ECON*3760

Fundamentals of Derivatives, W15, Credit weight 0.5

General Course Information

Instructor: Dr. Francesco S. Braga, Room 209, J.D. MacLachlan Building
Ph. 519 824 4120 ext 52763, e-mail fbraga@uoguelph.ca

Class Schedule: Tue, Thur, 8:30-9:45,
MCKN, Room 226

Office Hours: 209 MCLN, Wed 8:30-10:30. Thur 10:30-11:30
In exceptional cases also by appointment arranged via email, please provide 48 hr notice.
Only UoG email addresses will be monitored. Please do not use external email addresses.

Pre-requisites: ECON*2310, (1 of ECON*2560, ECON*3460, ECON*3560)

Course Description

This course is about fundamentals of derivatives in the context of price risk management, an essential corporate function. Students in this course will develop an appreciation for the fundamental aspects of derivatives and the working of derivative markets, the essential pricing behaviour of derivatives, and how to use derivatives to reduce price risk in a number of risk management contexts. Students will acquire specific disciplinary skills and knowledge, and will be challenged to use them to develop a risk management policy for a client with a specific price risk exposure. In order to accomplish this, students will have the opportunity to integrate their disciplinary skills from this course and from other courses (mainly from economics, as well as marketing and financial management), to produce a sound, precise and comprehensive recommendation which will be presented and defended in class. This exercise will afford students an opportunity to explore the empirical application of specific disciplinary knowledge, and to develop specific communication skills using specialized language.

Derivatives are considered an essential and very useful tool of modern management, despite what media may say about derivatives horror stories. We will spend a reasonable amount of time working on the appropriate structure of the risk management function, what can be asked of this function, what this function can contribute to the corporation, how to design and implement in the marketplace the appropriate strategy to secure the expected contribution. Emphasis is placed on how this senior managerial function can be used to modify the risk exposure of the corporation according to corporate objectives and strategies and environmental as well as corporate conditions. Appropriate consideration will be given to corporate governance and ethics principles as applicable to a price risk management function and illustrating their role in any sound price risk management corporate protocol/policy.

This course devotes a reasonable amount of time to the coverage of technical analysis (TA). TA is presented as a timing and forecasting tool complementing fundamental analysis. The emphasis on technical analysis is aimed at

improving the timing of the trading decision (market entry / exit) in the context of a selective hedging strategy; the emphasis on timing of the trade is quite innovative and is well complemented by the comparison of the strategic differences of the various orders (limit, market, market if touched, stop etc.).

The current situation of global financial markets offers a great opportunity to understand and deal with a "live" risk management challenge. For this reason, students will be expected to remain current by reading financial news daily (example: Globe and Mail, Financial Post). The purpose is to encourage a disciplined approach to access information and to the reasoned review and understanding of possible market consequences.

Course Objectives

a- To develop professional disciplinary skills as well as the communication and presentation skills that, properly nourished and perfected, can support a professional career in this area of economic and financial activity.

b- To offer students the opportunity to be "infected" by scientific (research emphasis) as well as professional (industry application emphasis) interest and curiosity for derivatives markets. Hopefully, this will ensure the life-long commitment to disciplinary professional development.

c- To help students become better citizens: the development of an unbiased and comprehensive appreciation of derivatives markets is complemented by an organic treatment of relevant corporate governance and ethics issues both at the retail level ("know your client") and at the corporate level ("proper policies and controls").

Course Conduct

The course will consist of conventional lectures, problem solving exercises, and team work (major paper). Together we will establish a positive and proactive classroom environment: we will work hard but also promote a positive environment. Basic rule: mutual respect and clear, honest communication. As set by U of G's academic regulations, students wishing to claim medical or compassionate reasons must comply with the appropriate academic regulations reported in the current University of Guelph undergraduate calendar.

Compliance requirements

Compliance with appropriate rules and regulations is essential in derivatives markets and in this course. It is your responsibility as a student to be aware of and to abide by all relevant policies set by the UoG and the Dept. of Economics, for example: those on academic misconduct, e-mail communication, maintaining copies of out-of class assignments, what to do when you cannot meet a course requirement and the drop date for this semester.

