جامعة البحرين
University of Bahrain
مركز ضمان الجودة والاعتماد الأكاديمي
Quality Assurance and Accreditation Center

Academic Course Specification Form

استمارة توصيف المقرر الأكاديمي

القسم الخاص بالطالب
Section Concerning the Student

1. Course Code:	**MATHS 472**	**.1 رمز المقرر:**
2. Course Title	**Life Contingencies II**	**.2 اسم المقرر:**
3. College:	College of Science	**.3 الكلية:**
4. Department:	Department of Mathematics	**.4 القسم:**
5. Academic Program:	**B.Sc. in Actuarial Science**	**.5 البرنامج الأكاديمي:**
6. Course Credits:	3-0-3	**.6 عدد الساعات المعتمدة:**
7. Course NQF Level	8	**.7 مستوى المقرر وفقا للإطار الوطني للمؤهلات:**
8. Notional Hours:	133	**.8 عدد الساعات الافتراضية:**
9. NQF Credits	13	**.9 عدد الساعات المعتمدة للمقرر وفقا للإطار الوطني للمؤهلات:**
10. Prerequisite:	MATHS 471	**.10 المتطلب المسبق للمقرر:**
11. Lectures Timing & Location:	TBA	**.11 وقت المحاضرة ومكانها:**
12. General Mode of Teaching and Learning	Tranditional تقليدي	**.12 النمط العام للتعليم والتعلّم:**
13. Course Coordinator:	TBA	**.13 منسق المقرر:**
14. Course Instructor:	TBA	**.14 مدرس المقرر:**
15. Office Hours and Location:	TBA	**.15 الساعات المكتبية ومكانها:**
16. Instructor's Email:	TBA	**.16 البريد الإلكتروني لمدرس المقرر:**
17. Academic Year:		**.17 السنة الأكاديمية:**
18. Semester:	First Semester الفصل الأول	**.18 الفصل الدراسي:**

19. Textbook(s):	19. الكتب الدراسية للمقرر:
Actuarial Mathematics for Life Contingent Risks, Third Edition, Dickson, C.M.D., Hardy, M.R., Waters, H.R. (2020), Cambridge University Press ISBN: 978-1-108-47808-3. Exercises are considered part of the required readings. • Chapters 5 – 8, and 18 Excluding 8.11, 18.6, 18.7. • Students should also exclude parametric maximum likelihood estimators in Chapter 18.	
20. References:	**20. المراجع:**
21. Other learning resources used (e.g. e-Learning, field visits, periodicals, software, etc.):	**21. مصادر أخرى (مثال : التعلم الالكتروني، زيارات ميدانية، دورات، برامج كمبيوتر، الخ....)**
■ **Study Notes:** Notation and Terminology used on Exam FAM and ALTAM ■ **Tables:** Exam FAM and ALTAM Tables ■ **Microsoft Excel:** Excel Workbook for Exam ALTAM Tables (These spreadsheets were used to develop the tables used for the ALTAM exam and is provided for educational purposes only. The workbook will not be available during Tests and Final Examination. ■ **ACTEX E-Learning:** https://www.actexmadriver.com/goal/ ■ **Coaching Actuaries:** www.coachingactuaries.com ■ **ACTEX E-learning:** https://www.actexmadriver.com/goal/ ■ **Infinite Actuaries:** https://www.theinfiniteactuaries.com ■ **Coaching Actuaries:** https://coachingactuaries.com) ■ No particular e-learning tool is assigned to the course. Students are free to use one of their choices. However, any formula that differs from the assigned textbook needs to be justified for written answer questions.	
22. Course Description (as published in the College Catalogue):	**22. توصيف المقرر(حسبما ورد في دليل الكلية):**
This course is a continuation of the study of life contingencies. Topics include benefit reserve, multiple life functions, multiple decrement models, life annuity pricing, premium calculation, and policy value.	
23. Course Intended Learning Outcomes (3 to 5 CILOs):	**23. مخرجات التعلّم للمقرر (CILOs) (3 إلى 5 مخرجات تعلّمية):**
1. Recognize the key features of annuity valuation	
2. Interpret different types of premium valuation	
3. Construct multiple states model to price complex life contingencies contracts	
4. Analyze policy values in different valuation contexts.	
5. Solve problems related to pricing of complex life contingencies contracts	
24. Course Assessment Percentages (As per Regulations of Study and Examination at the University of Bahrain):	**24. أساليب التقويم ونسبها المئوية (بحسب نظام الدراسة والامتحانات في جامعة البحرين):**
ASSIGNMENTS 🕭	20%
PROJECT	10%
TEST#1	15%
TEST#2	15%
EXAM	40%
Total	**100%**
🕭 There should be at least two assignments per semester so that each won't exceed 10% of the total course grade.	

