

# Stats4521G/FM9521B Midterm Exam 2 – Rules & Coverage

## YOU MUST ADHERE TO THE FOLLOWING RULES DURING THE EXAM:

1. Only non-programmable calculators that do not make any sounds are permitted in the exam. *You are NOT allowed to borrow calculators from your seatmates.* So, remember to bring your own. *No laptops* are allowed whilst taking the exam.
2. In the interest of fairness, (i) please DO NOT open the questionnaire until you are told to do so by the invigilator; you may fill out the student's information section on the front cover of either test booklet or questionnaire whilst waiting for the signal to begin and (ii) as soon as the invigilator announces "time is up and stop writing", you should drop your pen/pencil, must stop writing and remain in your seat until all the exam papers are collected. ***Ignoring these important instructions will have dire consequences (including the invalidation of your exam paper and a mark of zero in the midterm).***
3. As a courtesy to your classmates, PLEASE turn-off all mobile phones, Blackberries, pagers and other electronic communication devices during the entire exam period.
4. For the purpose of identification, be ready to show your UWO ID. Put it on top of your desk so that the invigilator will no longer trouble you whilst you are writing the exam. You must also sign the Attendance Sheet.
5. You may keep the questionnaire after the exam.

## EXAM COVERAGE AND GUIDELINES:

6. **[The second midterm on Tuesday \(18 March 2014, 19:00-21:00HRS at VAC 100\) will cover all materials after the first midterm, i.e., from properties of Black-Scholes-Merton formula up to the discussion on recovery of implied risk-neutral distribution \(04 March 2014 lecture\).](#)**
7. In order to cut down the time you need to cover the materials specified in #6, it is recommended that you concentrate on the (i) lecture notes given in class, (ii) learning materials posted in the course website and (iii) solutions to assignment questions in Problem Set No. 2. Study also all results and examples presented in class.
8. You can expect to be asked about the definition of a term, formal statement of a theorem that we discussed in class or any aspect of the proof of a theorem or the rationale or justification of an important result that was given in the lecture. Since SS4521G is a course with a suffix G (means an essay course), you can expect that certain exam questions will require you to write a paragraph or two. Don't ramble. Organise your thoughts first and then write succinctly and legibly. The mark allocated for each question is shown after each question; so, use this as your guide in case you are wondering about the amount of explanation needed.
9. You will be asked to perform certain calculations in some of the exam problems. Just like in your assignment, your mark for this type of questions will depend on the logical presentation and clarity of your solution. DO NOT assume that markers can simply guess what you mean – write down all the necessary steps. No credit will be given for a final solution (even if it is correct) without a valid justification or explanation.

# SS4521G/FM9521B-Midterm Exam II (Winter 2014)

## SPECIFIC TOPICS/ITEMS YOU SHOULD REVIEW:

**General tips when being asked for a definition of a term/concept:**  
*First, recall several keywords needed. Then, put these keywords in a coherent and concise statement. The marker of your exam will be looking for the keywords and will evaluate the conciseness of your statement – so, don't waste your time giving an example. Remember: you are asked to provide a **formal definition** – not an example.*

**This list is not exhaustive. But, it gives you an idea of the exam's emphases.**

- ❖ Properties of the Black-Scholes-Merton formula.
- ❖ Naked and covered positions. Stop-loss strategy. Explanation why they do not work well as hedging schemes.
- ❖ Static versus dynamic hedging. Delta hedging
- ❖ The Greek letters and hedging parameters for puts and calls. Delta-gamma-vega-delta hedging.
- ❖ Relationship between delta, theta and gamma. Applications of this relationship.
- ❖ Hedging in practice and scenario analysis.
- ❖ Portfolio insurance and creating an option synthetically.
- ❖ Volatility smiles. Why the volatility smile is the same for calls and puts.
- ❖ Shape of implied volatility vs strikes plot in foreign currency options. Reason(s) for this shape.
- ❖ Shape of implied volatility vs strikes plot in equity options. Reason(s) for this shape.
- ❖ Crashophobia and leverage.

- ❖ Volatility term structure and volatility surfaces.
- ❖ Shape of implied volatility vs strikes plot when a single large jump is anticipated in the option's underlying variable (e.g., stock price level, etc).
- ❖ Determining implied risk-neutral distributions from volatility smiles.

~~~ **GOOD LUCK** ~~~