Economics 322:
December 9^{th,} 2014. Ross Gym at 9:00am. The exam is three hours. You may bring a calculator.

Tips for the final examination:

There will be four questions. You will have to answer all four. Here are the six topics for the exam. I will randomly choose four from these six topics and I might even mix across the topics in any one question. So study all topics!

Furthermore, students are encouraged to review the assignments and the notes on EMH and Behavioural finance.

1. You should know how to derive the Binomial option pricing model as in EG for 3 dates, t = 0, 1, 2. Understand how the binomial model approximates the Black-Scholes model formula as the number of trading times increases. (I am interested in intuition rather than a proof.)

2. You should know how to construct portfolios by writing and holding puts and calls (eg. protective puts, straddles, put-call parity etc.), and how to deduce the prices or bounds on the prices of these portfolios. You should understand the put-call parity result when there are different borrowing and lending rates, and when those rates are equal.

3. You should know how financial analysts value companies, the Dividend Discount Model and its limitations. Is the P/E ratio a good indicator of a firm's value? Why? How is P/E ratio related to the growth rate and retention ratio? You should be able to derive the simple dividend discount model. Also you should understand the strengths and limitations of accounting data used as inputs to these formulae. Are these analyst methods consistent with the Efficient Markets Hypothesis?

4. Know how to calculate the yield-to-maturity for a semi-annual corporate bond and compare this to the effective annual yield. You should be able to define, derive and discuss measures of bond duration and use them in portfolio immunization. What are the limitations of these measures?

5. You should be able to discuss how you would value an American call and the determinants of the value of American calls and puts. Can an American

call be worth less than a European call? Should American calls or puts be exercised early? What if the underlying stock pays a positive dividend before the maturity of the call (assume the call is not protected from dividend payments)?

6. You should be able to define the Weak, Semi-strong and Strong forms of the Efficient Market hypothesis. How would you test for the Weak form using stock price series? What are the general conclusions from the empirical data? Similarly, how would you test for the semi-strong form using an Event study, and what are the general empirical conclusions from these types of studies. Prepare one example of an event study for the exam. What is the random walk hypothesis and in what way does it relate to the EMH (if any)? Recently, many people in the press have been critical of the EMH. Why? How strong are their arguments? (Hint: read Stephen Brown: https://archive.nyu.edu/bitstream/2451/28348/2/SSRN-id1508702.pdf