

# MATHEMATICAL SCIENCES

- Prospectus -  
2022

**SUNWAY**  
UNIVERSITY



A CLASS ABOVE





# CONTENTS

- 03 ■ Introduction
- 04 ■ Distinctive Sunway Experience
- 05 ■ Entry Requirements
- 06 ■ BSc (Hons) in Actuarial Studies
- 07 ■ Distinctive Sunway Experience
- 08 ■ Pathways for BSc (Hons) in Actuarial Studies
- 10 ■ BSc (Hons) in Industrial Statistics
- 11 ■ Distinctive Sunway Experience
- 12 ■ Pathways for BSc (Hons) in Industrial Statistics
- 14 ■ Bringing you further
- 15 ■ Where are our graduates now?

## CONTACT:

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 Owned and governed by the Jeffrey Cheah Foundation  
 Registration no : 200701042913 (800946-T)



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### SUNWAY IS ONE OF THE TOP 150 UNIVERSITIES IN THE WORLD UNDER 50 YEARS OLD

Sunway University is a leading not-for profit private university committed to the pursuit of educational excellence through scholarship, research and enterprise.

The University is ranked among the top 750 universities in the world according to the QS World University Rankings 2021 and is ranked among the top 18% in the QS Asia University Rankings 2022. It has a 5-Star institutional rating in the QS Stars University Ratings in its latest assessment, demonstrating excellence in the individual categories of "Teaching", "Employability", "Facilities", "Inclusiveness" and "Social Responsibility".

The University also enjoys the 5-Star "Excellent" rating in the National SETARA quality assessment, a rating that has been consistently maintained since 2009.

All these accolades bear testament to Sunway's resolve in ensuring high quality teaching, research and service excellence.



United Nations chosen destination for Sustainable Development Goals in Asia



# INTRODUCTION

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

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.

## ACCREDITED BY:



BSc (Hons) in Actuarial Studies is among the 1<sup>st</sup> Actuarial Science programme in Malaysia to obtain full six IFoA exemptions.

## PATHWAY TO:



Actuarial Practice Course (APC) conducted by in-house actuary, Ms Sophia Ch'ng, Fellow of the Institute & Faculty of Actuarial (UK).



ASymposium actuarial conference organised by Sunway Actuarial & Financial Excellence [SAFE] student society.



Convocation ceremony at Sunway Resort Hotel & Spa.





# DISTINCTIVE SUNWAY EXPERIENCE

## STUDENT ACHIEVEMENTS

### Wai Chong Yin, Class of 2017

Sunway University BSc (Hons) in Actuarial Studies, has successfully completed the examinations and requirements as prescribed by the Society of Actuaries (USA) and is now officially a Fellow of the Society of Actuaries (FSA).



### Tan Min Li, Class of 2021

Sunway University BSc (Hons) in Actuarial Studies, has obtained six IFoA exemptions and the Sir Edward Johnston Prize. The Sir Edward Johnston Prize by the Institute and Faculty of Actuaries (UK). Established in 2013, this prize is awarded to top performing students on the actuarial programmes at several universities linked to the IFoA.



### 2020/2021 Chartered Financial Analyst (CFA) Institute Research Challenge

1<sup>st</sup> Runner-up  
Gabriel Ng, Matthew Goh and Nicholas Cheong  
– BAS students



**#CampusWithAConscience** is an underlying principle that embraces everything you will experience during your time at Sunway Education Group. This is the fundamental spirit at the heart Sunway Campus Life as we educate, encourage, and engage all aspects of our diverse community to adopt a lifestyle and lifestyle habits that truly reflect a society determined to create a better living environment for this generation and generations to come.

This # campaign aims to encourage conscientious efforts of the Sunway campus community in areas such as...

1. The goals of the UN SDGs;
2. Acceptance and tolerance towards each community member of the campus and the wider national and global community;
3. Inclusiveness of all and unity with all;
4. Well-being, both physical and mental;
5. Doing things right for society.

Join our journey as we seek to create a better environment for all, starting with you.

