

Tamkang University Academic Year 112, 2nd Semester Course Syllabus

Course Title	ACTUARIAL MATHEMATICS	Instructor	WEI HSUAN
Course Class	TLOXM1A MASTER'S PROGRAM, DEPARTMENT OF RISK MANAGEMENT AND INSURANCE, 1A	Details	<ul style="list-style-type: none"> ◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	SDG4 Quality education SDG8 Decent work and economic growth		
Departmental Aim of Education			
I. Emphasize on a monographic study on insurance, and enhance professional knowledge of insurance. II. Enhance training for analytical thinking, and strengthen problem-solving and analytical skills. III. Focus on industry-university cooperation, and combine theory and practical issues.			
Subject Departmental core competences			
A. Students will exhibit professional knowledge of risk management and insurance. (ratio:30.00) B. Students will exhibit the ability of operations management in risk management and insurance.(ratio:5.00) C. Students will exhibit communication, cooperation and integration skills.(ratio:20.00) D. Students will exhibit analytical and problem-solving skills.(ratio:30.00) E. Students will exhibit the ability to write thesis and report.(ratio:10.00) F. Students will exhibit international perspectives.(ratio:5.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:10.00) 2. Information literacy. (ratio:20.00) 3. A vision for the future. (ratio:15.00) 4. Moral integrity. (ratio:10.00) 5. Independent thinking. (ratio:30.00) 6. A cheerful attitude and healthy lifestyle. (ratio:5.00) 7. A spirit of teamwork and dedication. (ratio:5.00)			

8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction

This course introduces the fundamentals of probability theory and aims to prepare students interested in sitting for the P Exam as offered by the Society of Actuaries (SOA).

The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.

II.Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.

III.Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.

No.	Teaching Objectives	objective methods
1	Mastering elementary probability theory is essential for understanding modern finance and quantitative risk management. This course will familiarize students with probabilistic concepts and operations, laying the foundation for future applications.	Cognitive

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDEF	12345678	Lecture, Practicum	Testing, Practicum, Activity Participation

Course Schedule

Week	Date	Course Contents	Note
1	113/02/19~ 113/02/25	Chapter 1 Combinatorial Analysis	
2	113/02/26~ 113/03/03	Public Holiday	
3	113/03/04~ 113/03/10	Chapter 2 Axioms of Probability	
4	113/03/11~ 113/03/17	Chapter 2 Axioms of Probability	

5	113/03/18 ~ 113/03/24	Chapter 3 Conditional Probability and Independence	
6	113/03/25 ~ 113/03/31	Chapter 3 Conditional Probability and Independence	
7	113/04/01 ~ 113/04/07	Teaching Observation Period	
8	113/04/08 ~ 113/04/14	Chapter 4 Random Variables	
9	113/04/15 ~ 113/04/21	Midterm Exam Week	
10	113/04/22 ~ 113/04/28	Chapter 4 Random Variables	
11	113/04/29 ~ 113/05/05	Chapter 5 Continuous Random Variables	
12	113/05/06 ~ 113/05/12	Chapter 5 Continuous Random Variables	
13	113/05/13 ~ 113/05/19	Chapter 6 Jointly Distributed Random Variables	
14	113/05/20 ~ 113/05/26	Chapter 6 Jointly Distributed Random Variables	
15	113/05/27 ~ 113/06/02	Chapter 7 Properties of Expectation	
16	113/06/03 ~ 113/06/09	Chapter 7 Properties of Expectation	
17	113/06/10 ~ 113/06/16	Chapter 8 Limit Theorems	
18	113/06/17 ~ 113/06/23	Final Exam	
Key capabilities	self-directed learning Problem solving		
Interdisciplinary			
Distinctive teaching			
Course Content	Logical Thinking		
Requirement	The adjustment of course content and grading policy would be subject to class participation and feedback.		

Textbooks and Teaching Materials	Self-made teaching materials:Presentations, Worksheets Using teaching materials from other writers:Textbooks Name of teaching materials: Ross, S.M. (2019) A First Course in Probability. Tenth Edition, Pearson
References	Probability (P) Exam Syllabus with Learning Objectives / Outcomes and Readings, Society of Actuaries (SOA)
Grading Policy	◆ Attendance : % ◆ Mark of Usual : % ◆ Midterm Exam : 35.0 % ◆ Final Exam : 35.0 % ◆ Other (participation, prac) : 30.0 %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php . ※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.