UNIVERSITI TEKNOLOGI MARA

ASC657: ACTUARIAL PRACTICE FOR NON-LIFE INSURANCE

Course Name (English)	ACTUARIAL PRACTICE FOR NON-LIFE INSURANCE APPROVED
Course Code	ASC657
MQF Credit	4
Course Description	This course introduces the students with the general insurance environment and application in pricing and reserving for general insurance. Part of this course follows the syllabus of Actuarial Mathematics (CM2) from Institute and Faculty of Actuaries (IFOA).
Transferable Skills	Demonstrate professional skills, knowledge and competencies
Teaching Methodologies	Lectures, Tutorial
CLO	CLO1 Apply concepts and methods to solve problems related to actuarial practice for non-life insurance CLO2 Develop and use problem-solving techniques in relation to actuarial practice for non-life insurance CLO3 Demonstrate lifelong learning skills in assignments related to actuarial practice for non-life insurance
Pre-Requisite Courses	No course recommendations

Topics
1. Describe the general insurance business environment 1.1) Current business environment in Malaysia 1.2) Main provider of general insurance
2. Main types of general insurance products in terms of 2.1) Purposes 2.2) Benefits and perils, 2.3) Exposure to which premiums are related, 2.4) Claim characteristics 2.5) Risk factors and risk rating
3. Describe the major areas of risk and uncertainty in general insurance business with respect to pricing, in particular those that might threaten profitability or solvency. 3.1) Process uncertainty 3.2) Parameter uncertainty 3.3) Model uncertainty 3.4) Data uncertainty
4. Rating for general insurance pricing 4.1) Frequency – severity approach 4.2) Burning cost approach
5. Estimating outstanding claim amounts in general insurance 5.1) Chain ladder 5.2) Chain ladder with inflation adjustment 5.3) Average cost per claim methods 5.4) Bornhuetter-Ferguson method
6. Ruin theory 6.1) Introduction 6.2) Aggregate claims and cash flow process 6.3) Poisson process and compound Poisson process 6.4) Probability of ruin within finite time 6.5) Simulation example

7. Generalized Linear Model (GLM)
7.1) Define an exponential family of distributions. Show that the following distributions may be written in this form: binomial, Poisson, exponential, gamma, normal.
7.2) State the mean and variance for an exponential family, and define the variance function and the scale parameter.
7.3) Derive these quantities for the distributions above.

Assessment Breakdown	%
Continuous Assessment	30.00%
Final Assessment	70.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	CLO3 - 10%	10%	CLO3
Test	CLO1 - 10%	10%	CLO1
Test	CLO2 - 10%	10%	CLO2

Reading List

Recommended Text

- **Institute and Faculty of Actuaries UK 2019, *Core Reading for CM2 Core Modelling***
- **Pietro Parodi 2014, *Pricing in General Insurance*, CRC Press [ISBN: 9781466581449]**
- **David Hindley 2017, *Claims Reserving in General Insurance*, Cambridge University Press [ISBN: 9781107076938]**
- **Annette J. Dobson,Adrian G. Barnett 2018, *An Introduction to Generalized Linear Models*, Chapman & Hall/CRC [ISBN: 1138741515]**
- **John Hull 2015, *Options, Futures, and Other Derivatives*, Pearson Higher Ed [ISBN: 0133456315]**
- **Esbjörn Ohlsson,Björn Johansson 2015, *Non-Life Insurance Pricing with Generalized Linear Models*, Springer [ISBN: 3642107907]**
- **David Granville Hart; Robert Andrew Buchanan; Bruce Anthony Howe 2007, *The actuarial practice of general insurance*, 7 Ed., Institute of Actuaries of Australia, 2007 Sydney, Australia [ISBN: 978085813073]**
- **Hossack, I. B.; Pollard, J. H.; Zehnwirth, B 1999, *2. Introductory statistics with applications in general insurance*, 2 Ed., Cambridge University Press [ISBN: 978-052165534]**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources