

The University of Western Ontario
Department of Statistical and Actuarial Sciences
ACTUARIAL SCIENCE 1021 – Section 001 – Winter 2023
Introduction to Financial Security Systems

Instructor: Joseph Raaymakers, M.Sc.
Email: jraaymak@uwo.ca
Office Hours: Mondays, Wednesdays and Fridays, 10-11:30 AM, 12-1 PM, WSC 107
Lecture Hours: Mondays, Wednesdays and Fridays 8:30-9:30 AM, PAB 106

Prerequisite(s) and Anti-requisite(s)

None.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Course Description

The nature and cause of financial security and insecurity; public, private and employer programs and products to reduce financial insecurity, including social security, individual insurance and annuities along with employee pensions and benefits.

Course Objectives

What is financial/economic security? At an individual level it refers to your own sense that you can satisfy your basic needs/wants now and in the future.

Key question of this course:

How do we achieve economic security? And what does an actuarial science perspective have to offer in answering this question?

- Actuaries use math and statistics to create theoretical models of the world around them
- They apply these concrete skills to real life situations and to problems like analyzing future financial events; they create and price insurance products and help design and give advice on government social security programs and company employee benefit plans
- In AS1021 you'll learn about many social insurance programs & private insurance plans that require actuaries in their creation; such as retirement savings plans, employer pension plans, government social security programs, long-term care insurance, health insurance plans & disability insurance
- The work of actuaries is critical to understanding some of the key components available to Canadians that help them achieve financial security

This course is intended to give you some insight into what constitutes, and what are the causes of, financial insecurity. You will then gain knowledge of the various programs and products that are available to help reduce financial insecurity. You will gain an appreciation for the differences between social/governmental programs and private programs, both on the individual and employer level.

While this course will be of interest to students in any program, the course is also intended to give you some background on financial products and programs that actuaries have been and are currently involved with so as to give you a "picture" of what actuarial science is all about.

Textbook

1. There is a CUSTOM TEXTBOOK on sale at the UWO bookstore (about \$95)
 - It contains the relevant pages from the textbook “Morneau Shepell Handbook of Canadian Pension and Benefit Plans” (16th Edition)
2. Various articles on course OWL web page

Course Outline

Topics	Readings	Source
Module 1: Financial Security and Insecurity (1 week)		
Overview of Causes	Economic Security and Insecurity Basic Principles of Social Insurance	OWL
Rational for Social Insurance / Comparison to Social Insurance	Class Notes	
Module 2: Old Age (5 weeks)		
Individual – Retirement Savings Plans	Chapter 14: pp 415-418, 421-425, 432-434	Morneau Handbook
Employer – Pension plans Group RRSP's	Chapter 1: pp 3 – 24; Chapter 3; Chapter 9: pp 259-273; Chapter 14: pp 418-421	Morneau Handbook
Government – CPP/QPP, OAS, GIS	Chapter 2	Morneau Handbook
Long-Term Care	Long-Term Care Insurance	OWL
Module 3: Poor Health – Medical Needs (2 weeks)		
Individual – Individual Health Insurance	Class Notes	
Employer – Group Plans	Chapter 20	Morneau Handbook
Government – Provincial Hospital Plans	Chapter 17	Morneau Handbook
Module 4: Poor Health – Disability (2 weeks)		
Individual – Individual Disability Insurance	Disability Income Insurance	OWL
Employer – STD and LTD plans	Chapter 21	Morneau Handbook
Government – Workers' Comp, CPP	Chapter 18	Morneau Handbook
Module 5: Premature Death (1 week)		
Overview, principles, importance, definitions	Class Notes	
Individual – Individual Insurance	Class Notes	
Employer – Group Insurance	Chapter 23	Morneau Handbook
Module 6: Other Topics (if time permits)		
Insurance Contracts, Employment Insurance & Other Topics		OWL

Course OWL Web Page

Students should check OWL (<http://owl.uwo.ca/portal>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis. The web page will contain:

1. A copy of this course outline
2. Updates and information about the course that you need to know
3. Extra readings (for some topics) that will supplement your class notes
4. Daily lecture notes (which will be incomplete – to be filled in during the classes) and other things that are relevant to the course
5. Sample/past exams/tests and solutions
6. Marks of quizzes and tests as they are marked

Evaluation

Participation/In-Class Assessments	7.5%
Written Report	10%
Midterm	32.5%
Final Exam	50%

In-class Assessments

This may include some written reflections and other activities. Further details on this component will be reviewed in class.

