



Course Outline

ACT 370H1S - Financial Principles for Actuarial Science II

Summer 2021

L5101 Tuesday and Thursday 6:00pm - 9:00pm Online

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Office Location: St George Campus - TBA

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Course Scope and Mission

This course covers the analysis of derivative instruments such as forwards, futures, swaps and options. By the end of the course, students will have good knowledge of how these contracts work, how they are used and how they are priced.

Course Prerequisites

ACT240H1 (minimum grade C); ACT245H1 (minimum grade C); ACT247H1 (minimum grade C); (STA257H1, STA261H1); MAT237Y1/MAT257Y1

A basic understanding of financial instruments, a solid understanding of time value of money (to the level of ACT 245), an introductory course in probability and statistics (including probability distributions, pdfs, expectations, etc.), and some mathematical maturity.

Required Readings

Hull, John C., Options, Futures, and Other Derivatives, 10th Edition, Pearson-Prentice Hall. 978-0-13-447208-9

Hull, John C., Student Solutions Manual for Options, Futures, and Other Derivatives, 10th Edition, Pearson-Prentice Hall, 978-0-13-462999-5

Evaluation and Grades

Grades are a measure of the performance of a student in individual courses. Each student shall be judged on the basis of how well s/he has command of the course materials.

| <u>Work</u> | | <u>Due Date</u> |
|--------------------------|-----|---------------------------------------------------------------------|
| Quizzes (timed) | 20% | On-going (Proctored) |
| Assignment | 10% | Monday, August 16 th |
| RPM Project | 10% | Saturday, July 31 st and Monday, August 16 th |
| Midterm (timed) | 20% | Tuesday, July 27 th |
| Final Assessment (timed) | 40% | TBA - During Final Assessment Period |

COURSE FORMAT AND EXPECTATIONS

For Written Assignments:

Although the assignments may include mathematical problem sets, please note that clear, concise, and correct writing will be considered in the evaluation of assignments. That is, you may lose points for writing that impedes communication: poor organization, weak paragraph development, excessive wordiness, hard-to-follow sentence structure, spelling mistakes and grammatical errors. Students who require additional support and/or tutoring with respect to their writing skills are encouraged to visit the Academic Success Centre (www.asc.utoronto.ca) or one of the College Writing Centres (www.writing.utoronto.ca/writing-centres). These centres are teaching facilities – not editing services, where trained staff can assist students in developing their academic writing skills. There is no charge for the instruction and support.

Class Schedule - Section L5101

The following schedule of topics covered is subject to modification as the course progresses.

| Session | Topic | Readings |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------|
| 1: Tuesday, July 6 | Introduction, Mechanics of Futures Markets, Hedging Strategies Using Futures | Chapters 1, 2 and 3 |
| 2: Thursday, July 8 | Interest Rates | Chapter 4 |
| 3: Tuesday, July 13 | Determination of Forward and Futures Prices | Chapter 5 |
| 4: Thursday, July 15 | Interest Rate Futures | Chapter 6 |
| 5: Tuesday, July 20 | Swaps | Chapter 7 |
| 6: Thursday, July 22 | Mechanics of Options Markets, Properties of Stock Options | Chapters 10 and 11 |
| Tuesday, July 27th – Midterm Exam | | |
| 7: Thursday, July 29 | Trading Strategies Involving Options | Chapter 12 |
| Monday, August 2nd (Course Withdrawal Deadline) | | |
| 8: Tuesday, August 3 | Binomial Option Pricing Model | Chapters 13 and 18 |
| 9: Thursday, August 5 | The Black-Scholes-Merton Model Options on Stock Indices and Currencies Futures Options | Read Chapter 14 Chapters 15, 17 and 18 |
| 10: Tuesday, Aug 10 | The Greeks | Chapter 19 |
| 11: Thursday, Aug 12 | The Greeks (cont'd) and Special Topics (TBA) | Chapter 19 |
| Final Assessment Period (TBA - August 18th to 30th) | | |

POLICY AND PROCEDURE

Missed Tests and Assignments (including the midterm examination)

Students who miss a test or assignment for reasons entirely beyond their control (e.g. illness) may submit a request for special consideration. Provided that notification and documentation are provided in a timely manner, and that the request is subsequently approved, no academic penalty will be applied. Upon approval for a missed midterm examination, the weight will be shifted to the final examination.

