MATHEMATICAL SCIENCES
This brochure is valid for our 2019 intakes. All information is correct at the time of printing (December 2018).

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The School of Mathematical Sciences in Sunway University is recognised as a respectable institution in the country that produces high quality graduates.

The School of Mathematical Sciences offers 2 home-grown three-year degree programmes, which are:

- BSc (Hons) in Actuarial Studies
- BSc (Hons) in Industrial Statistics

The Actuarial Studies programme prepares students for the professional exams leading to qualified actuary status, making it the ideal pathway for prospective students wishing to enter the actuarial profession. The Industrial Statistics programme equips students with the fundamental, advanced and specialised mathematical and statistical knowledge, which is key to producing a dynamic, in-demand, and skilled workforce for almost every industry.
BSc (Hons) in Actuarial Studies draws together a variety of subjects that involve applying mathematical and statistical techniques in the financial services industry.

Designed to pave the way for students who want to enter a career as an actuary, they will be prepared for professional exams that will lead to a recognised actuary status or specialist in financial risk and insurance industries.

The Society of Actuaries (SOA) USA, Institute and Faculty of Actuaries (IFoA) UK, Casualty Actuarial Society (CAS) USA and Canadian Institute of Actuaries (CIA) conduct actuarial professional exams leading to professional designations such as Fellow of the Society of Actuaries (FSA), Fellow of the Institute of Actuaries (FIA), Chartered Enterprise Risk Analyst (CERA), Fellow of the Casualty Actuarial Society (FCAS) and Fellow of the Canadian Institute of Actuaries (FCIA).

Our programme is accredited by the Institute and Faculty of Actuaries (IFoA), UK. Students in our programme are eligible for exemptions* from the IFoA professional exams for papers CS1, CS2, CM1, CM2, CB1 and CB2.

SOCIETY OF ACTUARIES (SOA) USA
This programme provides exemptions for 3 papers from the Society of Actuaries (SOA) USA through the Validation by Educational Experience (VEE) pathway.

Students have to score at least 60% (or equivalent grade) in the designated subjects offered in the programme.

ASSOCIATESHIP OF THE MALAYSIAN INSURANCE INSTITUTE (AMII)
Students considering professional qualification in the insurance industry have an exclusive opportunity for an accelerated pathway when they enrol in this programme.

Our programme is recognised for admission into the Associateship of the Malaysian Insurance Institute (AMII) with eligibility for exemptions of up to 11 out of 14 AMII modules. Students may also complete the remaining 3 AMII modules within the duration of their degree.

The BSc (Hons) in Actuarial Studies programme helps prepare students to sit and pass the following SOA Professional Exams:
• Exam P
• Exam FM
• Exam IFM
• Exam STAM
• Exam SRM
as well as the Fundamentals of Actuarial Practice (FAP) e-learning module.

To further improve the passing rate of the SOA Exams, various supports are provided to students via our Professional Exams Preparatory Workshops and every student will have the special privilege to gain access to some Online Exam Preparation Courses that include video instruction, recommended homework assignments, problem solutions, online quizzes and tests.

To enhance our students’ employability, Actuarial Practice Seminars and Soft Skill Training are conducted on a regular basis by our in-house Qualified Actuaries with the aim to produce industry-ready graduates.

*Eligibility of exemptions depends on subjects taken and grades obtained.
### Programme Structure

#### Subjects

**Year 1**
- Principles of Financial Accounting
- Introductory Economics
- Programming Principles
- Calculus
- Linear Algebra & Applications
- English for Business
- Principles of Business Finance
- Introduction to Probability
- Advanced Calculus
- Theory of Interest

**Year 2**
- Derivative Securities I
- Life Contingencies I
- Introduction to Statistics
- Financial Management
- Communication Skills

**Year 3**
- Simulation & Credibility Theory
- Survival Models
- Ratemaking & Loss Reserving for General Insurance
- Life Insurance & Takaful
- Financial Risk Management
- Internship
- Community Project

