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

AS380 Lab: Actuarial Contingencies I - Term 221   (2-2-3) 7am U

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: U (9.00 - 10.45am) and R (10.00am-10.45am) or by appointment through MS Teams chat.

Lab Objectives:
The lab of AS 380 is designed to help the students in the following ways:

1. To easily understand and appreciate the practicability of the concepts taught in the AS 380 curriculum.
2. To develop their ability to properly analyze and solve long-term actuarial problems, and reasonably interpret their results.
3. To learn how to use EXCEL in solving a wide range of long term actuarial problems in real world, including life insurance and life annuities contracts.

Assessment
Assessment for this lab will be based on attendance, lab assignments, and quizzes as in the following:

Activity	Weight	Marks
Attendance and Lab Participation	10%	2
Lab Assignments	30%	6
3 Lab Quizzes	60%	12
Total	100%	20

Resources

Students **must bring** the Lab Manual and SoA calculator with them to every lab session.

Lab Manual and Package:
1. Li & Ng (2021). ACTEX Study Manual for SOA Exam LTAM. ACTEX. ISBN: 978-1-63588-929-1
2. Texas BAII Plus Calculator or Texas BAII Professional
3. MS EXCEL

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

Suggested Class work and Tutorial Problems
Students are encouraged to do the problems in the Lab first by hand and then by using EXCEL for the comparison of results, if any.

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.

Attendance: Students must adhere to the attendance policy of KFUPM. Students are expected to attend all lecture and labs.
- 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%)

Note:
- *Attendance* on time is *very* important. 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).
- Only University Blue paper Official excuses will be accepted as valid excuse.

Absences are counted as follows:
- Missing a lab is counted as 2 absences.
- Missing a lecture is counted as 1 absence.

Syllabus, weekly coverage of material and lab tests schedule

Week	Topic	Section	Problem
Wk01 Aug 28	**Overview of MS EXCEL for long-term actuarial modeling**	handout	handout
Wk02 Sep 4	**Survival Distribution**	Ch 1	Q1 to 10
Wk03 Sep 11	**Survival Distribution (cont.)** Numerical calculations by EXCEL	Ch 1	Q11 to 20
Wk04 Sep 18	**Life Tables**	Ch 2	Q1 to 10
Wk05 Sep 25	**Life Tables (cont.)** Numerical calculations by EXCEL	Ch 2	Q11 to 20
Wk06 Oct 2	**Life Insurance** **Lab Quiz 1 – Material: From the chap 1 and 2**	Ch 3 **Lab Test 1**	Q1 to 6
Wk07 Oct 9	**Life Insurance (cont.)** Numerical calculations by EXCEL	Ch 3	Q7 to 16
Wk08 Oct 16	**Life Annuities**	Ch 4	Q1 to 10
Wk09 Oct 23	**Life Annuities (cont.)** Numerical calculations by EXCEL	Ch 4	Q11 to 20
Wk10 Oct 30	**Premium Calculations** **Lab Quiz 2 – Material: From Chap 3 and 4**	Ch 5 **Lab Test 2**	Q1 to 6
Wk11 Nov 6	**Premium Calculations (cont.)** Numerical calculations by EXCEL	Ch 5	Q7 to 16
Wk12 Nov 13	**Net Premium Reserves**	Ch 6	Q1 to 10
Wk13 Nov 20	**Net Premium Reserves (cont.)** Numerical calculations by EXCEL	Ch 6	Q11 to 20
	MidTerm Break		
Wk14 Dec 4	**Insurance Models including Expenses** **Lab Quiz 3 – Material Covered: Ch 5 and 6**	Ch 7 **Lab Test 3**	Q1 to 6
Wk15 Dec 11	**Practical issues in calculation of Short Term Reserves (by EXCEL):**	handout	handout