KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF MATHEMATICS & STATISTICS
DHAHRAN, SAUDI ARABIA

AS380: Actuarial Contingencies I - Term 251 (2-2-3) 9am UT

Course Objectives:

Introduction to life insurance mathematics based on a stochastic approach. Life insurance, annuities, benefit premiums, and net reserves. Parallel treatment of topics based on Takaful system.

Prerequisites: AS 201 and STAT 301

Textbook and Package:

1. Dickson, D.C., Hardy, M. R., & Waters, H. R. (2020) *Actuarial Mathematics for Life Contingent Risks,* 3rd edition. Cambridge University Press: Cambridge, UK.
2. Texas BAII Plus Calculator or Texas BAII Professional
3. Li & Ng (2020). ACTEX Study Manual for SOA Exam LTAM. ACTEX. ISBN: 978-1-63588-929-1

Reference:

1. Bowers N., Gerber, H., Hickman, J., Jones, D. & Nesbitt, C. (1997 or later printing) *Actuarial Mathematics*, 2nd edition. Society of Actuaries Publishing.
2. LTAM exam syllabus on SOA site.

Instructor: Dr. Mohammad H. Omar **Office**: Bldg – 5, room – 508. **Phone**: 2471
E-mail: omarmh@kfupm.edu.sa **(Not by WebCT/Blackboard email)**
Office Hours: UTR (10.00 - 10.45am) or by appointment.

Assessment

Assessment for this course will be based on attendance, homework, term report, 3 major exams and a comprehensive final exam, as in the following:

Activity	Weight
Classwork (Attendance, activities, and Hwk)	10%
Lab work (attendance, assignments, and quizzes)	20%
Mid Term (Chapters 1, 2 & 3) **Tuesday (Sep. 30 – week 6), 6.00 pm**	20%
Term Paper Report + presentation **Sunday (Nov 9 - week 11)**	10%+5%
Final Exam (Comprehensive) **As announced by Registrar**	35%

IMPORTANT NOTE on GRADES: The A+ grade is granted to students who score 95% or above. There is no quota on the number of students who can get an A+ grade. The passing score for the course is 50%. DN grade is awarded to those with excessive total absences.

- ✓ ***Attendance*** on time is ***very*** important and in adherence to the attendance policy of KFUPM. Students are expected to attend all lectures and labs. Mostly, attendance will be checked within the ***first five minutes*** of the class. Entering the class after that, is considered as late (**2 lates= 1 Absence**) and
- ✓ **More than 10 minutes late = Absence** (regardless of any excuse).
- ✓ If a student misses a class, he is responsible for any announcement made in that class.
- ✓ A DN grade will be assigned to the eligible student after being warned twice by his/her instructor.
- ✓ A DN grade will be awarded to any student who accumulates
  - 9 unexcused absences in lecture and labs. (20%)
  - 15 excused and unexcused absences in lecture and recitation classes. (33%)

General Notes:

- Students are required to carry **pens, note-taking equipment** and a **calculator** to **EVERY lecture and exams**. It is strongly recommended to keep a **binder** for class-notes.
- Students are also expected to bring the book, take notes and organize their solved questions in a **binder** for easy retrieval to help them in study and review for class, exams, etc
  - It is to the student's advantage to keep a binder for storing class notes, homework, and other graded assignments. Students who are **organized** will find it **easier** to find important materials when **studying for exams**.
- To successfully prepare for the SOA exams, students MUST **solve problems** regularly and with discipline. The selected assigned problems are specifically designed to prepare you for major and final exams. So, it is expected that you complete these problems **step-by-step** and with comprehension.
  - If you happen to stumble upon a solution manual somewhere, remember 2 important points. (1) Due to publishing costs and deadlines, these solutions are brief and may have mistakes and (2) in your career as an actuary and your exams and quizzes in this class, you are expected to know every step to a problem and to know if a solution is incorrect. Thus, the best way to solve problem is without these brief solutions.