**#MostHappeningCampus** is a vibrant concept to promote a positive sense of inclusiveness whilst also generating a genuine feeling of community spirit. This # campaign has been successful in developing positive energy, togetherness and working as a team towards a common goal. It encompasses all the energy of Sunway life and supports student activities that happen on our campus.

May it be iconic events hosted on campus, unique student activities, academic presentations, or even visits by global personalities that inspire us, **#MostHappeningCampus** expresses our feeling of positive energy and encourages all our community to work together and develop personal attributes and qualities that will support their academic achievements at Sunway.

The most happening part of our campus is YOU.

## OUR ACADEMIC LEADERS

With 19 academic staff, of which 13 have doctoral degrees, the School of Mathematical Sciences' interest and expertise are in the areas of Mathematical Modelling, Applied Probability & Statistics, Algebra and Combinatorics. The School is also supported by an excellent team of administrative staff.

### DEAN

- Professor Ho Chee Kit

### ASSOCIATE DEAN

- Professor Teo Kok Lay
- Dr Jane Teh Kimm Lii
- Dr Lai Kee Huong

### ASSOCIATE PROFESSOR

- Associate Professor Dr Leow Soo Kar
- Associate Professor Dr Yeong Wai Chung

### SENIOR LECTURERS

- Dr Cheong Huey Tyng
- Dr Khoo Wooi Chen
- Chan Lay Guat
- Chong Chin Yoon
- Low Ann Ann
- Tan Yean Nee

### LECTURERS

- Dr Ang Siew Ling
- Dr Gan Chew Peng
- Dr Lee Mok Siang
- Dr Liew Khang Jie
- Dr Sim Kai An
- Aimi Syairah Md Sa'at
- Sia Jye Ying

# ENTRY REQUIREMENTS

PROGRAMME	ENTRY REQUIREMENTS	ENGLISH REQUIREMENTS	SPECIFIC REQUIREMENTS
BSC (HONS) IN ACTUARIAL STUDIES	STPM Average C+ or CGPA 2.33 (Minimum 2 principals)	IELTS or equivalent 6.0 MUET Band 4 SPM English B3 or B+ UEC English B4 O-Level English Credit	Credit in Mathematics at SPM or equivalent
	A-Level Minimum 12 points (Minimum of Grade C from 2 subjects) Australian Matriculation ATAR 60 Canadian International Matriculation Programme 60% MUFY 60% Sunway Foundation in Arts CGPA 2.00		
BSC (HONS) IN INDUSTRIAL STATISTICS	Sunway Foundation in Science & Technology CGPA 2.00	Sunway Intensive English Programme (IEP) Pass Level 4 with minimum 65% ESL/English Satisfactory level in Pre-University programmes, where the medium of instruction is English	
	UEC Maximum 26 points from 5 subjects (all Grade Bs) IB Diploma Completed with minimum 25 points (excluding bonus points) Sunway Diploma* CGPA 2.00 or equivalent <small>*Students may obtain advanced standing if credit transfer requirements are met.</small> Other Qualifications Any other qualifications will be considered on a case-to-case basis		

