



Derivatives

BUSI 3512-C
Winter 2018

Instructor Information

Instructor: Jorge Cruz Lopez

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Office Hours: Mondays 6:00PM to 7:00PM
(by appointment only)

Course Details

Term	Winter (January 8 to April 11, 2018)
Lecture Times	Mondays 2:35PM to 5:25PM
Lecture Location	Tory Building 236
Number of Lectures	13
Final Exam Date	TBA
Final Exam Location	TBA
Credits	0.5
Restrictions	Precludes additional credit for BUSI 4512 (no longer offered).
Prerequisites	BUSI 2505 with a grade of C+ or higher, STAT 2606 and ECON 2009 with a grade of C- or higher in each.
Calendar Description	BUSI 3512 studies derivative instruments and their use for speculation and hedging. The course focuses on the analysis of different markets where these instruments trade and their characteristics. Pricing models are highlighted to determine how individuals and corporations can better manage risk. Emphasis is also placed on exotic instruments and new financial innovations.
Drop Course Policy	The deadline for academic withdrawal is the last day of classes (each term).

Course Description

This is an introductory course on derivative securities. These securities are financial assets with payoffs that depend on the values of other underlying assets. The course will focus on forward, futures, options and swap contracts. Throughout the course we will study the organization of derivatives markets, relevant trading strategies and, most importantly, the basic pricing models applicable to these contracts. Additional topics such as fixed income derivatives, convertible securities and exotic options will be covered as time permits. It is a good idea to read the first chapter of the required textbook before the first lecture.

Method of Instruction

There will be one 170-minute lecture per week. Lectures will consist of a combination of presentations and discussions. There are a number of readings assigned for each session. **Students are responsible for completing the required readings and assignments prior to each lecture.**

During each lecture the instructor will randomly select a few students to present a brief summary of the assigned readings and their participation will be graded.

Please note that due to time constraints, not all of the assigned reading materials will be covered in class. However, students are still responsible for studying these materials as they will be included in the exams.

Lectures are expected to be interactive and active participation is strongly encouraged (and graded).

Course Material

The required textbook for this course is:

Hull, John. *Options, Futures, and Other Derivatives*, Tenth Edition, Pearson, 2017.

Lecture notes and assignments will be available for download in cuLearn. Additional readings (e.g., book chapters and academic or practitioner articles) will be available through cuLearn or the University Library.

Students might also want to consider the following books to support their learning or for future reference:

Poitras, Geoffrey. *Risk Management, Speculation and Derivative Securities*, First Edition, Academic Press.

Schwartz, E. and Trigeorgis, L. (2004), *Real Options and Investment under Uncertainty: Classical Readings and Recent Contributions*. The MIT Press, First Edition.

Trigeorgis, L. (1996), *Real Options: Managerial Flexibility and Strategy in Resource Allocation*. The MIT Press, First Edition.

Office Hours

Office hours are by appointment only and will be held from 6:00PM to 7:00PM on Mondays. Please schedule an appointment at least 24hrs in advance.

Students having difficulty understanding the course material, are strongly encouraged to attend office hours. It is in the best interest of students to clarify any questions that they might have regarding the course material as soon as they do not understand something. Most of the topics covered in this course require a clear understanding of concepts previously covered in class and in prerequired courses.

During office hours, the instructor will try to explain all of the concepts that need clarification. For questions involving assignments, students are required to show that they have made a considerable effort trying to solve the assigned problems before the instructor can provide any assistance. The instructor will not give the answers to any of the problems in the assignments prior to their due date.

Communications

Students should use email for communicating with the instructor outside of lectures and office hours. Questions that require typing equations or the explanation of complex concepts should be asked during office hours and will not be answered by email.

All emails must be sent from valid Carleton University accounts and should include the student's full name and university ID. Emails from third party accounts will be disregarded. Information on how to activate a Carleton University email account can be found at <http://carleton.ca/ccs/students/>.

