

Bachelor of Science (Hons) Actuarial Science **KP/JPS(A6628)10/13**

Actuarial Science encompasses the study of applied mathematics, statistics and financial theory to solve financial problems. It is a study of the financial risks associated with uncertain future events, with emphasis on assurance (life assurance), property and casualty insurance, pension plans and employee benefit programmes. This programme is designed to meet the rapid changing needs and challenges of the insurance and investment-related industries by aligning its syllabi with the professional examination requirements. It offers subjects that have been approved by the actuarial organisations for Validation by Educational Experience (VEE) credit, i.e. Economics, Corporate Finance and Applied Statistics. It covers all the topics on the CAS/SOA Probability (P) and Financial Mathematics (FM) actuarial examinations plus more than 12 semester hours on the topics for the SOA Actuarial Models (M) examination and the CAS/SOA Construction and Evaluation of Actuarial Models (C) examination that entail topics such as contingent payment models and frequency, severity and aggregate claims models. Students may gain international recognition, in addition to the UTAR honours degree. To enhance their employability, this programme also equips students with relevant IT skills.

Objectives of Course of Study

1. To prepare students for at least up to the preliminary education component of the Society of Actuary examination and satisfy the Society's Validation by Educational Experience requirements. Eventually, students should be able to work towards the status of a qualified actuary.
2. To develop students' skills in the valuation of contingent assets and liabilities particularly in the context of insurance or related business. In this aspect, students are expected to perform actuarial model selection, estimation in turn projection or statistical inference from such models.
3. To prepare students to adapt to the Malaysian Insurance-related Industries by providing them with assignments to mimic the actual decision making process and broad-based information pertaining to the industries.

Programme Learning Outcome

After completing this programme, students will be able to:

- A. Acquire a thorough knowledge of calculus, probability, statistical theories and interest theory to work on various actuarial models and their applications.
- B. Understand the fundamental concepts of financial mathematics and apply them in assets valuation, capital budgeting, asset/ liability management and most importantly valuing contingent cash flows.
- C. Develop knowledge of the theoretical basis of actuarial models and application of those models to insurance and other financial risks.
- D. Understand the steps involved in actuarial modelling process and carry out these steps in solving business problems.
- E. Develop knowledge of basic actuarial principles applicable to a variety of financial security systems: life, health, property & casualty insurance, annuities and retirement systems.

Careers

Graduates can seek employment as actuarial executives in the insurance industry, in which they design, value and price various types of risks containment policies. Apart from this, actuarial skills are transferable to any industry or job that requires financial or risk modelling as well as management. This includes financial services such as banking and investment management, transportation, utilities, oil and gas.

Subjects

Year 1

Introductory Calculus
Probability and Statistics I
Fundamentals of Linear Algebra
Programming Concepts and Design
Intermediate Calculus
Probability and Statistics II
Discrete Mathematics with Applications
Business Accounting I
Business Accounting II
Theory of Interest
Basic Professional Writing
Liberal Arts Elective* (Choose 1 subject)

Year 2

Advanced Calculus
Microeconomics I
Macroeconomics I
Introduction to Risk Management and Insurance
Financial Economics I
Introduction to Actuarial Mathematics
Life Contingencies I
Financial Economics II
Major Electives* (Choose 2 subjects)
Liberal Arts Elective* (Choose 1 subject)
Industrial Training

Year 3

Life Contingencies II
Insurance Practice
Actuarial Expository Project
Major Electives* (Choose 4 subjects)
Minor Electives* (Choose 4 subjects)
Liberal Arts Elective* (Choose 1 subject)

Major Electives*

Applied Statistical Models
Statistical Quality Control
Statistical Simulation for Insurance and Finance
Survival Models
Mathematics of Pension Funds
Loss Models
Credibility Theory
Mathematical Statistics
Operations Research
Applied Nonparametric Statistics
Design and Analysis of Experiment
Introduction to Time Series and Forecasting
Introduction to Stochastic Processes

Minor Electives*

Business Law
Business Finance
Portfolio Management
Financial Statement Analysis
Risk Management
Islamic Finance

Liberal Arts Electives*

Public Speaking and Oral Presentation
Oral Communication and Interpersonal Skills
Introduction to Sociology
Academic Writing
Critical Reading and Thinking

*Subject to change/availability

MQA Subjects

Bahasa Kebangsaan/Foreign Language
Pengajian Malaysia
Pendidikan Moral/Pengajian Islam

University Subjects

Co-Curriculum
Sun Zi's Art of War and Business Strategies