

## **MA 273- Introduction to Actuarial Mathematics, Winter 2016**

Amjad Rabi  
arabi@wlu.ca

**Text:** *Actuarial Mathematics for Life Contingent Risks*, 2nd Edition. David C. M. Dickson, Mary R. Hardy, Howard R. Waters, August 2013. ISBN: 9781107044074. Additional resources can be found on MylearningSpace. Please bring your text book to every class.

**Office Hours:** Monday and Wednesday 4-5 pm. Office: P2045.

### **Grading:**

Midterm Exams (35%)  
Four Quizzes (5% each, 20% total)  
Final Exam (45%)

**Goals:** The goal for this course is to learn and understand valuation of non-deterministic cash flows, mainly cash flows contingent on person's life. We will study survival distributions, life tables, life annuities, and life insurance. Will also learn how to calculate premiums and reserves. Such concepts form the basis for the life insurance practice.

**Expectations:** You are expected to do most of your learning outside of the classroom. Actuarial Mathematics, like most subjects, is learned by doing it. There will not be time in class for you to do a lot of exercise yourself. If you must miss a class, you are expected to find out what happened. You are responsible for everything that goes on in class.

**Homework:** As the name suggests, this is work to be done outside of class. I will assign problems from the textbook and/or from other resources. A few of the homework problems may be worked in class either as examples or quizzes. You are encouraged to work with other students on the homework. Homework will not be graded, but prepare you for other graded work.

### **Graded Work:**

- The midterm exam is tentatively scheduled for Monday, February 29th, 2016. The midterm will be held in N1002 (Science Building, Room 1002) 7:00 p.m. – 9:00 p.m.
- The final exam will be between April 7<sup>th</sup> and 23<sup>rd</sup>, 2016, the exact date will be determined by the registrar.
- There will be a total of 4 quizzes, on Tuesdays as indicated in the below table.

**Covered on Exam I:** Chapter 1, 2, 3, 4 and appendix A

**Covered on Final Exam:** Chapter 1, 2, 3, 4, 5, 6, and 7 (selected topics).

**Syllabus:** Anticipated coverage of the text, subject to change, is as follows:

Week	Dates	Topic	Text coverage	Quizzes/ Tuesdays
1	Jan 5 -7	Introduction, Review: Probability Theory	Chapter 1, Appendix A, Supplementary notes	
2	Jan 12 - 14	Review: Interest Theory Continuous Survival Models	Supplementary notes Chapter 2	
3	Jan 19 – 21	Continuous Survival Models	Chapter 2	
4	Jan 26 - 28	Life Tables Approach	Chapter 3	Quiz 1
5	Feb 2 - 4	Life Table Approach	Chapter 3	
6	Feb 9 - 11	Insurance Benefits	Chapter 4	Quiz 2
	Feb 16 - 18	No classes, reading week		
7	Feb 23 - 25	Insurance Benefits	Chapter 4	
		<b>Mid-term: Monday Feb 29<sup>th</sup> at 7:00 p.m. – 9:00 p.m. Room: N1002 (Science Building, Room 1002)</b>		
8	March 1 - 3	Life Annuities	Chapter 5	
9	March 8 - 10	Life Annuities	Chapter 5	
10	March 15 - 17	Premiums	Chapter 6	Quiz 3
11	March 22 - 24	Premiums	Chapter 6	
12	March 29 - 31	Introduction to Benefit Reserves	Chapter 7	Quiz 4
	April 7 - 23	Final Exam Period		

### Notes

- 1- Calculator Policy:** Students may use a non-programmable, non-graphing calculator on course tests and the final examination. **please bring your calculator in every class and during the exams.**
- 2- Any error in marking** must be reported to your instructor within *one week* of the date the work was returned in class. No marks will be changed after that time. Please see the model solutions posted on MLS before bringing any alleged errors to the attention of your instructor. *The instructor reserves the right to re-mark the entire paper.*
- 3- Missed Tests:** Tests missed without a *valid, documented excuse* (e.g. medical certificate) will be assigned a mark of zero. The weight of any test missed for legitimate, documented reasons will be transferred to the final examination.
- 4- Final Examinations:** Students must reserve the examination period of April 9-28, 2015. If you are considering registering for a special examination or event, you should select a time outside the examination period. Consult Academic

Regulations in the Academic Calendar for special circumstances for examination deferment.

