

UNIVERSITY OF TORONTO
DEPARTMENT OF STATISTICAL SCIENCES

ACT370 H1 S – Financial Principles for Actuarial Science II
Course Outline – Winter 2020

Class Time & Location (L0101 and L2001): Mon, 11:10 am - 12 noon RW 117
and Wed, 11:10 am – 1:00 pm RW 117

Instructor: J.G. Pitt
Office Location: HS 380K/section 388 (3rd floor), 155 College St.
Office Telephone: none
Email: greg.pitt@utoronto.ca
Office Hours: HS 380K/section 388 - by appointment
additional office hours before and after class - as posted

TAs: Steven Campbell – steven.campbell@mail.utoronto.ca
Lily Song – yy.song@mail.utoronto.ca

Official Course Description

Mathematical theory of financial derivatives, discrete and continuous option pricing models, hedging strategies and exotic option valuation.

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

Exclusion: RSM435H1

Hours: 36L

Distribution Requirements: Science

Breadth Requirements: The Physical and Mathematical Universes (5)

Program Area Section: Actuarial Science

Course Objectives

The successful student will learn how to perform basic options calculations and apply them to a wide variety of realistic financial situations. The course should also be helpful in preparing for professional actuarial examinations.

Recommended Texts: (none required)

McDonald: *Derivatives Markets*, 3rd ed., Pearson, 2013 (the principal SOA text)

Hull: *Options, Futures, and Other Derivatives*, 9th ed., Pearson, 2015

Pitt: *Exotica*, pre-print draft, 2020

Determination of Grades

assignment	5 %	Mar 09, beginning of class late penalty 33%/day
problem set contribution	1 %	Mar 12, beginning of class
quiz	9 %	Feb 10
test 1	20 %	Mar 02
test 2	25 %	Mar 18
final exam	40 %	April (tba)
TOTAL	100 %	

Last day to drop S section code courses from academic record and GPA: March 15 (Arts & Science)

Requirements and Criteria

For the assignments, you may consult with your fellow students, but submissions must represent individual effort. Problem set contributions should not be - and should not appear to be - the work of others.

Problem sets will be posted from time to time. These will include recommended book exercises, plus contributions from students, TAs, and the instructor. These questions are for practice and discussion and not for handing in and grading.

The quizzes and tests will take place during class hours, possibly in alternate rooms reserved for these tests. They may include any material covered up to the end of the previous class, unless stated otherwise in class.

The final exam may emphasize material not on the tests, but will still include questions from earlier material in the course.

For the tests, students will be permitted to use a non-programmable, non-plotting calculator, from a list based on SOA and CFA guidelines. If there is any doubt about the permissibility of your particular calculator, please consult in advance.

Students must bring their U of T student ID to all quizzes, tests, and exams.

Conduct of Classes

Ordinary classroom etiquette is expected of all of the students. This includes arriving on time, silencing cell phones and similar devices, and respect for fellow students.

Leaving the classroom while a lecture is in progress is disruptive and should be avoided. If you feel that you will need to leave class before it ends, please sit close to the rear door and alert the instructor to your situation.

The class time will be used for lectures and discussion, based mostly on the material in the textbook. However, the instructor may assign additional reading and/or exercises to supplement the book.

Class participation is strongly encouraged: asking questions, comments that relate this course to others that you are taking, pointing out mistakes on the chalkboard, etc.

The course website will be the centre for communication from the instructor to the students. The students are urged to complete the recommended problem sets. Solutions to some of these problems may be posted on the course web-site.

Procedures and Rules

communication

The course website will be the centre for communication from the instructor to the students. The students are urged to complete the recommended problem sets. Solutions to some of these problems may be posted on the course web-site.

If we experience a Quercus outage, the instructor will attempt to post essential material at <http://utstat.utoronto.ca/~pitt/act370>

The instructor and the TAs may be contacted by email at any time. In general, the TAs should be contacted regarding subject matter, and the instructor regarding administrative matters. Please include the course code (act370) in the subject line of all email messages. Note that if message traffic becomes excessive, the course email policy may be revised at any time during the term.

missed tests: In the event a student misses the mid-term exam due to illness or domestic situation, the student must contact the Department of Statistical Sciences office immediately, and submit a medical certificate indicating type of illness and date of illness (or other applicable documentation for domestic situations) to the instructor. This should be done within 48 hours of the test date, if possible.

If a student misses a quiz or the mid-term for legitimate reasons, the missing points will be earned by weight shifting to the next major test or exam.

tests: Note that because of crowding in the classroom, multiple versions of the quizzes and mid-term exam may be administered. The differences between versions will be slight and should not affect the difficulty of particular problems. The printed tests may contain a superset of questions, from which your specific questions will be determined on the basis of your student number.

how to present your work: On assignments and tests, show your work (i.e., document your thought processes). For non-multiple-choice questions, some wrong answers may be awarded partial credit, but not unless you show your work. **Careless rounding and similar sloppiness will result in deductions.** Make sure that your final answers are not difficult to find. When asked to supply one answer, do not give two.

marking issues: The TAs and the instructor are well aware of the importance of grades to most students, and great care will be taken in the marking of tests and exams. In the unlikely event that you feel a question has been mis-marked, or the marks have been added up incorrectly, you can submit your test back to the instructor with a note explaining what you believe requires further examination. This must be done within one week of the test being returned to the class.

cancellation policy: In the event of inclement weather, instructor illness, or similar circumstances resulting in class cancellation, any test or assignment due date will be postponed until the next class of suitable length. Minor adjustments to the overall course schedule might be necessary, and these

will be posted.

Formal rules are in place regarding the rescheduling of final exams, and these will be followed if necessary.

It is possible that our TAs may offer office hours in **The Statistics Aid Centre**. The new location is HS 381, 155 College Street. You may drop in at any time and receive help from non-370 TAs if you are willing to wait for other students to be served. Be aware, however, that ACT370 is a fairly specialized course, and it is possible that there will not be a knowledgeable TA on hand.

accessibility: Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability or health consideration that may require accommodations, please feel free to approach me and/or the Accessibility Services Office as soon as possible. The Accessibility Services staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. The sooner you let them and me know your needs, the quicker we can assist you in achieving your learning goals in this course.

For more information, please refer to <http://www.accessibility.utoronto.ca/>

academic integrity is fundamental to learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the U of T degree that you earn will be valued as a true indication of your individual academic achievement, and will continue to receive the respect and recognition it deserves.

Familiarize yourself with the University of Toronto's *Code of Behaviour on Academic Matters* (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>). It is the rule book for academic behaviour at the U of T, and you are expected to know the rules. Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement.
- Copying material word-for-word from a source (including lecture and study group notes) and not placing the words within quotation marks.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Including references to sources that you did not use.
- Obtaining or providing unauthorized assistance on any assignment including
 - working in groups on assignments that are supposed to be individual work,
 - having someone rewrite or add material to your work while "editing".
- Lending your work to a classmate who submits it as his/her own without your permission.

On tests and exams:

- Using or possessing any unauthorized aid, including a cell phone.
- Looking at someone else's answers
- Letting someone else look at your answers.

- Misrepresenting your identity.
- Submitting an altered test for re-grading.

Misrepresentation:

- Falsifying or altering any documentation required by the University, including doctor's notes.
- Falsifying institutional documents or grades.
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The University of Toronto treats cases of academic misconduct very seriously. All suspected cases of academic dishonesty will be investigated following the procedures outlined in the *Code*. The consequences for academic misconduct can be severe, including a failure in the course and a notation on your transcript. If you have any questions about what is or is not permitted in this course, please do not hesitate to contact the instructor. If you have questions about appropriate research and citation methods, seek out additional information from the instructor, or from other available campus resources like the [U of T Writing Website](#). If you are experiencing personal challenges that are having an impact on your academic work, please speak to the instructor or seek the advice of your college registrar.