

BUSINESS FINANCE 7230

Autumn 2023

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<i>Class Times and Rooms:</i>	Tue/Thu 9:45am-11:15am, Gerlach 265 Tue/Thu 4:30pm-6:00pm, Gerlach 315
<i>Office Hours:</i>	By appointment only

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 three parts, covering separately (1) Derivative basics, strategies and payoffs; (2) Valuation of forward and forward-based derivatives; and (3) Valuation of option and option-based derivatives.

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

Recommended Textbook

McDonald, Robert L., *Derivatives Markets*, Third Edition, 2013 (Addison-Wesley, ISBN: 978-0-321-54308-0). 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 post my lecture notes on Carmen prior to class - 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 such as *Bloomberg* and *Datastream International* that were used in previous finance classes also will be useful in 7230.

D. End-Of-Chapter Problems

For each topic, 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.* Answers to these problems will be posted on Carmen. *Exam questions will be based, in part, on these problems.*

E. Exams

There will be *one cumulative* final exam 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 final exam is scheduled well in advance so that you can plan around the date. Please do not ask to be excused from the exam for matters of personal convenience.

The final exam grade will count for *75 percent* of your total course grade. There will also be a “practice” final that will count for *25 percent* of your total course grade.

F. Academic Integrity Policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct (<https://trustees.osu.edu/bylaws-and-rules/code>) and this syllabus may constitute Academic Misconduct (<https://oaa.osu.edu/academic-integrity-and-misconduct>)

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: “Any activity that tends to compromise the academic integrity of the University, or subvert the educational process.” Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the

University's *Code of Student Conduct* is never considered an "excuse" for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University. If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

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 topic includes *recommended* readings and study questions from *McDonald*.

Course Outline

I. Derivative Basics

- *McDonald*, Chapters 1, 2, and 3.
- Study Questions: 1.3, 1.7, 1.9, 2.5, 2.7, 2.9, 2.12, 2.14, 3.1, 3.4, 3.8, 3.11, 3.14, 3.15, 3.16, 3.17, and 3.18.

II. Financial Forwards and Futures

- *McDonald*, Chapter 5.
- Study Questions: 5.3, 5.4, 5.8, 5.10, 5.13, and 5.19.

III. Commodity Forwards and Futures

- *McDonald*, Chapter 6.
- Study Questions: 6.1, 6.3, 6.4, 6.6, 6.8, and 6.9.

IV. Option Relationships

- *McDonald*, Chapter 9.
- Study Questions: 9.1, 9.3, 9.4, 9.6, 9.7a, 9.7b, 9.9, 9.10, 9.11, and 9.15.

V. Binomial Option Pricing

- *McDonald*, Chapters 10 and 11.

- Study Questions: 10.6, 10.10, 10.12, 10.16, 10.19, 10.21, 11.1, 11.4, 11.8, 11.14, 11.16, and 11.18.

VI. Black-Scholes Model

- *McDonald*, Chapter 12.
 - Study Questions: 12.3, 12.5, 12.9, 12.14, and 12.20.
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