x falls between a and b
- P(x=a)=0 for any a

Normal random variables
- symmetric about its mean
- shape determined by its standard deviation
- standard normal has mean 0 and standard deviation 1
- Use Table 3 and probability properties to compute probabilities
- any normal random variable can be transformed to a standard normal random variable