To indicate that you have read this outline and are familiar with all relevant policies, please sign and return to me the form at the last page of this outline. This will affirm your Compliance. Do so not later than the start of class 3. Please note: I will not give you any academic credit until I receive the signed form. Consider this as part of your Due Diligence for this course.

Course communication

Messages and course material will be posted on CourseLink. It is your responsibility to monitor it. Communication will use only the official UoG email address, as listed by the Registrar in the course class list.

No changes of email address are possible. If you need to email me, please use only this address: fbraga@uoguelph.ca. IMPORTANT: always start the Subject Line with "3760 W15", this will help my incoming email screening. I do not accept responsibility for missing subject / improperly addressed emails.

Grading Scheme

Course component (for dates see a complete schedule in Appendix A)	Marks
7 Top Hat Monocle (THM) in class short tests (7 x 3) ([a])	21
Mid Term (MT), on Feb 12, individual exam, open book ([b])	20 (10)
Final exam, as set by Registrar, comprehensive individual exam, open book ([b])	30 (40)
Major paper report and presentation, by team, with team mean preserving peer evaluation	20
Instructor discretion ([c])	9

(a) A total of 8 THM tests will be run. In principle 3 questions per test, 1 point per correct answer, 0 point (no penalty) per incorrect answers. Best 7 results will be considered, this will allow for a one test absence. Tests will normally be run on Thursday in week 2-5 and 7-10. Instructor reserves the right to modify this schedule if and as needed.

(b) In order to recognize and reward improvement, if the result in the Final is over 60% and better than that of MT, the marks awarded in MT drop to 10 and those awarded in Final increase to 40.

(c) Instructor discretion marks normally will revert to the average of other course components, but the instructor reserves the right to "mark to market" for outstanding or poor class contribution, as appropriate. Please note: if the combined result of the MT and final is <60% (i.e. less that 30 points in total), no points will normally be earned here.

Course Resources

Strongly recommended

1- Fundamentals of Futures and Options Markets 8th ed. John Hull ISBN 978-0-13-299477-1 Pearson 2014.

You may also want to browse (not required, just mentioned here as a reference)

2- Chart Patterns, Bruce M. Kamich, ISBN-13: 978-1576603000, Bloomberg Press, 2009

Quite simply, Hull's book is the gold standard of derivatives courses, and it covers the fundamental theory. Any analyst can choose to be as applied as desired and appropriate but cannot function professionally without a good understanding of this theory. Kamich's work offers an introduction to technical analysis (TA), which I consider an essential tool for every analyst, even if only to help with the timing of execution of market entry and exit decisions. Purists tend to ignore TA. Pity, they do so at their own peril. To be clear: TA is in addition to, not in replacement of more mainstream tools.

You should consider purchasing Hull's book if you are seriously interested in the material covered by the course. Specialized material developed by the instructor for this course will be delivered electronically, via CourseLink after its classroom use.

Material on Courselink

Please monitor the course page on CourseLInk. © material will be posted there for your royalty-free use in this

course whule you are registered in it. No other use, copying, storage or distribution is allowed.

Use of Top Hat Monocle (THM)

THM will be used in this course. It is your responsibility to purchase a semester membership (in case you did not have one already) and have it up and running by the start of class 3. Course will be listed as "ECON3760W15" and will be open on Thursday Jan 8th 2015. Please refer to www.tophatmonocle.com.

Policy on accessibility regarding the purchase of THM

The Government of Ontario requires that students be provided a no-extra-cost option for obtaining a course credit. A limited number of free licenses are available for students in financial need – contact Prof. Braga no later than January 9th. Should you have financial need which may prevent you from purchasing the hardware necessary to use MonocleCat, contact Prof. Braga no later than January 9th for alternate arrangements. Please note: MonocelCat works with either a laptop or a cell phone.

Course Content, Deliverables

A detailed schedule of classes is presented in Appendix A. This schedule may be modified as appropriate given specific class requirements and market developments.

Market developments

During this course, Students must follow newspapers and / or online news feeds of their choice, and be current on main economic and market developments. Students will be randomly asked to comment on "mainstream" economic / business news developments and how derivatives may be relevant to deal with the situation. The objective of this exercise is to impress on the students the absolute need to remain current on market conditions and developments, and reflect on the same in order to gradually develop broader analytical skills. Common sense will be used in selecting important "mainstream" developments, not obscure narrow details. For illustration purposes, students consulting the Financial Post, Globe and Mail and similar sources will be adequately prepared for this exercise. A suggested format for a comment: what is the news; why is it news, what is its scope, context and time domain; who is impacted, what it means to impacted parties, what can / should they do about it (using derivatives if and as appropriate). Keep it short and to the point.

We will focus on major commodities (financials, energy, precious metals, ag & food, carbon markets, and so on), as well as regulatory and political events with relevant market impact (ex: ongoing EU crisis). This is an effort to convince students of the importance of remaining current on market developments and to gradually develop critical analytical skills. Here as always in the course we will work to build information from raw data, and produce intelligence from information, and professional wisdom from intelligence: from numbers to their meaning, to understanding the implications of information, to deciding what to do about it:

Raw data ➔ Information➔ Intelligence ➔ Professional wisdom.

Here:
Raw data = the raw numbers and qualitative info bits;
Information = raw data organized in meaningful formats: what they mean;
Intelligence = information analysed in a broader context: what the implications to me/my firm;
Professional wisdom = what opportunities/risks are provided by intelligence, what to do about them.

The Team project

The objective of team project is to allow students an opportunity to develop advanced disciplinary skills, while

integrating skills acquired in other courses, and develop better communication skills. Specific risk management challenges are suggested in Appendix B, immediately following the schedule of classes. These are examples and students are encouraged to select one of the proposed themes, or develop their own project, in consultation with the instructor (who reserves the right to approve a different proposal or to assign one of the proposed projects). First come - first served principle: not more than one teams will be allowed to work on the same topic. Dropbox time stamping will decide the issue. Please note: the final report will be structured as a consulting report on the specific problem.

Team project deliverables

The main deliverable of this exercise is the final report to your client, to be presented and discussed in class. The report should be professionally sound and sufficiently complete to be the base for a "case" to be used in a context equivalent to this course. These steps, each with specific deliverables, are expected.

a- **The mandate**: selection of the topic. This is subject to instructor's approval, and it is written up as a consulting mandate agreement between a client and the team of consultants. The mandate is to be filed in the appropriate CourseLink dropbox by the date indicated in Appendix A.
Missing this deadline will cost 5% of final project marks per day or fraction thereof.

b- **The first draft** (up to 10 pages) should consist of a progress report to the client, showing the results of the work completed and work planned to meet the scheduled deadline. The instructor may, on behalf of the Client, ask for modifications within a week of filing this. This first draft should also outline any modification to the original mandate that was adopted by the team; it is understood that major modifications must be negotiated with and agreed upon by the Instructor. This first draft is to be filed in the dropbox in CourseLInk by the date indicated in Appendix A.
Missing this deadline will cost 10% of project marks per day or fraction thereof.

c- **The final report** (15-20 pages) builds on and completes the progress report. The final report should be properly "formatted". It should consist of : Cover page with title and names and ID of all team members (these are often missed). Executive Summary stating the key objectives of the work and its key empirical findings and recommendations (1 – 2 pages). Mandate / Problem Statement (recommended size: 1.5 to 2 pages) which should define the team's mandate, establish market context, and state the objectives of the work that will be completed. Body of the report with: methodological choices and their rationale (1 page); data used (0.5-1 page); results, discussion of their meaning and implications (5-7 pages); conclusions (1-2 pages); exhibits; references. Do not forget to add a proper table of contents, list of tables, and list of figures. A hard copy of this work must be handed in in class not later than the deadline set in Appendix A. By the same deadline, an electronic copy of the final report must be filed in the dropbox in CourseLInk. Only Word or pdf files readable in a windows environment will be accepted. It is your responsibility to check that the file is uploaded properly and that it is readable in a Windows environment. **Missing this deadline will cost 20% of project marks per day or fraction thereof.**

The electronic file will be available for all students to read before the final presentations scheduled for the last week of classes (schedule in Appendix A) All presentations will be peer evaluated in class using THM.