Note that the physician's report must establish that the patient was examined and diagnosed at the time of illness, not after the fact. I will not accept a statement that merely confirms a report of illness made by the student and documented by the physician.

Late Assignments

Late submissions will not be accepted. Students who, for reasons beyond their control, are unable to submit by the posted deadline must obtain approval from the instructor for an extension. Supporting documentation will be required as per the policy on missed tests and assignments/deliverables.

Accessibility Needs

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible: accessibility.services@utoronto.ca or <http://www.accessibility.utoronto.ca/>.

Academic Integrity

Academic Integrity is a fundamental value essential to the pursuit of learning and scholarships at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the UofT degree that you earn will continue to be valued and respected as a true signifier of a student's individual work and academic achievement. As a result, the University treats cases of academic misconduct very seriously.

The University of Toronto's Code of Behaviour on Academic Matters

<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm> outlines the behaviours that constitute academic misconduct, the process for addressing academic offences, and the penalties that may be imposed. You are expected to be familiar with the contents of this document. Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment (this includes collaborating with others on assignments that are supposed to be completed individually).

On test and exams:

- Using or possessing any unauthorized aid, including a cell phone.
- Looking at someone else's answers.
- Misrepresenting your identity.
- Submitting an altered test for re-grading.

Misrepresentation:

- Falsifying institutional documents or grades.
- Falsifying or altering any documentation required by the University, including (but not limited to), medical notes.

All suspected cases of academic dishonesty will be investigated by the following procedures outlined in the *Code of Behaviour on Academic Matters*. If you have any question about what is or is not permitted in the course, please do not hesitate to contact the course instructor. If you have any questions about appropriate research and citation methods, you are expected to seek out additional information from the instructor or other UofT resources such as College Writing Centres or the Academic Success Centre.

Email

At times, the course instructor may decide to communicate important course information by email. As such, all UofT students are required to have a valid UTmail+ email address. You are responsible for ensuring that your UTmail+ email address is set up AND properly entered on the ROSI system. For more information please visit <http://help.ic.utoronto.ca/category/3/utmail.html>

Forwarding your utoronto.ca email to a Hotmail, Gmail, Yahoo or other type of email account is not advisable. In some cases, messages from utoronto.ca addresses sent to Hotmail, Gmail or Yahoo accounts are filtered as junk mail, which means that important messages from your course instructor may end up in your spam or junk mail folder.

Recording Lectures

Lectures and course materials prepared by the instructor are considered by the University to be an instructor's intellectual property covered by the Canadian Copyright Act. Students wishing to record a lecture or other course material in any way are required to ask the instructor's explicit permission, and may not do so unless permission is granted (note: students who have been previously granted permission to record lectures as an accommodation for a disability are, of course, excepted). This includes tape recording, filming, photographing PowerPoint slides, Blackboard materials, etc.

If permission is granted by the instructor (or via Accessibility Services), it is intended for the individual student's own study purposes and does not include permission to "publish" them in anyway. It is absolutely forbidden for a student to publish an instructor's notes to a website or sell them in any other form without formal permission.

Canadian Institute of Actuaries (CIA)s University Accreditation Program (UAP):

ACT370 is an accredited course under the UAP program. The minimum grade needed to apply for an exemption is 75. For detailed information on UAP, please visit the following webpages:

UAP description:

- <http://www.cia-ica.ca/membership/university-accreditation-program-home>

List of accredited courses offered by University of Toronto:

- <https://www.cia-ica.ca/membership/university-accreditation-program-home/accredited-universities>

How to apply for CIA exemptions:

- <https://www.cia-ica.ca/membership/university-accreditation-program-home/information-for-candidates>

Note: The CIA will grant credits to students for SOA/CAS examinations based on the achievement of the minimum Grade towards Associateship (ACIA) and Fellowship (FCIA) in the CIA. At the time of this agreement, CIA credits are recognized by the following actuarial organizations towards their respective designations:

- Casualty Actuarial Society (CAS): ACAS, FCAS
- UK Institute and Faculty of Actuaries (IFoA): FIA, AIA
- Institute of Actuaries of Australia (IAA): AIAA, FIAA
- Actuarial Society of South Africa (ASSA): AMASSA, FASSA
- American Academy of Actuaries (AAA): MAAA

The CIA does not guarantee that credits granted to students under the CIA UAP will be recognized by any other actuarial organizations towards their actuarial designations.