

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

AS 289: Actuarial Science Problem Lab I
Term 202 – Spring 2020

Instructor: Ali N. Duman
Office: Building 5 – Room 325
Phone: 2632
Email: aliduman@kfupm.edu.sa
Office Hours: UT 8:00 AM – 9:00 AM, R 9:00 AM – 10:50 or by appointment

Time: R 12:00 – 13:50
Place: TBA

Prerequisite: AS 201

Course Description:

This problem lab is designed to prepare Actuarial majors for the second Society of Actuaries and Casualty Actuarial Society Examinations, FM/2 (Financial Mathematics). Participation in this course does not guarantee a student will pass the FM exam but this course provides a good start in preparing students towards that goal. The responsibility of passing the FM exam relies on the individual students.

Course Material:

1. Course Syllabus: Posted on Blackboard.
2. Textbook: Hassett, M. J., Ratliff, M.I., Garcia, T. C., and Steeby, A. C. (2014). ACTEX FM/2 Study Manual, 2014 Edition. ACTEX
3. Calculator: Texas BA II Plus Calculator or Texas BA II Professional.

Attendance:

The student is responsible for all material presented in class. Some of the material presented in class might not be in the textbook. Generally, attendance will be checked once the teacher enters the classroom. Entering the class after that, is considered as late where two late cases will be considered as one Absence. Students' late more than 10 minutes will be considered absent regardless of any excuse. Unexcused absences and late cases might be penalized by grade deductions as announced by the instructor. Excessive unexcused absences will result in a grade of DN in accordance with University rules.

Communication:

For regular announcements, students are advised to check Blackboard regularly.

Grading:

Your course grade will be based on the total of points accumulated on class work, two major exams, and Final Exam. The following scale gives the cut-off points for the course grades.

Letter grade	A+	A	B+	B	C+	C	D+	D	F	DN
Cut-off	90%	85%	80%	75%	67%	60%	55%	50%	<50%	≥ 9 absences

Activity	Weight
Quizzes	10%
Attendance+Participation	10%
Lab Exam	20%
Midterm	25%
Final Exam (Comprehensive)	35%
Final Exam Date : TBA Time: TBA	

Missing Exam I or II:

No makeup exam will be given under any circumstance. When a student misses Midterm for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on the existing formula, which depends on his performance in the non-missed exam and in the final exam. It is to the professor's discretion whether to accept or refuse the student's excuse for missing an exam.

General Comments:

- It is essential that you keep up with the material as it is presented. This, unfortunately, is not one of those course where it is possible to catch up the last minute. In particular, it is important to do the problems as the material is presented.
- I encourage you to discuss the assigned problems with other students and work on them in groups. Discussing the assigned problems with others will also help you explain them clearly in the quizzes or exams.
- Students are required to carry pens, note-taking equipment and a calculator to EVERY lecture and exam. It is strongly recommended to keep a binder for class-notes.
- Bonus points might be awarded for showing alertness and participation in class discussions.
- The schedule is tentative and might be adjusted based on the progress of the class.
- To successfully prepare for the SOA exams, students MUST solve problems regularly. The selected assigned problems are specifically designed to prepare you for major and final exams, and SOA Exam FM. So, it is expected that you complete these problems step-by-step and with comprehension.
- For every exam, you need to bring with you *pens, pencils, a sharpener, an eraser, and a SOA approved calculator.*

Academic Integrity:

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

Week	Date	Topics	Important Dates
1	Jan 17th – Jan 21th	Interest rate Measurement Interest Accumulation and Effective Rates of Interest Present Value Equation of Value Nominal rates of Interest Effective and Nominal Rates of Discount	
2	Jan 24th – Jan 28th	The force of Interest Inflation and the “Real” rate of Interest Level Payment Annuities	
3	Jan 31st – Feb 4th	Valuation of Annuities Level Payment Annuities Level payment Annuities – Some Generalizations	
4	Feb 7th – Jan 11st	Annuities with Non-Constant payment Applications and Illustrations	
5	Feb 14th – Feb 18th	Loan Repayment The amortization model of Loan Repayment Amortization of a Loan with Level Payments	Lab Exam
6	Feb 21rd – Feb 25th	Bond Valuation Determination of Bond Prices Amortization of a Bond Applications and Illustrations	
7	Feb 28st – Mar 4th	Measuring the Rate of Return of an Investment Internal Rate of Return defined and Net Present Value Dollar-weighted and Time-Weighted Rate of return Applications and Illustrations	
8	Mar 7th – Mar 11th	The term structure of interest rates Spot Rates of Interest Forward rates of Interest	
9	Mar 14th – Mar 18th	Cash flow duration and Immunization Duration of a set of Cash flows and Bond duration	
10	Mar 21nd – Mar 25th	Asset-liability Matching and Immunization Additional Topics in Finance and Investment The dividend discount model of stock valuation	Midterm
11	Mar 28th – Apr 1st	Using Duration and Convexity to approximate change in present value.	
12	Apr 4th – Apr 8th	Interest Rate Swaps	
13	Apr 11st – Apr 15th	Determinants of Interest rates	
14	Apr 18th – Apr 22th	Review \ Exam FM Practice Problems	
15	Apr 25th – Apr 29th	Review \ Exam FM Practice Problems	