Please note: the final written report should include a review of relevant market fundamentals, an analysis of current technical factors, and an overall assessment of market conditions, all resulting in logical and precise recommendations to the client. It is therefore essential to position your report in relation to the current market context. The final report will be presented and discussed in class. Your client is fast paced and sophisticated.

You must drive your key points effectively! Each group will have 15 minutes for the presentation of the final report and 5 minutes for a Q&A session.

Teams

A number of teams of 6 students have been randomly formed and will be posted by the open of business the day of the first class. Late adds (if any) will converge in a new team and will not be allowed to join an existing one. Please note: a late course drop would clearly disrupt a team. This would not be fair to the remaining students. As a sign of respect for their colleagues, to the extent possible, students are invited to make up their mind regarding their commitment to this course within the first week of classes. The Instructor reserves the right (but does not have to) to merge two teams that had experienced a significant decline in membership (indicatively: to not more than 2 students); in deciding this, the instructor will also consider the disruption cost of a late merger (possible change of topic, group dynamic etc). This is a normal risk of doing business in a competitive environment. Talent suddenly may disappear and you have to make up for the loss.

Short in class tests using THM

Eight short tests will be held in class using THM. Practice exercises and readings will be released in advance of the test. The tests will cover similar - not identical – material. Students are free to work on this pre test material alone or with peers. Free riding is discouraged, as these assignments are important learning opportunities. Each student will work independently on the tests. You will need to be in class to complete the test. Due to the obvious impossibility to check for process integrity for "off shore" / not in class students, only test submitted by in class students will be marked.

Department of Economics and Finance, Learning Outcomes Skills and Knowledge Competencies

Skills:

This course deals with foundations of derivatives as risk management tool and on the development of an appropriate risk management strategy given a client`s exposure. The following skills will be developed (I prefer to present these skills as they relate to specific course activities):

- Written Communication (Skill 1); Oral communication/presentation (Skill 2); Group work (Skill 6).
  Specific activity: Major Paper and its presentation.

  Students will be divided in teams; each team will deliver a major written report on one of the risk management problem suggested by the Instructor or on a problem of their own choice. Each team will assume the role of a professional providing a risk management service to their client. The written report will follow the format of a specialized professional report to the client, and will be graded also on language and overall structure. Each report will be expected to define the problem and provide relevant suggestions on how to manage / solve / transfer it (in a manner suitable for a layperson not familiar with derivatives). Student will strive to complete the evolution from raw data to information to intelligence and to professional wisdom. The report will present this wisdom. The instructor will grade the written report and the class presentation of its key points. The presentation to class will also be peer graded using THM.

- Numerical problem solving (Skill 3); Analytical problem solving (Skill 4); Problem solving in real world context (Skill 5).
  Specific activity: Mid Term; Final exam; THM tests.

Each student will use sound professional guidelines to define a risk management strategy suitable for the risk exposure of their client. To be valid, this solution will have to explicitly acknowledge and properly deal with current market conditions. To be sound, it will need to measure the exposure and to define the appropriate derivatives position to reduce the risk. Accordingly, each student will learn to logically define and measure quantitatively the (components of) risk exposure faced by a client's portfolio; to determine the appropriate number of futures /options or other derivative contracts necessary to transfer / modify this exposure; to quantify the mechanics of marking to market of this portfolio and measure the necessary margin calls or excess margin. Several short exercises as well as the two mid terms will assess a student's capacity to solve essential risk management problems, and determine a recommended hedging strategy. As noted, when discharging this task, students will be required to include an assessment of the impact of relevant market conditions in their solution.

- Professional and ethical awareness and conduct (Skill 8).
  Specific activity: Individual class conduct, Team work.

  This will be expected and will be tested in both the report and some of the questions. This refers to avoiding academic misconduct and proper modelling of derivatives use in the context of a risk management strategy. This will be tested by verifying the capacity of the student to properly design a risk management strategy.