25. Description of Topics Covered:	25. وصف الموضوعات التي ينبغي تناولها:
Topic Title (e.g. chapter/experiment title) الموضوع	***Description*** التفصيل
Ch. 5: Annuities	Valuation and analysis of life contingent annuities.
Ch. 6 &7: Premium calculation and Policy values	Premium, net premium and gross premium. Premium calculation for insurance policies and annuities. Policy value for a life insurance contract, solvency, profit, and loss for a company over a period.
Ch. 8: Multiple state models	Multiple state models and their applications in pricing traditional and non-traditional long-term policy

26. Weekly Schedule				26. الجدول الأسبوعي:
Week **الإسبوع**	**Date** **التاريخ**	**Topics Covered** **المواضيع المعروضة**	**CILOs** **المخرجات التعلُمية للمقرر (CILOs)**	**Teaching/Assessment Mode and Method** **منهجية ونمط التدريس/التقييم**
01		**Ch. 5: Annuities** 5.2 Introduction 5.3 Review of annuities-certain 5.4 Annual life annuities	1	Traditional Teaching تدريس تقليدي
02		**Ch. 5: Annuities** 5.5 Annuities payable continuously 5.6 Annuities payable 1/mthly	1	
03		**Ch. 5: Annuities** 5.7 Comparison of annuities by payment frequency 5.8 Deferred annuities	1	
04		**Ch. 5: Annuities** 5.9 Guaranteed annuities 5.10 Increasing annuities	2	
05		**Ch. 5: Annuities** 5.11 Evaluating annuity functions 5.12 Numerical illustrations 5.13 Functions for select lives	2	
06		**Ch. 6: Premium calculation** 6.2 Preliminaries 6.3 The loss at issue random variable	2	
07		**Ch. 6: Premium calculation** 6.4 The equivalence principal premium	3	
08		**Ch. 6: Premium calculation** 6.5 Profit The portfolio percentile premium principle 6.7 Extra risks	3	
09		**Ch. 7: Policy Values** 7.2 Policies with annual cash flows (Excluded 7.2.5) 7.3 Policy values for policies with cash flows at 1/mthly intervals	4	
10		**Ch. 7: Policy Values** 7.4 Policy values with continuous cash flows 7.7 Negative policy values	4	
11		**Ch. 7: Policy Values** 7.8 Deferred acquisition expenses and modified net	4	
12		**Ch. 8: Multiple state models** 8.2 Examples of multiple state models 8.3 Assumptions and notation	5	
13		**Ch. 8: Multiple state models** 8.4 Formulae for probabilities 8.5 Numerical evaluation of probabilities	5	
14		**Ch. 8: Multiple state models** 8.6 Premiums 8.7 Policy values	5	
15		**Ch. 8: Multiple state models** 8.8 Multiple decrement models 8.9 Applications of multiple state models in long-term health and disability insurance 8.10 Markov multiple state models in discrete time	5	

27. Academic Integrity Statement:	27. بيان النزاهة الأكاديمية:
Students are to observe the highest level of honesty and academic ethics in pursuit of their academic goals as per UOB Regulations of Student Conduct and Academic Integrity, Anti-plagiarism Policies, and Students' Rights and Responsibilities Handbook. The consequences for cheating, plagiarism, unauthorized collaboration, and other forms of academic dishonesty can be very serious and will be dealt with as per the aforementioned policies and regulations.	يعتبر الصدق والنزاهة عنصران أساسيان في العملية الأكاديمية. حيث يُتوقع من الطلاب خلال سعيهم لتحقيق أهدافهم الأكاديمية التحلى بالأمانة والأخلاق في جميع الأوقات، وذلك وفقًا للوائح والأنظمة الخاصة بطلبة جامعة البحرين، بالإضافة إلى دليل حقوق الطلبة وواجباتهم، وكما جاء في سياسة الانتحال الخاصة بجامعة البحرين. حيث سيتم التعامل مع أي انتهاك للنزاهة الأكاديمية بحسب ما تنص عليه السياسات والأنظمة السابق ذكرها.
28. Attendance and Absence Regulations:	**28. نظام الحضور والغياب:**
Students are required to adhere to regular attendance for class lectures and practical sessions, as determined by the nature of the course, as per Article (33), of Regulations of Study and Examination at the University of Bahrain.	يُتوقع من الطلاب الالتزام بالحضور المنتظم للساعات الصفية والعملية بحسب طبيعة المقرر، وفقًا للمادة (33)، من نظام الدراسة والامتحانات في جامعة البحرين.