**Electives** (Choose any 3 in Year 3)
- Time Series & Forecasting
- Regression Analysis
- Risk-Based Capital Modelling for Non-life Insurers
- Final Year Project
- Stochastic Processes
- Discrete Mathematics
- Underwriting Practice

**Additional MOHE Compulsory General Studies Subjects**

For Local students:
- Islamic & Asian Civilisations
- Ethnic Relations
- Bahasa Kebangsaan A
  (applicable to students who did not sit for SPM or did not obtain a Credit in SPM Bahasa Melayu)

For International students:
- Malay Language for Communication 2
- Malaysian Studies 3

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**International Study Options**

Sunway University students can choose several different study options, depending on their programme and their individual preferences and financial situation.

**University of Kent**
Students must achieve a minimum overall average of 65% in the 1st year of study.*
- A Level/STPM - ABB (A in Mathematics)
- UEC - 4A
- CIMP - 80%
- ATAR - 88
- MUFY - 65%
- SPM 1119 English - C
- IELTS - 6.5

**University of East Anglia**
Students must achieve a minimum overall average of 65% in the 1st year of study* and Pre-U results stated below or equivalent:
- A Level/STPM - ABB (A in Mathematics)
- UEC - 4A
- CIMP - 80%
- ATAR - 88
- MUFY - 65%
- SPM 1119 English - C
- IELTS - 6.5

**Macquarie University**
Students must achieve a minimum overall average of 80% in the 1st year of study* and Pre-U results stated below or equivalent:
- A Level - AAA
- ATAR - 96 or equivalent

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**Internship Companies & Enhanced Career Prospects**

A well-rounded academic experience and learning is vital for students to become graduates who are ready to take on the real world. We help students transit seamlessly into the workforce through our special internship programme, transforming them into industry-ready graduates.

Examples of companies our students have gone to for internship or employment:

- Actuarial Partners Consulting Sdn Bhd
- AIA Berhad
- Allianz Life Insurance Company (Malaysia) Berhad
- Allianz General Insurance Company (Malaysia) Berhad
- AmMetLife Insurance Berhad
- AXA Affin Life Insurance Berhad
- Etika Insurance Berhad
- Great Eastern Life Assurance (Malaysia) Berhad
- Hannover Re Malaysian Branch
- Hong Leong Assurance Berhad
- Hong Leong Bank
- JPWall Consulting Partners
- Lonpac Insurance Berhad
- Malaysian Life Reinsurance Group Berhad
- MCIS Insurance Berhad
- NMG Consulting
- Overseas Assurance Corporation (Malaysia) Berhad
- Prudential Assurance Malaysia Berhad
- Prudential BSN Takaful
- QBE Insurance (Malaysia) Berhad
- Sun Life Malaysia Assurance Berhad
- Tokio Marine General Insurers (Malaysia) Berhad
- Tokio Marine Life Insurance Malaysia Berhad
- Tune Insurance
- Zurich Insurance Malaysia Berhad

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*Please consult with programme leader on the subject.
Sunway University BSc (Hons) in Industrial Statistics is a home-grown 3-year degree programme designed to equip students with the fundamental, advanced and specialised mathematics and statistics knowledge; key to producing a dynamic, in-demand, and skilled workforce for almost every industry.

**Career Prospects**

- Chief Statistician
- Statistical Data Analyst
- Statistical Project Consultant
- Risk Data Analyst
- Data Scientist
- Statistical Quality Control Engineer
- Biostatistician
- Data Analytics Expert
- Healthcare Statistician
- Quantitative Analyst
- Researcher

**Intakes**

- March
- August

**Duration**

- 3 Years Full-Time

**About the Programme**
PROGRAMME STRUCTURE

Subjects

Year 1
- Calculus
- Introduction to Probability
- Linear Algebra & Applications
- Introduction to Operations Research
- Elementary Statistics
- Advanced Calculus
- English for Mathematical Sciences
- Fundamentals of Big Data and Knowledge Discovery
- Programming Principles