Knowledge:
The specific knowledge that will be gained in this course includes: Understanding of Specific Markets (Knowledge 5); Historical and Global context (Knowledge 6); Economic Policy and Regulation(Knowledge 7); Financial Asset Pricing, and Risk Analysis (Knowledge 8).

- Understanding of Specific Markets (Knowledge 5); Historical and Global context (Knowledge 6); Economic Policy and Regulation(Knowledge 7).

  As student work to design a relevant and sound risk management strategy, they will become aware of the opportunities and limitations of hedging strategies in specific commodity markets (Knowledge 5), including: financials – equities, bonds, exchange rate, precious metals; energy – oil, nat. gas; agricultural – grains and oilseeds, meats, soft commodities; metals . To be effective, a risk management strategy must be built on the sound understanding of the given market, the evolution of its past, present and future conditions, both locally and increasingly globally, and its relations with many other global markets(Knowledge 6,7); its overall structure and pricing transmission efficiency, both locally and globally; its policies and regulations both locally and globally in particular as they may affect free price transmission and flow of goods (Knowledge 7).

- Risk Analysis (Knowledge 8).

  In addition students will develop their knowledge of financial asset pricing (for example rational options pricing) and the capacity to use it to build elementary synthetic instruments with a specific risk profile that could be added to an existing portfolio to modify as desired (or as close as possible to what is desired) the risk profile of a client`s overall portfolio in a manner consistent with a properly developed appropriate risk management strategy (Knowledge 8).

Please note: the specific knowledge mentioned above will be perfectly transferrable across markets and

conditions, for example from exchange rates to orange juice and interest rates. Specific market conditions and regulations will obviously differ. The overall knowledge governing the use of derivatives does not. Accordingly this course deliver on the commitment to provide the foundations of profitable derivatives use to reduce / modify / transfer / initiate a given risk exposure. This intended as a key managerial and entrepreneurial function, proper of an efficient and effective company / public organization / non profit entity. Derivatives are a positive tool, providing efficient and effective solutions to some market challenges, and delivering efficient controls to price risk exposures.

Course Policies

Grading Policies

https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-grds-proc.shtml

Religious Holidays

Please check all due dates in this outline. If any is a conflict with a religious date, please notify me in writing and propose a needed accommodation. The deadline to complete this is the start of Class 3. I will set up a formal meeting and agree on proper accommodation. I commit to do so in a fair manner, using common sense. You will need to Comply with the deadline for notification set above (beginning of Class 3). I will not be able to accommodate any late notification.

Use Common Sense

My personal preference is to establish a class environment which builds on trust and mutual respect. Granted the difference in roles, I like to think of senior students as junior professional peers. This means that I will listen carefully to you, I will trust you, and will extend as much flexibility as professionally reasonable and possible. I expect a similar professional commitment. Do not mistake my constructive flexibility with naïve behaviour; I despise and cannot accept any attempt to free-ride; misrepresentation of any kind does upset me! More importantly, it constitutes academic misconduct. I will not police you, I will offer you occasions to grow as learners, occasions I believe worth of your attention. I will present to you these opportunities once only, will not issue orders, nor will I police your compliance with a reasonable timeline. Of course consequences will apply if you do not deliver what is appropriate, when it is expected. In short: I will assume you are responsible grown-up. I commit to flexibility and common sense, I do know that special personal situations may arise, if this is needed…let's talk. That stated, proper rigour will be used to deal with any and all academic misconduct situations.

Please note:

"The electronic recording of classes is expressly forbidden without the prior consent of the instructor. This prohibition extends to all components of the course, including, but not limited to, lectures, seminars, and lab instruction, whether conducted by the instructor or a seminar leader or demonstrator, or other designated person. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor."

