

UNIVERSITY OF ALBERTA
School of Business
Department of Finance

Finance 413 – Risk Management
Fall 2021

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Office hours: Wednesdays 4:00 – 5:00 pm (virtual, Zoom link available on eClass). I am also available by appointment for virtual or in person meetings outside my regular office hour.

Questions may also be submitted by e-mail I will answer e-mail questions by the end of the following business day. When submitting e-mail questions write in the subject of your message FIN 413 and a word or words related to your question. I will not open messages without a subject. In addition, due to internet security considerations, I will only read email originating from your University of Alberta email account. Any email from non-University accounts will not be read.

Class section: A2, Tuesday/Thursday, 2:00 p.m. – 3:20 p.m., BUS 3-10

A1, Tuesday/Thursday, 3:30 p.m. – 4:50 p.m., BUS B-09

Course Outlines, Evaluation Procedures and Grading System

Policy on Course Outlines, Evaluation Procedures and Grading System can be found at [http://calendar.ualberta.ca/content.php?catoid=20&navoid=4939#Evaluation Procedures and Grading System](http://calendar.ualberta.ca/content.php?catoid=20&navoid=4939#Evaluation_Procedures_and_Grading_System)

Overview

Most corporations and financial institutions face financial risks arising from changes in market variables such as interest rates, currency exchange rates, commodity prices and stock prices. Because they offer low transaction costs and new profit patterns, Forward, Futures, Options and other derivative products have become essential tools for hedging and controlling financial risks. These products are usually more complicated than traditional cash instruments such as stocks and bonds and require correspondingly more than just basic analysis. Hence, risk management specialists need a sound understanding of derivative securities.

Derivatives are widely used through the business world. Corporations, financial institutions, pension funds and several governments are using derivatives. There is a growing demand for individuals who are skilled at analyzing derivatives. The practice of risk management demands strong analytical and quantitative skills.

Learning Objectives

This course incorporates the Learning Goals of the Alberta BCom Program, in particular Critical Thinking, Written Communication, and Quantitative Skills.

The main purpose of this course is to provide students with a working knowledge of how derivatives can be used in managing financial risks. The course will show how to use and price these securities, describe the markets in which they trade and examine how risk management contributes to firm value. Several cases will be used to put the participants in the position of a firm with a financial risk management problem.

Learning Outcomes

- Understand how the basic types of derivatives work and the economic roles they play in the financial markets.
- Understand the basic risk management and trading strategies using derivatives.
- Understand how arbitrage and replication are used in pricing financial forwards and futures.
- Understand how futures contracts and markets work and the differences between forwards and futures.
- Understand how Swap contracts work and how they are similar to a portfolio of forward contracts.
- Explain the determination of swap values, swap prices, and swap rates.
- Explain the exercise value, time value, and moneyness of an option.
- Identify the factors that determine the value of an option and explain the main properties of option prices
- Explain the put-call parity for European options
- Explain how the value of an option can be determined using the Binomial model and the Black-Scholes formula
- Understand how financial intermediaries use the Binomial model and the Black-Scholes formula to manage their option positions.
- Understand how companies can create value using derivatives to manage their financial risks

Course delivery format

The course material will be delivered using a combination of pre-recorded videos and in person classes. Most of the course content such as theory, concepts, and formulas will be included in pre-recorded videos while most of the in-person classes will be dedicated to examples, applications, and case discussions.

Due to privacy and copyright considerations the in-person classes cannot be recorded. Also, I will not post or email my notes for case discussions.

Due to room capacity constraints and public health considerations, you must attend the section in which you are enrolled.

Course Prerequisites:

- FIN 301
- Although all the required background material for this course is covered in FIN 301, in my long experience teaching this course I have found that for several students it is advisable to take FIN 412 (Investments) before taking FIN 413.
- You should be comfortable with basic statistics concepts such as means, standard deviations, correlations, and properties of the Normal distribution.
- Familiarity with a spreadsheet package, preferable Excel.

BE ADVISED: Learning and understanding derivatives can be challenging. The material is very quantitative and this is probably one of the most technical courses in the Finance major. In addition, this course covers a large amount of material, so it is imperative that you make a commitment to invest an appropriate amount of time and effort into keeping up-to-date on your studies for the class.

Course Materials

Required – Course package: Includes Cases for class discussions and assignments. See course webpage for information on how to get your course package.

Recommended Textbook: Hull, John C. *Options, Futures, and other Derivatives*, eleventh edition, Pearson, 2022.

I will also post many course materials on the course web page (eClass <https://eclass.srv.ualberta.ca/>) As the term progresses, I will place files (Videos, Power Points, Assignments, case discussion questions, articles, etc.) on the course web page. **It is your responsibility to check the course web page for announcements, assignments and postings in preparation for each class.**

I also recommend students to read *The National Post*, *The Globe and Mail*, or *The Wall Street Journal* daily. We shall be talking about any stories on derivatives and risk management that arise during the term. All the articles discussed in class are exam material

Grading

You grade is determined as follows:

Quizzes	20%
Assignments	40%
Class participation	5%
Final Exam	35%

Each of these assessments measures your critical thinking ability, your written communication skills, and your quantitative skills.

