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Syllabus for MATH 174E
Mathematics of Finance for Mathematics/Economics Students
Department of Mathematics, UCLA
Spring Quarter 2014

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Lecture: MWF: 13:00-13:50, GEOLOGY 6704
Discussion Session: Tuesday, 13:00-13:50, GEOLOGY 6704

	Office:	MS 7310
Instructor: Mihai Cucuringu	Email:	mcucurin@ucla.edu
	Office Hours:	Monday 5-6:30 pm, Wednesday 5-6:30 pm

	Office:	MS 3905
Teaching Assistant: Changyong Yin	Email:	changyong@ucla.edu
	Office Hours:	Thursday 4-5:00 pm, Friday 4-5:00 pm

Prerequisites: Courses 33A, 170A (or Statistics 100A), Economics 11. Not open for credit to students with credit for Statistics C183.

Textbook: We will follow closely *Options, Futures, and Other Derivatives* (8th Ed.), by John C. Hull. See the end of the syllabus for a tentative list of chapters/topics to be covered.

Homework: The following rules apply to homework:

- Homework will be assigned on a weekly basis, with problems taken from the textbook. It is crucial that you do the homework if you want to understand the material taught in class. Furthermore, the midterms and final exam problems will be very similar to the homework problems.

- **Due date:** Homework must be handed in at **the end of the lecture on Monday**, and will be returned graded in the discussion session from the following week. The only exception to this rule is the homework due on Wednesday, May 28, since Monday, May 26 is a holiday (Memorial Day).

- **Write-up:** You must always justify your solution to each homework problem. Correct final answers without a correct or incomplete justification will receive zero or very few points.

- **Group work:** It is ok to work together on the homework, **in groups of size at most 5**. However, when it comes time for you to write up the solutions, I expect you to do this on your own. It would be best for your own understanding if you put aside your notes from the discussions with your classmates and write up the solutions entirely from scratch. Working together on the exams is, of course, expressly forbidden.

- **Submission format:** Please attach the cover page (found at the end of this syllabus) as the first page to each and every homework assignment you hand in. It is fine if you handwrite you own version of this cover page.

- **Material covered:** Homework collected on a given Monday will cover the material taught in the (usually 3) lectures before (and including) the Monday of the previous week. In other words, you will always have one week between the last lecture covered by the homework, and the time when you submit your homework.

- **Dropping of lowest grades:** The lowest 2 homework grades will be dropped when calculating the average of your homework grade.

Exams:

- Midterm 1: Wednesday, April 30. Location: GEOLOGY 6704

- Midterm 2: Friday, May 23. Location: GEOLOGY 6704

- Final exam: Thursday, June 12, 11:30 AM - 2:30 PM. Location: TBD

- The midterms and final exam are all in class, and closed book. Please bring your photo ID to the exams. On the exams, you should show whatever work you use to get your answers. For all the exams, you are allowed to bring a calculator and a cheat sheet, of size 1/4 of a regular page (8.5 by 11 inch or 216 by 279 mm), and you may use both sides.

Makeup or alternate exams and late homework submission: Neither late homework submissions nor alternate times for the midterms shall be accommodated. An alternate time for the final exam will be allowed only for religious reasons. Please consult the *Policy on Alternate Examination Dates* section at the following link
http://www.registrar.ucla.edu/calendar/final.htm

Final letter grade:

- Your final grade is calculated from the average homework grade (scaled to the range 0-100), midterms and final exam as a weighted average with the following weights:

Homework	20%
Midterm 1	20%
Midterm 2	20%
Final Exam	40%

- The numeric cut-offs for computing the final letter grade will take into account the overall performance of the class. There will be a curve with proportions of the various grades comparable to those of most upper division math courses.

Appeals:

- As a rule of thumb, you should only appeal on correctness, and not on the amount of partial credit you received.

- Appeals for the midterms must be submitted to the instructor within one week of the exam grading.

- Note: a randomly chosen sample of the homework and midterms will be photocopied and kept by the course staff to prevent any sudden mysterious changes/additions to the work, after it has been returned graded. This randomly chosen sample will be significantly larger for the midterms than for the homework.

- The final exams are not returned, and any appeals must be submitted to the instructor within two weeks of the exam grading.

A tentative list of chapters/topics includes:

- Chapter 1: Introduction

- Chapter 2: Mechanics of futures markets

- Chapter 3: Hedging strategies using futures

- Chapter 4: Interest rates

- Chapter 5: Determination of forward and futures prices

- Chapter 9 Mechanics of options markets

- Chapter 10: Properties of Stock Options

- Chapter 11: Trading strategies involving options

- Chapter 12: Binomial trees

- Chapter 13: Wiener processes and Itô s lemma

- Chapter 14: The Black-Scholes-Merton model

- Chapter 16: Options on Stock Indices and Currencies

- Chapter 18: The Greek letters

- Chapter 19: Volatility smiles

- Chapter 20: Basic numerical procedures

- Chapter 21: Value at Risk

Time permitting, additional topics will be considered.

Please install the DerivaGem Excel CD Package, which will occasionally be used in lectures and on the homework.

MATH 174E Mathematics of Finance Homework Cover Page

Spring 2014

Homework #	
Last name	
First name	
Student ID	

Worked with (list at most 4 full names):

1.	
2.	
3.	
4.	