MATH 6204/8204-090 Spring 2010

T 6:30p.m.–9:15p.m., Friday 010

Text: Derivative Securities and Difference Methods, Part II: Numerical methods for derivative securities, by Y.-l. Zhu, X. Wu and I-L. Chern (ISBN 0-387-20842-9).[1]

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Office Hours: T 3:50-6:20p.m. and by appointment.

Homework will be assigned every lecture and the homework problems are referred to the homework problems given in the file "Homework Problems & Projects" on my web, **NOT the Problems on the text book**. At the beginning of each lecture, students should turn in all the homework problems assigned during the previous week for grading. Homework counts 20% of your grade. Each chapter has a project, so four chapters have four projects. Projects count 20%, each for 5%. Projects are referred to the Projects given in the file "Homework Problems & Projects" on my web, **NOT the Projects on the text book**.

There will be two tests, one for Chapters 5 and 6 and the other for Chapters 7 and 8 which will be given during the final examination period. The test schedule is as follows:

	Estimated Dates and times	Percentages	Chapters
Test I	3/2 or so, 6:30p.m.-9:15p.m.	35%	5-6
Test II	5/11, 8:00p.m.-10:30p.m.	25%	7-8

No makeup tests will be given without a reasonable, documented excuse. The first and second tests count 35% and 25% of your grade respectively. You should expect that an average of 90% or better will be needed for an A, 89% - 80% for a B. Otherwise a C (79% - 60%) or U (below 60%) will be given.

It will be better for you to take this course after you have token MATH 6202/8202. If you have not taken MATH 6202/8202 but you want to take this course, you have to know some knowledge on options. The concrete subjects is given in the file "What You have to Know" on my web site.

As with most mathematics classes, the material covered in one class usually depends heavily on the material from previous classes. It is very important that you try to keep up with class assignments. If you have any questions, do not hesitate to ask me.

[1] There are some mistakes in the text book. In order to make corrections, please see the file "Correction" on my web. Some sections/subsections have been rewritten. For these new sections/subsections, see the files "New Section/Subsection x.x.x" on my web.

Preliminary Syllabus for

MATH 6204:
Numerical Methods for Derivative Securities

Text: Derivative Securities and Difference Methods

by Y.-l. Zhu, X. Wu & I.L. Chern

Lecture(s)	Section(s)	Contents
1	5.1–5.2,	Approximations and Solution of Systems
2	5.3–5.4	Finite-Difference Methods and Stability Analysis
3	5.4–5.6	Convergence, Extrapolation and Determination of Parameters in Models
4	6.1	Explicit Methods, including Binomial Methods
5	6.2	Implicit Methods
6	6.3–6.4	Singularity-Separating Method
7		Catch-up and Review
8		Test I
9-10	7.1–7.2	SSM for Free-Boundary Problems and Implicit Finite-Difference Methods for FBP.
11	7.3	Pseudo-Spectral Methods
12	8.1	Inverse Problems
13	8.2	Numerical Methods and Results for One-Factor Models
14	8.3	Pricing Derivatives with Multi-factor Models
15		Catch-up and Review
16		Test II