Econ 500, Fall 2009
Final Exam Study Guide

There will be four long questions. All of the problems have been specifically discussed either during regular lectures or REC sessions or on HWs. The only issue might be the length of the exam. But given the amount of material covered, in all fairness, the exam could not be made any shorter. So that you may have sufficient time to complete the exam, here is what we can do.

1. Begin early at 2 pm. Officially, the exam starts at 2:15 pm (Tues, Dec 15). But my understanding is that the room is available from 2 pm and I shall be there by then.

2. Practice a few specific problems beforehand according to the guidelines provided below, so that you don't waste time thinking or recollecting how to solve such problems during the exam.

There will be 4 multi-part questions.

Q1 with three parts, is based on the linear algebra unit. Part a) asks you to show that a set of three or four given vectors is either linearly dependent or independent – closely resembling Q1-4, Section 1.3, FMEA. Part b) asks you to examine whether a system of linear equations have a solution and if so, find the solutions –closely resembling Q1-2, Section 1.5, FMEA. Part c) asks you to find eigen-values and eigen-vectors of a 3 x 3 matrix as in Q1, Section 1.6, FMEA.

Q2 asks you to solve a constrained optimization problem in 2 variables with an inequality constraint. (Focus on problems done in class, REC sessions or HW)

Q3 with two parts, is based on Integration theory. Part a) asks you to explain whether a given function is Riemann integrable or not. Part b) requires you to evaluate a given definite integral which is useful in statistics, such as the mean and variance of a normal or a uniform random variable, or the Gamma function.

Q4 with three parts, is based on the probability unit. Part a) is a classical probability problem. Focus on the game of craps or the die-tossing examples. Part b) asks you to find the probability mass function and the distribution function of a simple experiment (again focus on examples worked out in class). Part c) requires you to check whether or when a certain given function is a valid density function.