Course Syllabus—Spring 1999
Finance 7100: Doctoral Seminar—Finance Theory

Course Instructor: Russ Wermers

Classroom:	Business 207
Class Time:	Tuesdays and Thursdays, 2:00-3:30
Office:	Business 473
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WWW Address:	http://www-bus.colorado.edu/faculty/wermers
Office Hours:	Office Hours: Tuesdays and Thursdays, 10-11 a.m. and Wednesdays, 1-4 p.m. (in Room 473) Also, by appointment.

Course Objective:

To introduce you to the basic valuation theories used in finance research.

Final Grade Weighting:

Homework/Class Participation	50 %
Final Exam	50 %

Textbooks:

[I]   Ingersoll, Jonathan, Theory of Financial Decision Making, Rowman and Littlefield, c1987.

[HL] Huang, Chi-Fu and Robert Litzenberger, Foundations for Financial Economics, North-Holland, c1988.

[M]   Merton, Robert, Continuous-Time Finance, Blackwell, c1990.

Other optional books of interest:

Simon, Carl, and Lawrence Blume, Mathematics for Economists, Norton, c1994. (I highly recommend this book)

Neftci, Salih, An Introduction to the Mathematics of Financial Derivatives, Academic Press, c1996.

Jarrow, Robert, Modelling Fixed Income Securities and Interest Rate Options, McGraw-Hill, c1996.

Cochrane, John, Asset Pricing, unpublished manuscript (available for download from the web page for this course).

Homework/ Class Participation: Homework will be assigned each week to help you in understanding the various concepts presented. Homework is due at the start of the next class. I'll ask for volunteers to provide the solution for each problem assigned—all others are expected to help! Homework will also be collected after class that day.

Final Exam: The final will be comprehensive and will be administered during the University-assigned final exam date and time, unless every registered student signs off on an alternative date and time. This exam should be a good practice exercise for preparing for the finance field exam (at least the portion that relates to this class). Generally, the majority of the exam will be material directly covered in class, although a small portion will test whether you study the textbook assignments reasonably well. The exam is scheduled for Saturday, May 8 from 7:30-10:30 pm.

Course Web Page: I have created a web page for this course. The purpose of this page is to provide some course materials and/or links that are useful. If you know of anything useful to add, please let me know. The URL for this page is: **http://bus.colorado.edu/faculty/wermers/ftpsite/fnce7100/download.htm**

TOPICS
(Roughly one topic per week)

Subject	Readings	Homework
Review of Utility Theory	**I:** Chapter 1 **HL:** Chapter 1	**HL:** 1.1, 1.5, 1.6, 1.7, 1.8, handout
Generalized Risk and Asset Pricing Models	**I:** Chapter 5 **HL:** Chapter 2 **M:** Chapter 2, Sections 2.1-2.3	**HL:** 2.1, 2.2, 2.3
Mean-Variance (Markowitz) Theory	**I:** Chapter 4 **HL:** Chapter 3 Roll (1977) Appendix	Roll (1977) Appendix: Prove Corollaries 3(A), 5, 7, and 7(A)
Portfolio Separation	**I:** Chapter 6 **M:** Chapter 2, Section 2.4 **HL:** Chapter 4	**HL:** 4.5; also, prove that Equations (30a,b,c,and d) are necessary and sufficient for 2-fund, money sep'n for any U; also, handout problem
State Preference Models	**I:** Chapters 2 and 8 **HL:** Chapter 5	
Discrete Time Intertemporal Portfolio Selection	**I:** Chapters 10 and 11 **HL:** Chapters 7 and 8	Handout problem on log utility
Equilibrium Models with Complete Markets	**I:** Chapter 8	"Market Completion" homework handout
An Introduction to the Mathematics of Continuous-Time Finance	**I:** Chapters 12 and 16 **M:** Chapter 3	"Diffusion Processes" homework handout
Continuous-Time Portfolio Selection and Asset Pricing	**I:** Chapters 13 and 15 **M:** Chapters 4, 5, and 15	"Continuous-Time Finance" homework handout
Option Pricing	**I:** Chapters 14 and 17 **HL:** Chapter 6 **M:** Chapter 8	"Options" homework handout
Exotic Options	Neftci, Chapter 13	
The Term Structure of Interest Rates	**I:** Chapter 18	

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Interest Rate Derivatives
    The Ho and Lee model   Ho and Lee (1986)

    The Heath, Jarrow, and Morton model   Heath, Jarrow, and Morton (1990)
                                                  Heath, Jarrow, and Morton (1991)
                                                  Heath, Jarrow, and Morton (1992)
                                                  Cortazar and Schwartz (1994)
                                                Reisman (1991)

    Lattice approaches to options pricing   Boyle (1988)

Performance Measurement Theory   Grinblatt and Titman (1989)
                                                    Chen and Knez (1996)
                                                      Copeland and Mayers
                                                  Grinblatt and Titman (1993)

BIBLIOGRAPHY

Boyle, Phelim, 1988, "A Lattice Framework for Option Pricing with Two State Variables," *Journal of Financial and Quantitative Analysis*, 23 (1), pp. 1-12.

Cortazar, Gonzalo and Eduardo Schwartz, 1994, "The Valuation of Commodity-Contingent Claims," *Journal of Derivatives*, 1 (4), pp. 27-39.

Heath, David, Robert Jarrow, and Andrew Morton, 1990, "Bond Pricing and the Term Structure of Interest Rates: A Discrete Time Approximation," *Journal of Financial and Quantitative Analysis*, 25 (4), pp. 419-440.

Heath, David, Robert Jarrow, and Andrew Morton, 1991, "Contingent Claims Valuation with a Random Evolution of Interest Rates," *Journal of Futures Markets*, January, pp. 55-78.

Heath, David, Robert Jarrow, and Andrew Morton, 1992, "Bond Pricing and the Term Structure of Interest Rates: A New Methodology for Contingent Claims Valuation," *Econometrica*, 60 (1), pp. 77-105.

Ho, T.S.Y. and S. Lee, 1986, "Term Structure Movements and Pricing Interest Rate Contingent Claims," *Journal of Finance*, 41, pp. 1011-1028.

Reisman, H., 1991, "Movements of the Term Structure of Commodity Futures and the Pricing of Commodity Claims," Unpublished manuscript, Haifa University, Israel.