



## Course Specifications

<b>Course Title:</b>	<b>Actuarial Mathematics I</b>
<b>Course Code:</b>	<b>MATH 2321</b>
<b>Program:</b>	<b>Bachelor of Science in Mathematics</b>
<b>Department:</b>	<b>Mathematics</b>
<b>College:</b>	<b>College of Science and Humanities Alkharj</b>
<b>Institution:</b>	<b>PRINCE SATTAM BIN ABDUALZIZ UNIVERSITY</b>

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## A. Course Identification

<b>1. Credit hours:</b>	4(4,0,0)
<b>2. Course type</b>	
a.	University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b>	Level 6
<b>4. Pre-requisites for this course (if any):</b>	MAT 1060
<b>5. Co-requisites for this course (if any):</b>	None

### 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	04	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

### 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	48
2	Laboratory/Studio	0
3	Tutorial	0
4	Others (specify)	60
	<b>Total</b>	<b>108</b>

## B. Course Objectives and Learning Outcomes

### 1. Course Description

Introduction and definitions - the general law of simple interest –true and commercial interest – present value and discount-the sum of annuities-certain problems using fixed and variable simple interest rates- some practical applications on simple interest including methods of redemption of short term loans, modification of loans and saving accounts. The general law of compound interest: the sum, present values and discount –the nominal rate of compound interest – the calculation of the sum and present value of annuities –certain problems with fixed and variable compound rates of interest-some practical applications on compound interest including methods of redemption of long term loans, modification of loans and redeemable securities - investment using software and spread sheets - insurance-Investment using Excel.

## 2. Course Main Objective

The primary objective is to make the students gain knowledge about elementary concepts of financial and actuarial mathematics such as interest, annuity, dividend, loans, redemption etc.

## 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge and Understanding</b>	
1.1	Learn and reproduce the formulae for simple interest, compound interest, discount, market value etc.	K1
2	<b>Skills :</b>	
2.1	Use formulae to calculate true and commercial interest	S1
2.2	Evaluate Annuities and dividends payable	S2

## C. Course Content

No	List of Topics	Contact Hours
1	Introduction – Interest – Discount – Annuity	7
2	Fixed and Variable Simple Interest	5
3	Redemption of Short Term loans	5
4	Modification of Short Term Loans	5
5	Compound Interest – Present Value – Discount	5
6	Sum and Present Value of Annuities	3
7	Fixed and Variable Compound Interest	6
8	Redemption of Long Term Loans	6
9	Redeemable securities	3
10	Investment using Investment and spread sheets – Insurance Introduction	3
<b>Total</b>		<b>48</b>

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	<b>Knowledge and Understanding</b>		
1.1	Learn and reproduce the formulae for simple interest, compound interest	Acquisition of knowledge is achieved mainly through lectures, assignments, , internet research work and independent study.	1. Two Internal Exams 2. At least two Quiz 3. End Semester Exam
2.0	<b>Skills</b>		
2.1	Use formulae to calculate true and commercial interest	1. Application oriented exercises	1. Homework 2. Assignments
2.2	Evaluate Annuities and dividends payable	2. Homework to improve the analytical skills	3. Quiz

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid Term Exam I	6	20%
2	Quiz	4 & 10	5%
3	Mid Term Exam II	13	20%
4	Continuous Assessment – Homework, Assignment, Attendance etc.	--	5%
5	End Semester Exam	15	50%

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

**Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :**

1. Exclusive Office Hours – 4 Hours per week
2. Academic Advising for Students – 1 Hour per week

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	An Undergraduate Introduction to Financial Mathematics <i>by</i> J. Robert Buchanan, Barnes & Noble, New York, 2008.
<b>Essential References Materials</b>	
<b>Electronic Materials</b>	Nil
<b>Other Learning Materials</b>	Nil

### 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms with Smart boards with seating facilities for at least 30 students
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Smartboard, Internet Connection for Blackboard Computer Lab with software packages such as Excel etc.
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Nil

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
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Evaluation Areas/Issues	Evaluators	Evaluation Methods
Course Evaluation	Quality Assurance Committee of the Department	Review all the course documents and course report
Peer Review	Senior Faculty Members / HoD	Attend the lecture and fill in a form
End Semester online survey	students	online survey

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

Council / Committee	
Reference No.	
Date	