Letter grades will be assigned to the percentage marks in accordance with University Regulations [Section 23.4(4) of the University Calendar]. Your final course grade will be based on your absolute achievement and relative performance in the class. You will need at least 50% of the total points and at least 40 % of the final exam points to pass

Quizzes

Seven quizzes will be given through eClass during the term. The quizzes will test your understanding of the material presented in the pre-recorded videos. Each student must complete their individual quizzes on eClass by the cutoff time on the quiz due date. **Make up quizzes are not possible.** I will announce on eClass when a quiz is available and the due date. Quiz 1 will count for 2% of the course grade and each of the other six quizzes will count for 3% of the course grade.

Assignments

There will be three assignments. Assignment 1 is a problem set that counts for 5% of the course grade and is due on October 4. Assignment 2 is based on the case “Central Express Trucking,” it counts for 15% of the course grade, and it is due on October 27. Assignment 3 is based on the case “Input Capital: Customized Financing for Canola Producers,” it counts for 20% of the course grade, and is due on December 3.

You can work on the Assignments individually or in groups of up to 3 members. Submit one assignment per group. I will assign the same grade to all members of a group. Assignments must be typed. Handwritten assignments will not be graded and will receive a grade of zero.

Submit your assignments online in the Assignments Drop Box in the course eClass page. The cutoff time for submitting your assignments on the due date is 10:00 pm. **Late assignments will not be accepted.**

Any request to revise the grade on an Assignment should be brought to my attention no later than the week after you have received the grade. Any such request should include a written explanation as to why more points are warranted. NOTE: If you request an assignment to be regraded, I will re-grade your entire assignment. As a result, you might end up with a grade that is lower than the grade you were initially assigned.

Class Participation

Class participation is a key element of your ability to adequately learn the course material. I expect you to actively participate in the class discussion.

Your preparation for class discussion includes reading the assigned articles, watching the pre-recorded, and working on the discussion questions for the in-class cases.

For each case discussion I will contact a group of selected students before class by their ualberta email. I ask each of the selected students to prepare the answer for a specific question from the discussion questions to present in class when I call them. Everyone will have equal opportunity to participate. There will be also several opportunities for voluntary class participation during case discussions, not only by answering the questions I ask in class but also by asking well informed questions or clarifications. Your participation grade is your responsibility. **If I ask you to prepare a question for a class discussion you must notify me ASAP if you are not able to come to class.**

Your participation score will be based on my assessment of the quality and quantity of your participation (including your ability to pose questions and/or issues that contribute to the learning atmosphere of the class). Note: your participation grade is not based on your attendance to the in-person classes.

Your interest in the course material outside the class sessions will also be considered when determining your participation score. For example, I consider the type of questions you ask during office hours or by email.

Do not be shy about asking questions to clarify what we are discussing. Every lecture and the course as a whole build on what we learned previously, so being lost gets costly very quickly.

Final Exam

The final exam will be on Tuesday December 14 at 9:00 am for section A1 and on Monday December 20 at 9:00 am for section A2.

The exam will be based on all the material covered during the course. This includes the in-person classes, videos, class notes, required readings, and cases.

The final exam is closed-book, but you can bring to the exam one 8 1/2 x 11 (letter size) sheet of paper with anything you want written on it (both sides). Also bring a calculator, but use of the text storage feature will be a violation of the *Code of Student Behavior*. Personal computers (notebooks, laptops, iPads, etc) are not allowed in exams. Cell phones and other communication devices are not allowed in examinations, even if they are being used as calculators and/or clocks.

You **MUST** also bring your Student Identification Card (the ONE card) to each exam.

I will follow University regulations regarding absences from exams. Excused absence for a missed exam is not automatic and is granted at the discretion of the instructor (in the case of term exams) or the student's Faculty (in the case of final exams). Instructors and Faculties are not required to grant excused absences for unacceptable reasons that include, but are not limited to personal events such as vacations, weddings, or travel arrangements. **When a student is absent from an exam without acceptable excuse, a final grade will be computed using a raw score of**

zero for the exam missed. Any student who applies for or obtains an excused absence by making false statements will be liable under the Code of Student Behavior. “

If you are unable to take the final exam you must apply to write a deferred exam. For more information on University procedures for applying for deferred final examinations consult the Business Undergraduate Office, or go to

<https://business.ualberta.ca/programs/bachelor-of-commerce/current-students/exam-policy-procedures/deferred-exams>

In the event that a deferred exam is granted, the deferred exam will be given at 1:00 pm on Friday, February 18, 2022. The deferred exam will be a three-hour, closed book in person exam.

Please note the following:

The assignments and quizzes due dates and the weights allocated to each component of the course grade are not flexible.

Make-up or extra work to improve your grade is not possible.

Missed classes are solely your responsibility. If you want to know what was covered in a class that you missed (including administrative announcements), or receive handouts from a class you missed, you can contact me or you can find a classmate who attended class and is willing to share notes. I will not post or email my notes for case discussions, or assignment solutions presented in class.

Academic Support and Accommodation Procedures

The Academic Success Centre provides professional academic support to help students maximize their academic success and achieve their academic goals. The Centre offers appointments, advising, group workshops, online courses, and specialized programming year-round to students in all university programs, and at all levels of achievement and study.

Website: <https://www.ualberta.ca/current-students/academic-success-centre>

Email: success@ualberta.ca

Audio or Video Recording

Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

Academic Integrity and Honesty

The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at www.governance.ualberta.ca) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

I will deal with cases of academic dishonesty in accordance with the *Code of Student Behavior*.

BE ADVISED: My teaching materials (videos, class notes, assignments, discussion questions, exams, and quizzes) are my intellectual property and cannot be shared in the open web. Sharing my course materials without my authorization is considered academic misconduct and may lead to sanctions according to the *Code of Student Behavior*. If I see my course materials in sites such as Chegg and Course Hero I will contact the university's Legal Counsel to issue a subpoena to the site to provide the information of the user posting the material.

I do not tolerate disruptive behavior in class.

The *Code of Student Behavior* in **30.5.3** states:

30.5.3(1)“When a Student disturbs, disrupts, or otherwise interferes with classroom activities, the Instructor may immediately exclude the Student from the course for that particular Class meeting ...”

30.5.3(2)The Instructor shall talk to the Dean about the incident as soon as possible after the event occurred, and the Instructor shall inform the Dean about the incident, normally within 2 Working Days.

Examples of disruptive behavior in class are:

- Texting
- Talking while the professor is lecturing
- Reading from books, newspapers, magazines, websites or any material not related to the lecture in course
- Sleeping

I allow the use of laptop computers or tablets for specific limited purposes such as note-taking and viewing of class material. Activities such as emailing, texting, viewing (or updating) of social media pages, and blogging are considered disruptive behavior and are not permitted in class at any time.

All cell phones should be turned off or on silent and put away from your desk during class.

Except under exceptional circumstances in which approval has been granted by the instructor, any use of a cell phone or any communication device for receiving or sending calls or texts is not permitted in class. Any student found to be doing these activities will be asked to leave the classroom.

Texting in class is distracting and disrespectful (both to other students and to me). If you want to text friends, view (or update) your social media, or any webpage different from course webpage during class time, please don't take this course.

Topics and readings

1. Introduction to Risk Management and Derivatives

Required: Tuckman, Bruce, "Derivatives: Understanding Their Usefulness and Their Role in The Financial Crisis." Journal of Applied Corporate Finance, Winter 2016, Volume 28, Number 1, pp. 62-71

Recommended: Hull Ch. 1

2. Forward Contracts

Recommended: Hull Ch. 4 sections 4.1 to 4.4, and Ch. 5

3. Futures Markets

Recommended: Hull Ch. 2

4. Hedging using Futures

Recommended: Hull Ch. 3

5. Commodity Swaps

6. Options Markets

Recommended: Hull Ch. 10

7. Option Pricing

Properties of option prices. Hull: Ch. 11

The Binomial Model. Hull: Ch. 13

The Black-Scholes Model and its extensions Hull: Ch. 15, 17 & 18

8. Hedging Positions in Options

Recommended: Hull Ch. 19

9. Volatility Smiles and limitations of Black-Scholes

Recommended: Hull Ch. 20

10. Reasons for Risk Management.

Required:

- Servaes, Tamayo and Tufano, "The Theory and Practice of Corporate Risk Management." Journal of Applied Corporate Finance, Fall 2009, Volume 21, Number 4, pp. 60-78
- Stulz, Rene, "How Companies can use hedging to create shareholder value," Journal of Applied Corporate Finance, Fall 2013, Volume 25, Issue 3, pp. 21-29
- Gilje, E. P. and Taillard, J. P. (2017), "Does Hedging Affect Firm Value? Evidence from a Natural Experiment," The Review of Financial Studies, 30, 4083 – 4132.

11. Interest Rate Derivatives

Recommended: Hull Ch. 4, 6, and 7.

As we proceed through the course, I may add or drop topics, add articles to the required reading list, or alter the order in which we cover some of the topics.

Suggested problems and questions from the textbook

Several of the end-of-chapter problems and questions in the textbook provide a good resource for practicing the material presented in class and in the videos. For each topic I will give a list of suggested problems. The answers are available for free from the author's website at:

<http://www-2.rotman.utoronto.ca/~hull/ofod/Answers.html>