You need only to participate in 80% of in-class assessments during the entire course to obtain a 10 (out of 10) on the clicker portion of your final mark. For any percentage (y) less than 80%, your participation mark will decrease linearly using the formula:

$$\text{Participation mark} = 9.375(y)$$

Examples: If you only participate in 72% of all in-class assessments, participation mark = $9.375(0.72) = 6.75$ (out of 7.5). If you only participate in 48% of all in-class assessments, participation mark = $9.375(0.48) = 4.5$.

Notice that you can miss up to 20% of the in-class assessments (for any reason) without affecting your grade; this ‘buffer’ accounts for any days on which you are absent or are late for class/left early. **Please note that no accommodation will be made for missed in-class assessments.**

Report

There will be a short written project due by the end of the term. More information on the report will be given in class and posted on the course web page later in the term.

Midterm Exam (2 hours)

There will be a two-hour test (consisting of written answer questions) on the following date:

Wednesday, February 26, 2019, 6:00 pm to 8:00 pm (Topics TBA)

If you have any conflict, you must check with your instructor as soon as possible (and prior to the test). If you miss the test for a valid reason, you must provide documentation to academic counselling as to why you missed the test. There are no makeup tests. If your accommodation is approved, the weight of the missed test will be reassigned to the final exam.

Final Exam

The final exam will be a three-hour examination covering all material in the course, with emphasis on material covered since the midterm. The exam will consist of written answer questions. It will be scheduled by the Registrar's office. Do not make travel arrangements until you know your exam schedule. Holding an airline ticket is not an acceptable reason to miss the final exam.

Cellular phones, iPods, and other similar technology are *not* permitted in the exam room. This means that cellular phones, iPods, Apple watches and other similar technology **cannot** be used as a timekeeper/clock, calculator or for any other purpose.

Although this is NOT a mathematical course, you will need a non-programmable calculator for the test and exam. It is the best practice to carry a calculator with you all times during the term.

Policy on e-mail communication

You are welcome to communicate with your instructor by e-mail, but e-mail communication should only be used to provide them with information or to ask a question that requires a brief response. For more lengthy discussions and for discussions on lectures/course material please see your instructor during their scheduled office hours or by appointment. If you do e-mail them, please use your UWO account, as these are often the only emails read (as e-mails sent from other addresses often get spammed).

Attendance

The Department of Statistical and Actuarial Sciences views classroom attendance as a very important part of the learning process. Students are advised that excessive absenteeism may result in being debarred from the final examination (see Western Academic Calendar).

Classroom Environment

The Department of Statistical and Actuarial Sciences has adopted a "Mutual Expectations" policy governing the classroom environment and all work submitted by students. [The full text of the policy can be found at <https://www.uwo.ca/stats/undergraduate/mutual-expectations.html>]. In summary, all interactions between students and faculty should be governed by the principles of **courtesy, respect and honesty.**

Students are encouraged to ask questions in the class. Cell phones should be turned off before class/during class and any unnecessarily loud talking among students is discouraged. The goal is to reduce any behaviour by students that may disrupt other students

Department Policy on Missed Course Requirements and Student Health and Wellness

If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible and contact your instructor immediately. Approval can be granted either through a self-reporting of absence or via the Dean's Office/Academic Counselling unit of your Home Faculty. It is your responsibility to make alternative arrangements with your instructor once the accommodation has been approved and the instructor has been informed.

For further information, please consult the university's policy on academic consideration for student absences:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf

For Final Exam: If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html).

For Midterm Exam: The policy of the Department of Statistical and Actuarial Sciences is that there will be no make-up exams for a midterm missed due to illness. If your accommodation is approved, the weight of the missed midterm will be reassigned to the final exam. If your accommodation is not approved, then you will receive a mark of 0 for your midterm.

If you have any conflict that prevents you from writing a midterm, you must check with your instructor as soon as possible (and prior to the exam) so that alternate arrangements can be made.

For in-class assessments: There are NO make-ups or accommodations for missed in-class assessments, so if you miss 20% of the in-class assessments, they will be the ones that will not count towards your final mark. Any additional in-class assessments that are missed will count as a mark of ZERO. You do not need to get in contact with your Faculty or your instructor if you miss an in-class assessment.

Academic Policy

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at this website:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Computer-marked, multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Support Services

Learning-skills counsellors at the Student Development Centre are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling: <http://sdc.uwo.ca/>.

Students who are in emotional/mental distress should refer to Mental Health@Western for a complete list of options about how to obtain help: <https://www.uwo.ca/health/>

Additional student-run support services are offered by the USC: <https://westernusc.ca/your-services/>.

Accessibility

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 if you have questions regarding accommodation.

The policy on Accommodation for Students with Disabilities can be found here: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_disabilities.pdf

The policy on Accommodation for Religious Holidays can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf