

**Syllabus: FINC 623/ECON 623**  
**Topics in Derivatives Securities**  
**Winter 2008/2009**

This Update: November 2, 2008

<b>Instructor:</b> Robert W. Kolb 512 Maguire Hall (312) 915- 6036 <a href="mailto:bobkolb@mac.com">bobkolb@mac.com</a>	<b>Office Hours:</b> Tuesdays 5-6 pm (Stammtisch at GoRoma); Tuesdays 9-10 pm Also by appointment <b>Course Web Site:</b> RobertWKolb.com
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This course builds on FINC 622 and extends the analysis of derivatives by focusing on futures and swaps, and by extending the analysis of options offered in FINC 622. 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 present 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, role in incentivizing executive efforts, and in 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 11: 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

**NOV 18: Derivatives and the Credit Crisis**

Kyle Brandon and Frank A. Fernandez, "Financial Innovation and Risk Management: An Introduction to Credit Derivatives," *Journal of Applied Finance*, Spring/Summer 2005, pp.52-63.  
Hull, John C., “The Credit Crunch of 2007,” working paper.  
Ashcraft, Adam B. and Til Schuermann, “Understanding the Securitization of Subprime Mortgage Credit,” from beginning through page 12.

**NOV 25: Stock Index Futures**

The Indexes—FOS 241-257  
Stock Index Futures Prices—FOS 261-267  
Real-World Program Trading—FOS 272-276  
Hedging with Stock Index Futures—FOS 276-282  
Asset Allocation—FOS 282-285  
Portfolio Insurance—FOS 285-288  
Risk- Minimization Hedging—FOS 137-141

**Homework Due—Cost-of-Carry Model**

**DEC 2: Interest Rate Futures**

Short Maturity Contracts—FOS 152-154

Longer Maturity Contracts—FOS 158-164

Pricing of Interest Rate Futures—FOS 166-175

Hedging with Interest Rate Futures—FOS 178-185

Applications: Eurodollar and T-bill Futures—FOS 209-217

Hedging with T-Bond Futures—FOS 219-240

**Homework Due—Risk Minimization Hedging**

**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 13: Stock Price Movements and Lattice Models**

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

“Lattices and Barrier Options,” Kolb

“Monte Carlo Computational Notes,” Kolb

**Homework Due—Pricing a Digital Option Two Ways**

**JAN 20: Introduction to Swaps**

Swap Instruments and Markets—FOS 659-668

Motivation for Swaps—FOS 668-673

Swap Facilitators—FOS 673-676

Pricing of Swaps—FOS 676-679

Swap Portfolios—FOS 679-683

Commodity, Equity and Credit Swaps—FOS 687-691

Swaptions—FOS 692-696”

Monte Carlo for Correlated Assets,” Kolb

**Homework Due—Monte Carlo Pricing of Options**

**JAN 27: 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 3: The Social Function of Derivatives Markets**

Christopher Culp, “The Social Function of Derivatives Markets,” forthcoming in Robert W. Kolb and James A. Overdahl, *The Companion to Financial Derivatives*, Wiley-Blackwell Publishing, 2009.

Robert W. Kolb, “Employee Stock Options,” forthcoming in Robert W. Kolb and James A. Overdahl, *The Companion to Financial Derivatives*, Wiley-Blackwell Publishing, 2009. (To be available on the course web site.)

**Homework Due—Swap ‘Til You Drop**

**FEB 10: 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 12, 2007** Mid-Term Quiz: 20%

**February 12, 2007** Final Exam: 20%

Homework Assignments: 60% (I will drop your two worst grades and base your performance evaluation 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.