University Policies

Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic

calendar for information on regulations and procedures for Academic Consideration:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.
University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.
The Academic Misconduct Policy is detailed in the Undergraduate Calendar:
https://www.uoguelph.ca/registrar/calendars/undergraduate/2014-2015/

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services as soon as possible.
For more information, contact SAS at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website:
http://www.csd.uoguelph.ca/csd/

Course Evaluation Information

Please refer to https://www.uoguelph.ca/economics/course-evaluation

Drop date

The last date to drop one-semester courses, without academic penalty, is March 6th, 2015**.** For regulations and procedures for Dropping Courses, see the Academic Calendar:
https://www.uoguelph.ca/registrar/calendars/undergraduate/2014-2015/

Appendix A: Schedule of Classes

ECON3760 W15. Course content and deliverables by week.		
Week	Date	Content, deadlines, events
W1	05-Jan	Team assigned. Membership posted in Course Link
	06-Jan	Presentation of the course: objectives and their rationale; structure and content. Traditional classes; discussing problems; current events reporting; nature of and expectations for major project. Team formation. Summary of Course Deliverables and key course dates. Basic derivatives: futures contracts options contracts, basis contracts, forward contracts (initial part).
	08-Jan	THM test 0 - clearing issues with THM. Practice - no marks. Basic derivatives completed. Definition of risk, hedging, risk management, basic derivatives.
W2	13-Jan	Hedge example for buyer of commodity, for seller of commodity: size, side, timing (using futures).
	15-Jan	THM test 1 - Basic derivative recognition. Risk profiles of derivatives instruments: meaning, how to build and how to use them. Derivatives markets working, margin accounts, marking to market, clearing process, account management, principle of substitution, delivery process, cash settlement process.
W3	23-Jan	Project selection decision due. Drop box closes at 4:00 pm.
	20-Jan	Components of cash price risk: their operative importance. How to manage these components, common derivatives normally available to deal with different components of price risk.
	22-Jan	THM test 2 - Risk profiles recognition, Marking to market, Clearing process Price risk management as corporate function. Corporate role and responsibilities.
W4	30-Jan	Project selection confirmed. Feedback posted on CourseLink at 5 pm.
	27-Jan	Options and the Greeks Synthetic instruments: mixing and matching basic derivatives to obtain the desired risk profile
	29-Jan	THM test 3 - risk and hedging size side and timing; price components: futures currency basis Technical analysis. Illustration of basic tools and their practical application by inspecting current market conditions for main commodities
W5	03-Feb	Technical analysis. Illustration of basic tools and their practical application by inspecting current market conditions for main commodities
	05-Feb	THM test 4 - Comparing different derivatives instruments; Options and the Greeks Pre - mid term review
W6	10-Feb	**Mid Term to and including class of Jan 29. Open book. No marks for pencil-written text.**
	12-Feb	Teams work on their own project. No formal classe on Feb 12. Possible consultation with instructor via email also during break. Please use discussion in Courselink and budget a 2-day turnaround (technical issues may disrupt this process as the instructor is travelling during this period).
W7	17-Feb	Reading Week. Possible consultation with instructor via email also during break. Please use discussion in Courselink and budget a 2-day turnaround (technical issues may disrupt this process as the instructor is travelling during this period).
	19-Feb	
W8	27-Feb	Term project progress report due on Monday February 27, drop box closes at 4:00 pm.
	24-Feb	Orders, their practical meaning. Using TA to time order placement and market entry / exit decisions.
	26-Feb	THM 5 - technical analysis Advanced basis, rational determination for storable commodities.
W9	05-Mar	Term project feed back posted to dropbox.
	03-Mar	Dealing with currency risk: exchange rate derivatives
	05-Mar	THM 6 Advanced basis Managing a portfolio: Stock market derivatives
W10	10-Mar	Managing interest rate risk: short term and long term interest rate derivatives
	12-Mar	THM 7 Exchange rate and stock market derivatives Managing energy risk: energy complex, crude oil, natural gas, distilled products
W11	17-Mar	Manging air quality: carbon market derivatives; Precious metals; bullion vs. ETF. Other Metals.
	19-Mar	THM 8 Interest Rates and Energy Managing scarcity: traditional ag and food derivatives. Fireworks vs starvation.
W12	22-Mar	Final team project due, dropbox closes at 4:00 pm.
	24-Mar	Course review: Q& A preparing for final. Team presentation schedule for Mar 26, 31 Apr 2 confirmed.
	26-Mar	Team presentation, team 1-3. THM-based peer evaluation of each presentation.
W13	31-Mar	Team presentation, team 4-6. THM-based peer evaluation of each presentation.
	02-Apr	Team presentation, team 7-10. THM-based peer evaluation of each presentation. Note: if teams <10, presentations will be scheduled with fewer teams per day and confirmed on Mar 24.

