

BUSINESS FINANCE 7230

Autumn 2020

<i>Instructor:</i>	Professor Kewei Hou
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<i>Class Times and Rooms:</i>	Tue/Thu 10:15am-11:45am, Carmen Online Tue/Thu 4:30pm-6:00pm, Carmen Online
<i>Office Hours:</i>	Tue 3:00pm-4:30pm OR by appointment

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 Delivery

Mode of delivery

This course is conducted entirely online that means you do not have to be on campus to complete any portion of it. There are no required sessions when you must be logged in to Carmen at a scheduled time.

Pace of online activities

This course is divided into weekly modules that are released one week ahead of time. You are expected to keep pace with weekly deadlines but may schedule your efforts freely within that time frame.

Credit hours and work expectations

This is a 1.5-credit-hour course. According to Ohio State policy, you should expect around an average of 3 hours per week of time spent on direct instruction (instructor content and Carmen activities) in addition to 6 hours of homework (reading and assignment preparation).

Attendance and participation requirements

Because this is an online course, your attendance is based on your online activity and participation. You are expected to log in to the course on Carmen every week to download the lecture notes and watch pre-recorded videos. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible*.

Office hours and live sessions

Tuesdays 3:00pm to 4:30pm. All live, scheduled events for the course, including the office hours, are optional. The Zoom links for live sessions will be posted on Carmen.

D. Course Technology

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** ocio.osu.edu/help
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743

Required Technology skills specific to this course

- [CarmenZoom virtual meetings](#)
- Basic computer and web-browsing skills
- Navigating Carmen: for questions about specific functionality, see the [Canvas Student Guide](#)

Required equipment

- Calculator
- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

Required software

- **Microsoft Office 365:** All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Full instructions for downloading and installation can be found at go.osu.edu/office365help

Carmen access

You will need to use [BuckeyePass](#) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](#) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the [Duo Mobile application](#) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and IT support staff will work out a solution with you.

E. 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 and pre-recorded videos

I will post my lecture notes and pre-recorded videos for each chapter on Carmen one week ahead of time. Lectures may go beyond the scope of the textbook for certain topics. Therefore, it is important for you to read the lecture notes and watch the pre-recorded videos.

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.

End-of-chapter problems

For each topic, there is a set of study problems that highlights the course materials. *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.*

F. Exams

There will be one ***cumulative*** online final exam on **Monday, December 7th** that *will cover materials presented in class lectures and study problems.* The exam is closed-book but you will be allowed to bring one 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.

You should have for the final exam:

- A calculator
- A formula sheet
- A valid BUCK ID. You will not be permitted to take an exam without presenting your BUCK ID.

You will be given a 12-hour window to complete the final exam. Once you start the exam you will have 1 hour 30 minutes to complete the exam. The instructions for the exam will be posted on Carmen as we get closer to the exam date. I will use online proctoring service via Carmen called Proctorio. Proctorio is a secure online proctoring service software that integrates with Carmen and works within your Chrome web browser to monitor test taking and the testing environment.

Preparation Steps (These should be completed prior to the day of final exam)

- Please go to the following link
<https://resourcecenter.odee.osu.edu/carmencanvas/installing-proctorio>
- Follow the directions for installation of Proctorio Chrome extension.

The Day of Final Exam / December 7th

- You will need to use your own computer. Make sure it is the one that you used to install the Proctorio Chrome extension.
- Bring your BUCK ID. You will need to show your BUCK ID to begin. (*NOTE: This is needed because I will use the verification option to verify your identity:*<https://resourcecenter.odee.osu.edu/carmencanvas/proctorio-verification-options>)
- The exam will take place in Carmen just like other quizzes and tests you might have taken in other courses.

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. The practice final will be posted on Carmen one week before the final exam.

G. 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.

H. Accommodation Policy

The university is committed to supporting students and program participants with COVID-19 based risk factors. Student Life Disability Services, in conjunction with the Office of Institutional Equity, will work with students who are vulnerable to complications from COVID-19 to ensure that they have the necessary resources to participate in university life as safely as possible. Ohio State students from any campus may submit a [COVID-related accommodation request](#). Students registered with Student Life Disability Services can work directly with their [assigned Access Specialist](#) to modify their accommodations or make additional COVID-based accommodation requests.

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's [request process](#), managed by Student Life Disability Services. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as

soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

SLDS contact information:

slds@osu.edu; 614-292-3307

098 Baker Hall,

113 W. 12th Avenue.

Accommodated Exams - COVID-19 Operational Adjustments

In order to promote the health and safety of students, Student Life Disability Services will only proctor exams for students with accommodations that necessitate in-person testing for autumn 2020. Modified exam hours for autumn 2020 are 9 AM – 5 PM.

Students with the following exam accommodations may schedule to take their exams at SLDS:

- Accessible formats (e.g. braille, large print, screen-free)
- Assistive technology (e.g. JAWS, CCTV)
- Private testing room accommodation
- Test assistant (reader or scribe)

Students requesting exam accommodations not listed above, such as extended time or a small-group testing space, will need to take their exam off-site utilizing Carmen or other virtual assessment method. For more information on operational changes, visit the [SLDS website](#).

I. Safety and Health Requirements

All teaching staff and students are required to comply with and stay up to date on all [University safety and health guidance](#), which includes wearing a face mask in any indoor space and maintaining a safe physical distance at all times. Non-compliance will be warned first and disciplinary actions will be taken for repeated offenses.

J. 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.

K. 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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