Outline of Topics for Midterm Review –Spring 2015

1. Statistics
   1. Basics:
      1. Normal and standard normal (+ using table) [2010 #1]
      2. Mean, variance, covariance (+ associated rules) [2009 #1]
   2. What is the difference between the population distribution of a random variable X and the sampling distribution of a random variable that is a sample statistic (e.g. the mean of X, call it X-bar).
   3. Confidence Intervals for a continuous variable [2007 #3, 2008 #1]
   4. CI for a binary variable [2007 #6, 2012#1]
   5. Hypothesis testing
      1. for the mean of a population [2008#2] [2013#2]
      2. for differences in means [2007#4, 2009#2]
2. Regression
   1. Population model:
      1. What’s in u?
      2. Omitted variable bias (+ expected direction) [2013#1, 2011#2, 2012#2a]
      3. Interpretation of population parameter  [2008#4, 2011#4a]
   2. Sample regression:
      1. Functional forms [2011#3ab, 2012#5a]
      2. R-squared (meaning and formula) [2012#4d] [2013#3b]
      3. Interpretation of estimated parameter  [2008#3a, 2012#4b]- Remember SSS
   3. SLR and MLR assumptions (what are they, what do they give you) [2007 #5, 2012#2b]. Make sure to understand that  is a random variable, and to know the properties that we obtain on its sampling distribution with MLR1-4, MLR5, and MLR6.
   4. Which x-variables to include: does it affect y? is it correlated with other x’s? is it collinear (or redundant)? [2008#5a, 2008 #3bc, 2013#4c]
3. Regression statistical properties
   1. Test statistics: t when are they used, know how to read the tables [2011#5a]
   2. p-value [2012#3. 2013#3a], critical value *c* [2011#1]
   3. CI for  [2013#4a, 2011#5b, 2012#4c]
   4. Testing a hypothesis about =0 [2013#5b, 2012#4a]
   5. Testing a hypothesis about =another value [2008#4c, 2011#4c, 2013#4b]
   6. Using results [2008#4b, 2011#4b, 2013#5a]