Appendix B: Project Suggestions

Trade a commodity or commodity producers?
The practical aspects of cross hedging investment opportunities. Three projects: one focussed on grains and oilseeds; one on energy; the last one on precious metals.

1. An independently wealthy investor wants some exposure to coarse grains and oilseeds (wheat, corn, soybeans). A broker has suggested this investor to go long Potash (POT on the TSE) Corp. of Saskatchewan. The investor has retained your team to provide some strategic and quantitative advice. The investor is in fact quite interested in this choice, but first wants you to assess how well POT (and other fertilizer producers) tracks the price of these commodities. In essence, the investor wants the answer to this question: How well can you track commodities by trading POT (and other fertilizer producers)? Minor number-crunching (regression) will be required. Data will be largely provided by instructor; you will search the market fundamentals, estimate the regression and prepare a report to this investor. Emphasis on the explanation of the findings
2. Same as (1) above, only now the investor wants exposure to energy markets, and considers investing in Royal Dutch Shell, British Petroleum, Suncor and Encana. Commodity considered: West Texas Intermediate Crude Oil, Brent Crude Oil, and North American Natural Gas.
3. Same as (1) and (2) above, only now the investor wants exposure to precious metals and is considering investing in large, established Canadian producers: Goldcorp, Kinross, Yamana. Commodity considered include Gold and Silver.
4. This is a modification of (2). Given the plunge in oil prices, and the ensuing adjustment in share prices, describe how you would trade derivatives to take advantage of your view on markets. In essence: are oil prices to drop further, and if so how to take advantage of this evolution using derivatives; or are they going to recover quickly and in the short run, and here again how would you use derivatives to take advantage of this market view. Remember: markets may be unpredictable, so here and in any other project do not ignore a safety strategy inn case your forecast are (unfortunately) wrong and market surprise you.

Pricing Carbon.
Carbon markets are fast developing (or at least planning to be developed). CO2 trading is expected to become one of the "hottest" commodities.

5. The University of XYZ (i.e. your choice other than Guelph) wants to reduce its overall carbon footprint: (a) map different (proposed) carbon policies in North America; (b) Indicate what organized markets exist to trade CO2; (c) Explain how these derivatives markets could be used by the university to achieve its footprint reduction objectives.
6. You may change this for any large user such as a School Board / Hospital.

Natural Gas
7. Natural gas prices are low, in particular when compared to crude oil prices: based on energy content the price of crude oil futures should be about 6 times that of natural gas... the ratio in the first part of 2014 was actually around 25 – 30. This is now much changed, but the ratio is still off… How long will this last? If we only knew... we'd be rich.

You are the natural gas procurement manager for a pool of Ontario universities. Develop a procurement strategy with a reasonable risk management component. Your reference time frame is the 3 year period from Jul 1, 2015 to Jun 30 2018.

Crude Oil

8. Two crude oil contracts trade on large organized exchanges: West Texas Intermediate (WTI) is traded in NY and Brent Crude (North Sea) is traded in London. WTI is a lighter crude and it used to have a higher price than North Sea Crude. Recently the WTI – Brent spread (difference) has narrowed to approximately -10 USD/barrel, but in the last three years the spread reached about -20 USD/ barrel. The team will search public info sources to complete fundamental analysis that will be used to explain (a) what factors drive the spread; (b) what has changed and forced a reversal in the spread (ie from a +ve to a –ve spread); (c) whether the spread is likely to remain in place short term (next 3-5 years) and / or how to trade the spread if one expected the same to widen / narrow further and eventually reverse back to a +ve value.