Year 2
- Mathematical Statistics I
- Stochastic Processes
- Mathematical Methods
- Design of Experiments
- Communication Skills
- Regression Analysis
- Quality Control and Survey Sampling
- Computer-Intensive Statistical Methods
- Mathematical Statistics II

Year 3
- Time Series & Forecasting
- Categorical Data Analysis
- Machine Learning Techniques for Data Mining
- Multivariate Analysis
- Social and Professional Responsibilities
- Community Project
- Internship
- Electives (Choose any 4 in Year 3)
  - Research Project
  - Analysis of Panel Data
  - Bayesian Forecasting
  - Applied Nonparametric Statistics
  - Regression Analysis for Spatial Data
  - Risk Theory

ADDITIONAL MOHE COMPULSORY GENERAL STUDIES SUBJECTS

For Local students:
- Islamic & Asian Civilisations
- Ethnic Relations
- Bahasa Kebangsaan A (applicable to students who did not sit for SPM or did not obtain a Credit in SPM Bahasa Malaysia)

For International students:
- Malay Language for Communication 2
- Malaysian Studies 3

ENTRY REQUIREMENTS

DEGREE

STPM
- A-Level*
  *Points are calculated based on grades obtained for 2 or 3 subjects:
  - Australian Matriculation
  - Canadian Matriculation
  - MUFE
  - Sunway Foundation in Arts
  - IB Diploma
  - Sunway Diploma*
  *Students may obtain advanced standing if credit transfer requirements are met

Minimum 12 points

Australian Matriculation
Canadian Matriculation
MUFE
Sunway Foundation in Science & Technology
UEC
IB Diploma
Sunway Diploma*
*Students may obtain advanced standing if credit transfer requirements are met

Minimum 26 points from 5 subjects (all Grade Bs)

IB Diploma Completed with minimum 25 points (excluding bonus points)

Any other equivalent qualifications

Specific Requirements

Note: For A-Level points calculation
- A = 10 points
- B = 8 points
- C = 6 points
- D = 4 points
- E = 2 points

ACTUARIAL STUDIES / INDUSTRIAL STATISTICS

Average C+ or CGPA 2.33 (Minimum 2 principals)

Minimum 12 points

ATAR 60
Canadian Matriculation
Canadian Matriculation
MUFE
Sunway Foundation in Arts
Sunway Foundation in Science & Technology
UEC
IB Diploma
Sunway Diploma*
*Students may obtain advanced standing if credit transfer requirements are met

Maximum 26 points from 5 subjects (all Grade Bs)
Complied with minimum 25 points (excluding bonus points)
CAWO 50% or CGPA 2.0

Any other equivalent qualifications
Applicant with no standard qualification will be considered on a case-to-case basis

Credit in English at SPM or equivalent for Industrial Statistics

ENGLISH LANGUAGE REQUIREMENTS

IELTS or equivalent
- 6.0
- Band 4

MUET
- B3 or B+
- B4

SPM English

UCE English

O-Level English

ESL/English

Satisfactory level in Pre-University programmes, where the medium of instruction is English
Throughout my 3 years here at Sunway University, the things that I have learnt have been beyond my expectations. While we learn the concepts of our modules in the classroom along with our lecturers, the technical aspects of it are supplemented by our consulting actuaries giving us hands-on experience of the work done in the industry.

CHAN EAK-KUAN
MANAGEMENT CONSULTANT, DELLOITE

The academic department invited big-name actuaries to give us an insight into the actuarial profession. I am truly inspired by one of them and decided to follow his path to become a general (non-life) insurance actuary. I have completed a 3-month attachment with a general insurance consulting firm and it reinforced my ambition to venture into the profession.

PUI YIK SHEN
ACTUARIAL ANALYST, PACIFIC INSURANCE BERHAD

Sunway University stands out from the rest by offering a well-structured course even though it is ‘newly-born’ compared to other universities. Three years in Sunway University has enriched me in terms of knowledge, and transformed me into a better person.

