

SIMON FRASER UNIVERSITY
Faculty of Business Administration

Final Examination

BUS 419
Advanced Derivative Securities

04-1

Rules for Submitting Final Exam: Answers to questions are to be typed, single spaced, of length 1 page *each* for all questions, 8"x11" standard paper, with 1" margin and type point not less than 12. (This examination is typed in 12 point.) For questions with multiple parts, e.g., a) and b), answer all parts. Violations will be subject to deductions. Examinations receiving an R grade will receive zero on this component of the total score.

ALL QUESTIONS ARE REQUIRED: (All parts to be answered)

- 1.a) Outline the continuous time derivation of the Black-Scholes option pricing model. What assumptions are being made to derive the results?
- b) What are the limitations of applying the model to actual options prices (being sure to identify what corrections have to be made to the Black-Scholes formula, e.g., to incorporate dividend paying stocks)?
- c) Under what conditions will American currency put options be exercised early?
- 2.a) **Describe** the delta, gamma and theta for a time spread and a butterfly spread, both using calls.
- b) Explain how to create a position which is delta negative and gamma neutral and contains a long stock position. Describe a specific example of how the position would be implemented.
- c) A long stock position can be "protected" by buying a put. How can the payoff on this portfolio of a stock and option be replicated using "dynamic hedging" strategies involving portfolios which combine only stock and bond positions?
3. This question is related to the student presentations.
 - a) Identify instances from three different sectors where the executive stock option component of executive pay was significant. What is the relevant information source to examine when seeking information about executive stock options? What is the relevant information source to examine when seeking information about fair value accounting for employee stock options?
 - b) Compare and contrast the risk management practices from three different sectors. Be sure to identify and contrast risk measurement techniques, risk reporting techniques, and the amount and type of derivative security usage.