

Syllabus: FINC 623/ECON 623
Topics in Derivatives Securities
Winter 2009/2010

This Revision: November 1, 2009

Instructor: Robert W. Kolb 512 Maguire Hall (312) 915- 6036 bobkolb@mac.com	Office Hours: Mondays and Wednesdays 5-6 p.m. and 9-10 p.m., and by appointment Course Web Site: RobertWKolb.com
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This course builds on FINC 622 and extends the analysis of derivatives by focusing on futures and swaps. It also builds on the previous study of options, particularly by illustrating the power of lattice methods. The course is designed to give a better understanding of how to actually work with and price derivatives.

Financial derivatives are complicated and controversial instruments that are often misunderstood by the broader public and that come under frequent attack (some surely deserved). An aim of this course is to build a better understanding of the social function of derivative markets in three ways. First, we consider the social function of derivatives explicitly; second, we focus on the role of derivatives in the recent (or still continuing?) credit crisis, an episode with vast implications for markets in general and for society as a whole; and, third, we consider executive stock options—their pricing, their role in incentivizing executive efforts, and their wider social and ethical meaning.

Texts:

Robert W. Kolb and James A. Overdahl, *Futures, Options, and Swaps 5e*, Blackwell Publishing, 2007.
(Referred to as “FOS” below.)

OPTION! Software: (Link available on course web site)

All other materials available on the course web site.

NOV 4: Course Introduction and Review

Review of No-Arbitrage Pricing for Derivatives—FOS 80-97

Review of Black-Scholes-Merton Model—FOS 435-459

Extending the No-Arbitrage Idea

Robert W. Kolb and James A. Overdahl, “A Bond Primer,” Chapter 6, of *Understanding Futures Markets 6e*, pp. 238-269. (Available on the course web site. NOTE: This is background material that we will use when we discuss interest rate futures and swaps.)

NOV 11: Ag, Energy, and Metallurgical Futures

Robert W. Kolb and James A. Overdahl, “Agricultural, Energy, and Metallurgical Futures Contracts,” Chapter 5, of *Understanding Futures Markets 6e*, pp. 191-237. (Available on the course web site.)

Using Futures Markets—FOS 116-151

Guest Lecture: John D. Hill, Economist, CME Group

Homework Due—Cost-of-Carry Model

NOV 18: Stock Index Futures

FOS, Chapters 7 and 8, “Security Futures Products: An Introduction,” and “Security Futures Products: Refinements,” pp. 241-297

Homework Due—Risk Minimization Hedging

DEC 2: Interest Rate Futures

FOS, Chapters 5 and 6, “Interest Rate Futures: An Introduction,” and “Interest Rate Futures: Refinements,” pp. 152-240.

Homework Due—Hedging Palm Oil

DEC 9: Mid-Term Quiz

Simulating Stock Price Movements—FOS 442-447

Review of Lattice Models—FOS 447-449; 459-462

Homework Due—Duration-Based Hedging

JAN 20: Stock Price Movements and Lattice Models

Binomial Model and American Option Pricing—FOS 526-529; 534-537

Robert W. Kolb, “Lattices and Barrier Options.” (Available on the course web site.)

Robert W. Kolb, “Monte Carlo Computational Notes.” (Available on the course web site.)

Homework Due—Pricing a Digital Option Two Ways

JAN 27: Introduction to Swaps

FOS, Chapter 20, “The Swaps Market: An Introduction,” pp. 659-699

Robert W. Kolb, “Monte Carlo for Correlated Assets.” (Available on the course web site.)

Homework Due—Monte Carlo Pricing of Options

FEB 3: Swaps: Economic Analysis, Pricing and Applications

Economic Analysis of Swaps—FOS 700-717

Interest Rate Swap Pricing—FOS 723-735

Homework Due—Plain Vanilla and Barrier Options

Homework Due—Monte Carlo with Correlated Assets

FEB 10: The Social Function of Derivatives Markets

Christopher Culp, “The Social Function of Derivatives Markets,” in Robert W. Kolb and James A. Overdahl, *Financial Derivatives: Pricing and Risk Management*, Hoboken, NJ: John Wiley & Sons, Inc., 2010, pp. 57-71. (Available on the course web site.)

Robert W. Kolb, “Executive Stock Options,” in Robert W. Kolb and James A. Overdahl, *Financial Derivatives: Pricing and Risk Management*, Hoboken, NJ: John Wiley & Sons, Inc., 2010, pp. 211-220. (Available on the course web site.)

Homework Due—Swap ‘Til You Drop

FEB 17: Final Exam

Homework Due—Swap ‘Til You Really Drop

Grading:

Your grade in this course will be a function of the following elements: a mid-term quiz, a final exam, and homework assignments. If you require an accommodation for a disability, contact the instructor about this no later than **November 18**. The mid-term quiz and final exam will be in the form of short answers and/or brief problems. In general, class attendance is not mandatory. However, you must take the mid-term and the final exam at the scheduled times.

December 9, 2008 Mid-Term Quiz: 20%

February 17, 2009 Final Exam: 20%

Homework Assignments: 60% (I will drop your two worst homework grades and base your grade on the average of the others.)

Homework Assignments:

Assignments will be made available on the course web site. Each assignment is due at 6 p.m. on the date indicated. Submit the assignment as a printed document, unless otherwise instructed. You may complete each assignment individually or as part of a team with no more than three members. Each team member will receive the same grade and you can vary team membership from one assignment to the next. Simply be sure to show the name of each submitting person at the beginning of the submission. If you are unable to attend class to submit your work, then send it via email before the due date and time. Late submissions may be refused or penalized at the discretion of the instructor.