EMELYN LEE
SENIOR ANALYST - RETIREMENT, WILLIS TOWERS WATSON

3 years growing up in Sunway University had definitely taught me not to give up and pursue my dreams. Sunway BAS family including lecturers and peers were very supportive and had kept me going until I graduated. External training and modules for our industrial career were taught and conducted for our preparation in the future. True enough, I managed to get a job in Takaful Ikhlas Berhad right after my internship there.

ZULAIKHA ASYIGIN BINTI ABDUL SAMAD
ACTUARIAL EXECUTIVE AT TAKAFUL IKHLAS FAMILY BERHAD

Being the first batch of students in this course, we were very fortunate to have received guidance from supportive lecturers who went to great lengths ensuring that we had the best learning opportunities made available to us. I was very fortunate to have been offered a permanent position from my place of internship upon my graduation.

MICHELLE CHIU
ACTUARIAL ANALYST, JPWALL CONSULTING PARTNERS

My 3 years studying in Sunway University was filled with joy. It is a fun environment with dedicated and engaging lecturers, as well as first-class learning amenities. Sunway BAS has helped me gain the knowledge which collectively led me to a rewarding career.

CHONG ZHI KAI
ASSOCIATE, NMG FINANCIAL SERVICES CONSULTING SDN BHD
Nicholas Yeo’s involvement with Sunway University started with a casual visit to the campus, sitting in at a Ratemaking and Loss Reserving lecture in 2015. As a practising actuary, he was particularly impressed with the close alignment of the programme to industry needs. Specifically, it was at the global forefront in terms of catering towards the rising needs of actuarial expertise in general insurance. He jumped at the opportunity when offered a role as an In-house Actuary, to further enhance our ability to produce highly employable industry-ready graduates.

Sophia Ch’ng has about 20 years of experience in the insurance industry, ranging from life insurance, general insurance, takaful business to shared services. As a qualified actuary, she had a fast-paced and diverse career. Sophia was the first woman and first Malaysian to win the AIC’s Award for Young Manager, in the accord of strong result and vision. As the award is meant for visionary and forward-looking managers who also have strong implementation capabilities and who can bring significant improvements to the industry, Sophia’s credentials and achievements have shown that she is the rightful winner.

**Nicholas Yeo**
FIA FASM FSA FSAS
IN-HOUSE ACTUARY

**Sophia Ch’ng**
FIA FASM
IN-HOUSE ACTUARY

**OUR ACADEMIC LEADERS**

With over 15 academic staff, of which 8 have doctoral degrees, the School of Mathematical Sciences’ interest and expertise are in the areas of Mathematical Modelling, Applied Probability and Statistics, Algebra & Combinatorics, and Risk Management. The School is also supported by an excellent team of administrative staff.

**Dean**
• Professor Ho Chee Kit

**Associate Professor**
• Associate Professor Dr Leow Soo Kar

**Senior Lecturers**
• Dr Jane Teh Kimm Lii
• Dr Joshua Tan Juat Huan
• Dr Khoo Wooi Chen
• Chong Chin Yoon
• Low Ann Ann

**Lecturers**
• Dr Cheong Huey Tyng
• Dr Chin Jia Hou
• Dr Lai Kee Huong
• Ang Siew Ling
• Chan Lay Guat
• Gan Chew Peng
• Sia Jye Ying
• Tan Yean Nee

Mathematical Sciences
- Testimonials
- Overview of Academic Staff Profile
Malaysia's Only 5 Star Non-Government Linked Private University

Partner of

University of the Year by The Times and The Sunday Times Good University Guide 2018

World's largest hospitality education institution

Home to

Jeffrey Sachs Center on Sustainable Development
United Nations chosen destination for Sustainable Development Goals in Asia

Jeffrey Cheah Institute on Southeast Asia
Southeast Asia's independent public policy think-tank

Labs
Malaysia's innovation Lab
Created for student entrepreneurs

In collaboration with

Cambridge University
Harvard University
Oxford University
University of California Berkeley

A Class Above