

BUSINESS FINANCE 823
Winter Quarter 2008

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Class Times and Rooms: Mon/Wed 10:30am-12:18pm, Gerlach 305
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A. Course Description

This course explores the valuation of forwards, options, forward-based, and option-based financial instruments. While a student may have studied options and/or forwards in other courses, this course examines in detail the analytical methods used to price these securities, and the analytical analysis of arbitrage, hedging, and speculation using these securities.

Course objectives are: (1) to provide an understanding of the basic concepts and principles of derivatives, (2) to provide opportunities to learn skills used in derivative analysis and valuation, (3) to evaluate trading and speculation opportunities available in the current financial markets, and (4) assess the influence of economic events upon pricing.

The course is divided into four parts, covering separately (1) Derivative basics, strategies and payoffs; (2) Valuation of forward and forward-based derivatives; (3) Valuation of option and option-based derivatives; and (4) Financial engineering and applications.

B. Prerequisite

Derivatives valuation is a technically demanding area, and although no math other than algebra is required, students should be comfortable with basic statistics (such as variance, correlation, linear regression and distributions) and fundamental finance topics (principally time value of money and compounding). Occasionally concepts will be explained using some calculus, but this should only require a basic conceptual understanding.

C. Course Materials

Required Textbook

McDonald, Robert L., *Derivatives Markets*, Second Edition, 2006 (Addison-Wesley, ISBN: 0-321-28030-X). This book comes with software that allows students to price a wide arrange of derivative securities. The book is available at the bookstore and at www.amazon.com.

Lecture Notes

I will make my lecture notes available on the course web site for you to download - please make sure you print the notes and bring them to class.

Other Sources

I strongly encourage students to do regular reading of the financial press, such as the *Wall Street Journal*, *Financial Times*, or the business section of the *New York Times*. There also are websites dedicated to derivatives markets. *Futures Magazine* (<http://www.futuresmag.com>) provides information on daily futures market activity, analysis of underlying cash markets and other useful tools for futures trading. Also, information about stock option trading, including real-time access to news and option and stock quotes can be found on the web site of the Chicago Board of Options Exchange (CBOE, <http://www.cboe.com>). Other tools at Mason Hall resource center that were used in previous finance classes also will be useful in 823. These include *Bloomberg* and *Datastream International*.

D. End-Of-Chapter Problems

For each chapter, there is a set of study problems that highlights the course material. *These problems will not be collected but they will help you prepare for the exams.* I will solve some of them in class. Answers to these problems will be posted on the class web site. *Exam questions will be based, in part, on these problems.*

E. Exams

There will be *two non-cumulative* exams that *will cover material presented in class lectures and study problems.* You will be allowed to bring one 8-1/2" x 11" sheet of paper with notes and formulas (both sides are OK) on it. The paper must be handwritten, not photocopied. Exams are scheduled well in advance so that you can plan around these dates. Please do not ask to be excused from exams for matters of personal convenience.

The exam grade will count for *100 percent* of your total course grade and will be calculated such that your higher exam score will be given greater weight than your lower exam score, as follows:

$(0.60 * \text{Exam 1} + 0.4 * \text{Exam 2})$ if your Exam 1 score is greater than or equal to your Exam 2 score

$(0.40 * \text{Exam 1} + 0.6 * \text{Exam 2})$ if your Exam 2 score is greater than your Exam 1 score.

F. Other Course Policies

Lectures

Lectures will stress the most important issues addressed in the textbook. You are responsible for all material covered in class. Lectures may go beyond the scope of the textbook for certain topics. Therefore, it is important for you to attend class. **You are responsible for all announcements made in class.** Class lectures will sometimes involve working through problems. Thus, you are required to bring a calculator to every class so that you may work on problems and participate in class discussions.

Absences

An unexcused absence for an exam without supporting documentation will result in an exam grade of zero. As a matter of professional courtesy, I expect an email or phone message, if you are unable to attend class.

Fisher Honor Statement and Academic Misconduct

The Fisher Honor Statement reads as follows:

As a member of the Fisher College of Business community, I am personally committed to the highest standards of ethical behavior. Honesty and integrity are the foundation from which I will measure my actions. I will hold myself accountable to adhere to these standards. As a leader in the community and business environment, I will pledge to live by these principles and celebrate those who share these ideals.