Grading Scheme

Course Grading	Participation	5%
	Assignments (4)	20%
	Midterm Exam	35%
	Final Exam	40%
	Total	100%

Please note that all grades are subject to the approval of the Dean.

University Guidelines In accordance with the Carleton University Undergraduate Calendar (pg. 34), the letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B+ = 77-79	C+ = 67-69	D+ = 57-59
A = 85-89	B = 73-76	C = 63-66	D = 53-56
A - = 80-84	B - = 70-72	C - = 60-62	D - = 50-52
F = Below 50			

Grades entered by Registrar WDN = Withdrawn from the course
DEF = Deferred

Graded Components

Participation

Work type: Individual

Context: Students are expected to actively contribute to class discussions. During each lecture, the instructor will randomly select a few students to present a brief summary of the assigned readings for that lecture.

Evaluation: Students will be evaluated based on the quality of their contributions to class discussions, as well as on their demonstrated ability to summarize and explain the concepts covered in the assigned readings.

Assignments (4)

Work type: Groups (minimum 3 students, maximum 4 students)

Context: The assignments consist of four problem sets that should be solved in **groups of three to four people**. Students can determine their own groups but these should remain the same throughout the course.

Students are required to submit a hard copy AND an electronic copy of their assignments. Hard copies should be submitted in class (one document per group). Electronic copies should be uploaded as a single file (preferably in PDF format) to cuLearn and approved by all group members individually in order to complete the submission process.

Assignments must be typed and include the *Group Assignment Grading Sheet* provided in the course website. Equations and some calculations may be hand written as long as the writing is clear. No marks will be given for work that is difficult to understand.

All assignments (both hard and electronic copies) must be submitted by the beginning of the session when they are due. Students should check cuLearn to know when a new assignment has been posted and when it is due.

Evaluation: Each group will be graded based on the **accuracy and style** of its assignments. In addition, each group member will be evaluated based on his/her individual contribution as assessed by other group members. Each assignment will be worth 5% of the final grade (see the [Grading Scheme](#) above).

Graded assignments will be returned to students within two weeks of their submission.

Graded Components Continued

Exams

Work type: Individual

Context: Students are required to write a **midterm and a final exam**.

The midterm and the final exams are **closed-book, in-class exams**. Both **exams are cumulative** and will cover all of the material assigned up the date of the exam (i.e. class notes, assignments and required readings).

Non-programmable calculators and a formula sheet are allowed. The formula sheet for the midterm exam should not exceed one single-sided page. The formula sheet for the final exam should not exceed one double-sided page. In both cases, a page refers to a letter size page.

Students should check cuLearn to confirm the date and time of the final exam.

Evaluation: Each exam will be graded out of 100 marks. Grades will be uploaded in cuLearn within two weeks of the exam date.

Important Notes

Students should always keep a hard copy of their assignments for their own records. Hard copies of the assignments should be submitted in class. Electronic copies should be uploaded to cuLearn. Assignments submitted by email will not be accepted. Acceptable electronic formats for assignments are MS Word, MS Excel, and PDF. No other formats will be accepted. With the exception of documented medical reasons, **late assignments will not be accepted**.

Appealing a Grade

Assignments

If a student disagrees with the grade obtained in an assignment, he/she should submit his/her grievance in writing documenting the merits of his/her case **within a week of receiving the graded assignment**. No claims will be accepted after one week.

Exams

If a student disagrees with the grade obtained in the midterm exam, he/she should submit his/her grievance in writing **during the lecture when the graded exam is handed back**. No claims will be accepted after this period.

Satisfactory In-term Performance

In order to achieve Satisfactory In-term Performance, a student needs to complete at least 50% of all pre-final term work; specifically, three assignments and the midterm exam.

Unsatisfactory in-term performance will lead to a failing grade in this course (the letter grade F, which carries 0.0 grade points), regardless of the student's performance in the final exam.

Missing a Deadline or Examination

Missing a deadline will result in obtaining a grade of zero in the corresponding course component. If a student is in a situation where he/she cannot meet a deadline, he/she should contact the instructor before the deadline expires to discuss a possible extension. Nevertheless, extensions are only granted in very special circumstances.