- ***Never round*** your intermediate results to problems when doing your calculations. This will cause you to lose calculation accuracy. Your answers may then be different from the SOA exam key even when you use the right procedure.
- For every exam, so you need to bring with you ***pens***, ***pencils***, ***a sharpener***, ***an eraser***, and a ***SOA approved calculator***.
- Students should wait until completion of the next course AS482 before they attempt to take the professional exam ALTAM.

The Usage of Mobiles in Class: Students are **not allowed** to use mobiles for any purpose during class time. Students who want to use electronic devices to take notes **must take permission** from their instructor. Violations of these rules will result in a **penalty** decided by the instructor.

Academic Integrity: All KFUPM policies regarding **ethics** and **academic honesty** apply to this course.

Exams:

Exam Questions: The questions of the exams are based on the examples, homework problems, and exercises in the textbook and lab manual.

Cheating in Exams: Cheating or any attempt of cheating by use of illegal activities, techniques and forms of fraud will result in a grade of **F** in the course along with reporting the incident to the higher university administration. Cheating in exams includes (but not restricted to)

- Looking at the papers of other students,
- Talking to other students,
- Using mobiles or any other electronic devices.

Exam Issues:

- No student will be allowed to take the exam if not having his/her KFUPM ID or National/Iqama ID.
- Students are not allowed to carry mobiles, smart watches, or electronic devices to the exam halls/rooms.
- Students must take the exam in the place assigned to them.

Missing an Exam:

In case a student misses an exam (Exam I, Exam II, or the Final Exam) for a legitimate reason (such as medical emergencies), he must bring an official excuse from Students Affairs with the "Exam Included" box checked. Otherwise, he will get zero in the missed exam.

Student Learning Outcomes: See Society of Actuaries Exam ALTAM (Long-Term Actuarial Mathematics – Spr 2022) LO.

Syllabus (Tentative)

Week	*Sections*	*Topics*	*Notes*
1 (Aug 24 - 28)	Ch 1	**Brief Introduction to Insurance Contracts:**	.
2 (Aug 31- Sep. 4)	Ch 2	**Survival Distribution**	
3 (Sep. 7 - 11)	Ch 2 Ch 3	**Survival Distribution (continued)** **Life Table**	**Declare your Term paper topic: Sun Sep 7**
4 (Sep. 14 - 18)	Ch 3	**Life Table (cont.)**	
5 (Sep. 21 - 25)	Ch 4	**Life Insurance**	Sept 23: Natl Day Holiday
Tuesday (Sep. 30– week 6) , 6.00 pm – <u>Midterm Exam</u> (chapters 1, 2 & 3)			
6 (Sep. 28 - Oct. 2)	Ch 4	**Life Insurance (continued).**	**(2 wks):** Midterm grade reports starts
7 (Oct. 5 - 9)	Ch 5	**Life Annuities.**	
8 (Oct. 12 - 16)			
9 (Oct. 19 – 23)	Ch 5	**Life Annuities (cont.)**	
Oct. 26-30		**Midterm Break**	
10 (Nov. 2 - 6)	Ch 6	**Benefit premiums (continued)**	
Sun Nov 9: Term Paper Report due to instructor			
11 (Nov. 9 - 13)	Ch 6	**Benefit premiums (continued)** .	
12 (Nov. 16 - 20)	Ch 7 (excl 7.2.5, 7.5, 7.6, 7.9)	**Policy values**	presentations.
13 (Nov. 23 - 27)	Ch 7	**Policy values (cont.)**	

14 (Nov. 30 - Dec.4)	Ch 7	**Policy values (cont.)** .	
15 (Dec. 7 - 11)	Assigned reading	**Concept of Mutual Insurance and Introduction to Takaful.**	
Dec. 14		Review	Normal Tuesday Class
Final Exam (Comprehensive): will be announced by Registrar			

Homework	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Chapter	**Ch 1**	Ch 2	**Ch 3**	Ch 4	**Ch 5**	Ch 6	**Ch 7**
Problems	**1.6 & 1.10**	2.2, 2.3, & 2.6	**3.2, & 3.4**	4.1 & 4.6	**5.4, & 5.14**	6.2 & 6.8	**7.6 & 7.9**