- 5- **Students with disabilities or special needs** are advised to contact Laurier's Accessible Learning Centre for information regarding its services and resources. Students are encouraged to review the Academic Calendar, [http://www.wlu.ca/page.php?grp\\_id=1365&p=5123](http://www.wlu.ca/page.php?grp_id=1365&p=5123), for information regarding all services available on campus.
- 6- **Academic Integrity/Misconduct (cheating, plagiarism):** The University has a defined policy with respect to Academic Misconduct; penalties are severe and enforced at all times. You are responsible for familiarizing yourself with the academic misconduct policy and penalty guidelines, and are cautioned that, in addition to failure in a course, students may be suspended or expelled from the University for academic misconduct, and the offence may appear on their transcripts. The relevant policy can be found at Laurier's academic integrity website along with resources to educate and support you in upholding a culture of integrity; see <http://www.wlu.ca/academicintegrity>. **Ignorance of Laurier's academic misconduct policy is not a defence.** Academic Misconduct includes transmission or reception of information, or possession of unauthorized information, during laboratories, quizzes, tests, or examinations. Academic Misconduct also includes plagiarism. Wilfrid Laurier University uses software that can check for plagiarism, and students may be required to submit their written work in electronic form for a plagiarism check. The *Student Code of Conduct and Discipline* and the procedures for investigating and determining appropriate disciplinary measures for breaches of this *Code* are given in the Academic Calendar; see [http://www.wlu.ca/page.php?grp\\_id=2505&p=11452](http://www.wlu.ca/page.php?grp_id=2505&p=11452).
- 7- **Classroom Use of Electronic Devices:** The use of electronic devices in the classroom is governed by WLU Policy 9.3: *Policy on the Classroom Use of Electronic Devices*; see: [http://www.wlu.ca/documents/50202/9.3\\_Electronic\\_Device\\_Policy.pdf](http://www.wlu.ca/documents/50202/9.3_Electronic_Device_Policy.pdf). Details of this Policy and the consequences of breaches are stated in the Academic Calendar. Mobile devices are permitted in this course provided they do not detract from the learning of any student, for example by noise level or by the display of distracting or disturbing content. Responsibility for enforcing this rule rests with both the instructor and the students. Students who do not feel comfortable approaching another student can email or talk to the instructor in person. Students who fail to comply with this policy may receive a verbal and/or written warning, or may be asked to leave the classroom for all or part of the course.
- 8- **Course Drop Dates Winter 2015**

**January 11:** Final day to drop/withdraw from 12-week course(s) at no tuition charge (provided the student remains registered in at least one course)

**January 18:** Last day to drop 12-week course(s) or withdraw at 10 percent tuition charge (tuition charge assessed at 10% of course rate)

**March 6:** Last day to drop or withdraw from full-year or 12-week winter course(s) without failure and for possible tuition adjustment (tuition charge assessed at 55% of course rate).



**Foot Patrol walk home service | 519.886.FOOT (3668)**

Foot Patrol is a volunteer operated walk-home service, available daily during evening hours. Male-female, radio-dispatched teams trained in Emergency First Aid are available on request to escort students to and from campus as well as to off-campus destinations, either by foot or by van.



**Counselling Services & Peer Help Line | 1-866-281-PEER (7337)**

Counselling Services are available to help students deal with emotional, psychological and social challenges of university. Counselling, consultation or referral are available on the 2nd floor of the Student Services Building (across from Health Services), Monday-Thursday 8:30am-8:00pm, Friday 8:30am-4:30pm. Peer Help Line, a confidential listening, referral, information and support line, is available during evening hours to provide support.



**Student Food Bank**

All Laurier students are eligible to use the Student Food Bank. Anonymous requests can be made online at WLUSU.COM under the Services tab. All dietary restrictions are accommodated, and food hampers typically last up to a week.

For more information visit [WLUSU.com](http://WLUSU.com)