Students unable to write an examination because of illness or other circumstances beyond their control must contact the instructor in writing as soon as possible explaining the situation and requesting a deferred exam.

If a student misses the midterm exam and supports the absence with a medical certificate, the weight of the midterm exam *may* be transferred to the final exam in accordance to university regulations. The final exam in these cases may be longer than that given to other students who did not miss the examination in order to conduct a comprehensive assessment of the course material.

Final exam deferrals may be granted when the absence is supported by a medical certificate or appropriate documents that justify a deferral. Deferred exams are not granted for students who have made travel arrangements that conflict with the examination schedule.

For additional information please consult the Course Evaluation University policies at <http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/acadregsuniv2/>

Student Preparation

Prior to each lecture, students are required to complete the required readings and assignments for that session. All class discussions will proceed under the assumption that students have read the required material in advance.

Conduct

Students are expected to behave ethically and professionally throughout the course. Among other things, this code of conduct implies respecting other students and the instructor, attending lectures, being punctual, completing all assigned work, and minimizing class disruptions.

In addition, students are expected to perform all required work individually, unless it is explicitly stated that the work can be completed with their assigned groups. All exams, however, must always be completed individually. Any other forms of work-sharing might be considered unethical and could be penalized.

Changes to the Course Outline

Every effort has been taken to make the information in this document as complete and as consistent as possible. However, the instructor reserves the right to modify the course outline or required material at his discretion. If changes to this document are made, the instructor will communicate them to the students registered in the course and an updated version of the outline will be distributed either by email or through the course website.

Course Schedule and Readings (Tentative and Subject to Change)

Session	Date	Topic	Reading	Comments
1	Jan 8	Introduction	Hull, Ch. 1, 37 (Poitras, Ch. 1, 2)	
		Futures Markets and CCPs (Part 1)	Hull, Ch. 2 (Poitras, Ch. 3: II)	
2	Jan 15	Futures Markets and CCPs (Part 2)	Hull, Ch. 2 (Poitras, Ch. 3: II)	
		Hedging Strategies Using Futures	Hull, Ch. 3 (Poitras, Ch. 3: III)	
3	Jan 22	Interest Rates	Hull, Ch. 4	
		Determination of Forward and Futures Prices (Part 1)	Hull, Ch. 5 (Poitras, Ch. 4: I, II and IV)	
4	Jan 29	Determination of Forward and Futures Prices (Part 2)	Hull, Ch. 5 (Poitras, Ch. 5)	Due: Assignment 1
5	Feb 5	Introduction to Swaps	Hull, Ch. 7 (Poitras, Ch. 6: IV)	
6	Feb 12	Mechanics of Options Markets	Hull, Ch. 10	Due: Assignment 2
	Feb 19	Winter Break. Classes are suspended		
7	Feb 26	Midterm Exam		Midterm: Includes all of the material covered from sessions 1 to 6.
8	Mar 5	Properties of Stock Options	Hull, Ch. 11 (Poitras, Ch. 7: II)	
9	Mar 12	Trading Strategies Involving Options	Hull, Ch. 12 (Poitras, Ch. 7: III)	
10	Mar 19	Binomial Trees	Hull, Ch. 13	Due: Assignment 3
11	Mar 26	The Black-Scholes Model	Hull, Ch. 15	
12	Apr 2	Options on Stock Indices and Currencies	Hull, Ch. 17 (Poitras, Ch. 8: IV, V)	
		Employee Stock Options	Hull, Ch. 16	
13	Apr 9	Introduction to the Greeks and Portfolio Management	Hull, Ch. 19 (Poitras, Ch. 9: I, IIA, IIB, III)	Due: Assignment 4
-	TBA	FINAL EXAM		Final Exam: Includes all of the material covered in the course.

Additional University Policies

Course Sharing Websites	Student or professor materials created for this course (including presentations, notes, labs, case studies, assignments and exams) remain the intellectual property of the author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s).
Required Calculator in BUSI course examinations	If you are purchasing a calculator, we recommend any one of the following options: Texas Instruments BA II Plus (including Pro Model), Hewlett Packard HP 12C (including Platinum model), Staples Financial Calculator, Sharp EL-738C & Hewlett Packard HP 10bII.
Mobile Devices	The use of mobile devices IS NOT PERMITTED in this class. It is disruptive to the instructor and class members. If you carry such a device to class, please make sure it is turned off. If an emergency situation requires you to keep it turned on, please discuss this with your instructor prior to class.
Group Work	<p>The Sprott School of Business encourages group assignments in the school for several reasons. They provide you with opportunities to develop and enhance interpersonal, communication, leadership, followership and other group skills. Group assignments are also good for learning integrative skills for putting together a complex task. Your instructor may assign one or more group tasks/assignments/projects in this course.</p> <p>Before embarking on a specific problem as a group, it is your responsibility to ensure that the problem is meant to be a group assignment and not an individual one.</p>
Persons with Disabilities	<p>The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (<i>if applicable</i>). Requests made within two weeks will be reviewed on a case-by-case basis. After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website (www.carleton.ca/pmc) for the deadline to request accommodations for the formally-scheduled exam (<i>if applicable</i>).</p>
Centre for Student Academic Support	<p>The Centre for Student Academic Support (CSAS) is a centralized collection of learning support services designed to help students achieve their goals and improve their learning both inside and outside the classroom. CSAS offers academic assistance with course content, academic writing and skills development. Visit CSAS on the 4th floor of MacOdrum Library or online at: www.carleton.ca/csas/</p>

Additional University Policies Continued

Religious Observance	<p>Students requesting academic accommodation on the basis of religious obligation should make a formal, written request to their instructors for alternate dates and/or means of satisfying academic requirements. Such requests should be made during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist, but no later than two weeks before the compulsory event.</p> <p>Accommodation is to be worked out directly and on an individual basis between the student and the instructor(s) involved. Instructors will make accommodations in a way that avoids academic disadvantage to the student.</p> <p>Students and instructors can confirm accommodation eligibility of a religious event or practice by referring to the Equity Services website (http://carleton.ca/equity/accommodation/religious-observances/) for a list of holy days and Carleton's Academic Accommodation policies. If there are any questions on the part of the student or instructor, they can be directed to an Equity Services Advisor in the Equity Services Department for assistance.</p>
Pregnancy	<p>Pregnant students requiring academic accommodations are encouraged to contact an Equity Advisor in Equity Services to complete <i>a letter of accommodation</i>. The student must then make an appointment to discuss her needs with the instructor at least two weeks prior to the first academic event in which it is anticipated the accommodation will be required.</p>
Academic Integrity	<p>Violations of academic integrity are a serious academic offence. Violations of academic integrity – presenting another's ideas, arguments, words or images as your own, using unauthorized material, misrepresentation, fabricating or misrepresenting research data, unauthorized co-operation or collaboration or completing work for another student – weaken the quality of the degree and will not be tolerated. Penalties may include expulsion; suspension from all studies at Carleton; suspension from full-time studies; a refusal of permission to continue or to register in a specific degree program; academic probation; and a grade of Failure in the course, amongst others. Students are expected to familiarize themselves with and follow the Carleton University Student Academic Integrity Policy which is available, along with resources for compliance at: https://carleton.ca/registrar/academic-integrity/.</p>
Sprott Student Services	<p>The Sprott student services office, located in 710 Dunton Tower, offers academic advising, study skills advising, and overall academic success support. If you are having a difficult time with this course or others, or just need some guidance on how to successfully complete your Sprott degree, please drop in any weekday between 8:30am and 4:30pm. Our advisors are happy to discuss grades, course selection, tutoring, concentrations, and will ensure that you get connected with the resources you need to succeed! http://sprott.carleton.ca/students/undergraduate/learning-support/</p>
University Dates and Deadlines	<p>Important university dates and deadlines can be found at https://carleton.ca/registrar/registration/dates-and-deadlines/</p>