—Honor Statement of the Fisher College of Business, The Ohio State University.

The Fisher Honor Statement is enforced in Finance 823. By having affirmed the Fisher Honor Statement, you have agreed to abide by this statement.

Exams must be the original work of the student whose name appears on the exams. No assistance, other than that of the formula sheet(s), may be given, received, or used during the exams. You may not communicate with any other individual regarding the exams. Calculators are permitted. Personal computers, PDAs, or cell phones are not permitted.

In accordance with ***University Faculty Rule 3333-5-487***, all instances of alleged academic misconduct will be reported to the Committee on Academic Misconduct, which recommends appropriate sanctions to the Office of Academic Affairs.

G. Acknowledgement

Many of the lecture notes and other course materials are derived from those used by Professor Bernadette Minton at the Ohio State University, Professor George Constantinides and Professor Jesus Santos at the University of Chicago, Professor John Hull at the University of Toronto, and Professor Robert McDonald at Northwestern University. I thank all of them for their assistance.

H. Course Outline

Each class period includes *required* readings from *McDonald*. **Except for the two exam dates, dates in the course outline are approximate and subject to change with appropriate notice.**

Course Outline

Week One: January 4**Derivative Basics I**

- *McDonald*, Chapter 1.
- Study Questions: 1.3, 1.7, 1.9, and 1.12.

Week Two: January 7 & January 9**Derivative Basics II**

- *McDonald*, Chapter 2 and 3.
- Study Questions: 2.5, 2.7, 2.8, 2.9, 2.12, 2.14, 2.15, 3.1, 3.4, 3.8, 3.11, 3.14, 3.15, 3.16, 3.17, and 3.18.

Week Three: January 14 & January 16**Financial Forwards and Futures & Commodity Forwards and Futures**

- *McDonald*, Chapter 5 and 6.
- Study Questions: 5.3, 5.5, 5.8b, 5.10, 5.12, 5.15a, 5.15e, 5.16, 5.19, 6.3, 6.4, 6.6, 6.8, 6.9, 6.11a, and 6.11c.

Week Four: January 21 & January 23**January 21: NO CLASS****January 23: Interest Rate Forwards and Futures**

- *McDonald*, Chapter 7.
- Study Questions: 7.1, 7.2, 7.7, 7.9, 7.11, 7.15a, 7.17, 7.20, 7.22, and 7.24.

Week Five: January 28 & January 30**January 28: Swaps**

- *McDonald*, Chapter 8.
- Study Questions: 8.2, 8.4, 8.6, 8.8, 8.10, 8.12, 8.14, and 8.17.

January 30: Exam 1**Week Six: February 4 & February 6****Option Relationships & Binomial Option Pricing I**

- *McDonald*, Chapter 9 and 10.
- Study Questions: 9.3, 9.4, 9.6, 9.7a, 9.7b, 9.9, 9.10, 9.11, 9.13, 9.15, 10.4, 10.6, 10.8, 10.10, 10.14, 10.17, and 10.19.

Week Seven: February 11 & February 13**Binomial Option Pricing II & Black-Scholes Model I**

- *McDonald*, Chapter 11 and 12.
- Study Questions: 11.1, 11.4, 11.8, 11.14, 11.16, 11.17 (use a 3-period tree for 16 and 17), 11.20, 12.3, 12.5, 12.9, 12.11, and 12.12.

Week Eight: February 18 & February 20
Black-Scholes Model II & Exotic Options

- *McDonald*, Chapter 12 and 14.
- Study Questions: 12.15a, 12.18, 12.20, 14.2, 14.3, 14.4, 14.9, 14.12, 14.16, 14.18, and 14.19.

Week Nine: February 25 & February 27
Financial Engineering & Corporate Applications

- *McDonald*, Chapter 15 and 16.
- Study Questions: 15.4, 15.7, 15.10, 15.13, 15.15, 15.18, 15.20, 15.22, 16.2, 16.4, 16.5, 16.8, 16.11, 16.13, 16.17, and 16.19.

Week Ten: March 3 & March 5
Real Options

- *McDonald*, Chapter 17.
- Study Questions: 17.2, 17.5, 17.8, 17.10, 17.13, 17.16, 17.17, 17.18, and 17.20.

Final's Week

March 13: Exam 2 9:30 am - 11:18 am