Industrial processor of commodities

9. Develop a comprehensive risk management plan for a corporate client purchasing commodity inputs and selling processed / manufactured products world-wide. Examples may include an oil refinery; an auto parts manufacturer or a goldsmith. What are the key price risks faced by this company? How can they be hedged? More than focussing on a most challenging numerical result, focus on the logic context to develop a set of written policies to detail your risk management strategy and secure its discussion and approval by the Board of Directors.

Precious metals

10. Precious metals have had a terrific run in the recent years. Then the price collapsed. According to some analysts each investor should hold between 5% and 10 % of their portfolio in bullion or "quasi-bullion". Explore available trading alternatives to holding physical bullion, and illustrate how you would execute this portfolio exposure, and based on your reading of markets recommend a 5% or a 10% exposure. Your client is a 35 year old professional couple with reasonable income and economic prospect for the future.

Interest rates

11. Interest rates have been quite low in the developed world, the quantitative easing by the Federal Reserve (QE2) in the US help keep rates low. QE2 is now defunct and rates may be increasing in the near to medium term. You lead a team of investment bankers responsible for developing a plan to cover a Canadian real estate developer from interest rates risk. The developer is currently borrowing on an interest only line of credit at a variable rate set to (US Eurodollar 3-month rate plus a spread of 2%). This rate is reset quarterly (assume Mar 1 Jun 1 Sep 1 and Dec 1) according to the rate of the expiring futures on that day. You must manage the risk of higher rates for the next 3 years, starting on Jun1 2015 to May 31 2018. Please detail how you would proceed in this important task. Initial investments are 50 million USD, and you expect an additional 10 million invested on Dec 1st 2015, and Dec 1st 2016.

Macro developments for an investment portfolio

12. Will we have a European melt down with countries leaving the Euro? Will sanity prevail? We are not going to take a political position, rather act on behalf of a client with a significant portfolio (50 mil Euros) invested 60% in European equities and 40% in European bonds. You should assist this investor define a strategy to use derivatives to protect his portfolio, in different market conditions (you must define these). Outline the key drivers of each strategy and illustrate how to implement and monitor it. Time-frame: assume 2-year period June 1 2015 – May 31 2017.

Agreement Concerning Compliance with University and Course Policies

(Form adapted from a course outline by Prof. Ross McKitrick)

I hereby acknowledge that I have reviewed Departmental and University policies on Student Responsibilities and Degree Regulation and Procedures, as well as Course Policies in the W15 outline of ECON*3760*01. In particular I am familiar policies on Academic Misconduct and plagiarism outlined here:

• http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c01/index.shtml
(Statement on Students' Academic Responsibilities)
• http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml
(Undergraduate Degree Regulations and Procedures)

"*I acknowledge that I may not copy text, images or other material from internet sources, other students, or elsewhere, and present it as my own work. Any amount of text taken word-for-word from another source must either be presented as a quotation and its source acknowledged, or re-written in my own words. Failure to do so constitutes plagiarism and is an Academic Offence.*

I acknowledge that rewriting must constitute a comprehensive rephrasing of source material. It is not sufficient merely to make trivial changes while retaining the original wording. For example, comparing the following two sentences:

i. Academic misconduct is behaviour that erodes the basis of mutual trust on which scholarly exchanges commonly rest, undermines the University's exercise of its responsibility to evaluate students' academic achievements, or restricts the University's ability to accomplish its learning objectives.

ii. Academic misconduct is behaviour that generally erodes the basis of trust on which scholarly exchanges commonly rest. It also undermines the University's exercise of its responsibility to evaluate all students' academic achievements, or it restricts the University's ability to accomplish all of its learning objectives.

the second is a trivial modification of the first.

I acknowledge that presenting one's own work after only a trivial modification of the original source is plagiarism.

I further acknowledge that it is the policy of the Department of Economics and Finance that all cases of suspected Academic Misconduct must be referred to the Dean's Office, and that no special arrangements for reduced penalties can be negotiated between faculty and students. It is my responsibility, if I am unsure whether I am in compliance with University rules on plagiarism, to seek advice from the faculty prior to submitting the work in question.

SIGNED: _____

Name (print) _____

Student ID: _____

Date: _____

RETUN TO INSTRUCTOR BY THE START OF CLASS 3