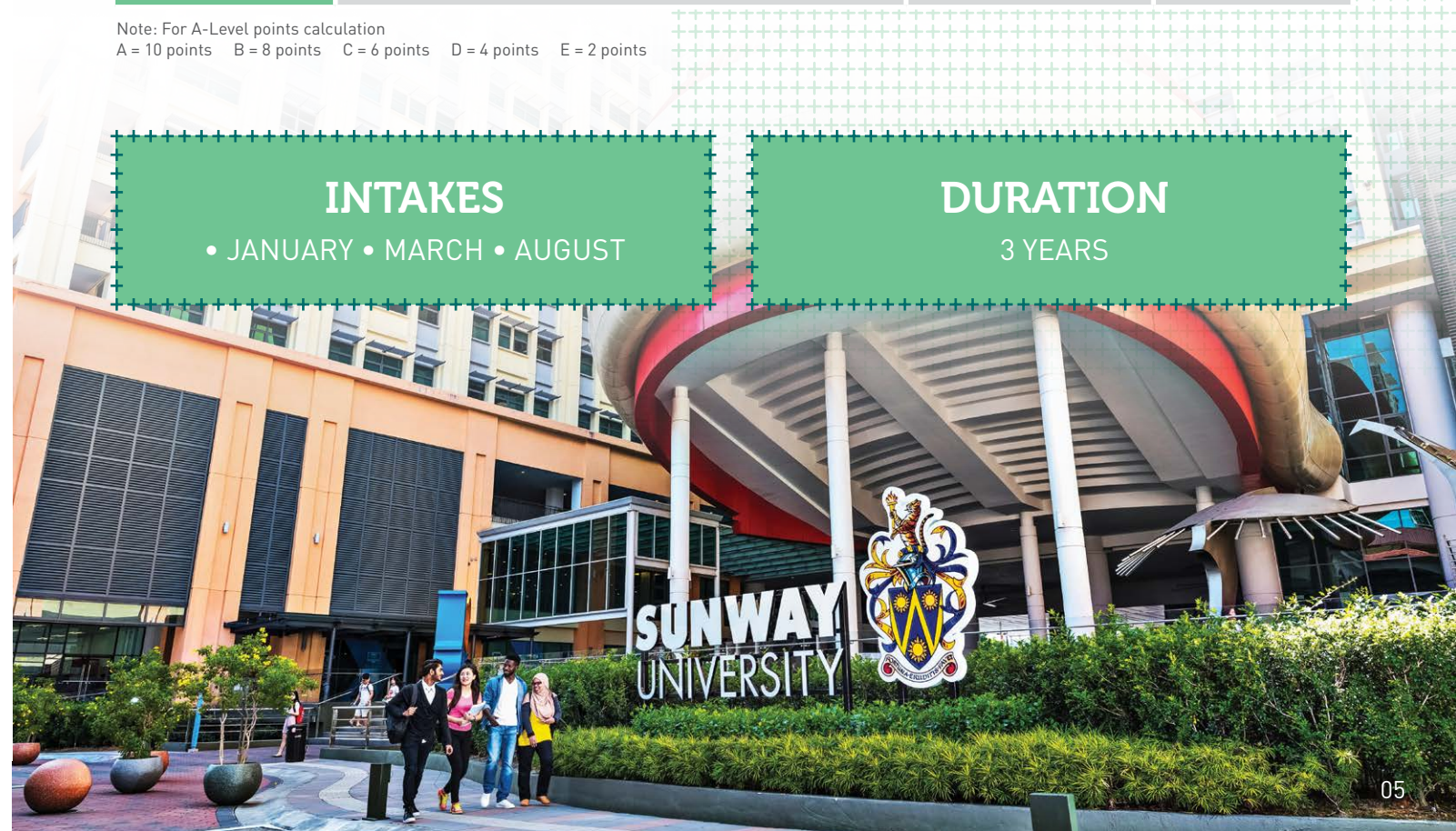
Note: For A-Level points calculation  
A = 10 points B = 8 points C = 6 points D = 4 points E = 2 points

## INTAKES

• JANUARY • MARCH • AUGUST

## DURATION

3 YEARS





# BSC (HONS) IN ACTUARIAL STUDIES

## PROGRAMME INTRODUCTION

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).

## CAREER PROSPECTS

- Actuarial reserving analyst
- Catastrophe risk analyst
- Chief actuary in casualty insurance/health/life/property
- Chief executive officer
- Chief financial officer
- Financial risk manager

## DISTINCTIVE SUNWAY EXPERIENCE

### Institute and Faculty of Actuaries (IFoA) UK

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.

## PROGRAMME STRUCTURE - Subjects

### Year 1

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

### Year 2

- Communication Skills
- Derivative Securities I
- Derivative Securities II
- Financial Management
- Introduction to Statistics
- Life Contingencies I
- Life Contingencies II
- Mathematical Methods
- Risk Theory

### Year 3

- Community Project
- Internship
- Ratemaking & Loss Reserving for General Insurance
- Regression Analysis
- Simulation & Credibility Theory
- Social & Professional Responsibilities
- Survival Models

## ACCREDITED BY:



Institute and Faculty of Actuaries

## Electives (choose 3)

- Advanced Actuarial Mathematics and Finance
- Advanced Actuarial Statistics
- Design of Experiments
- Discrete Mathematics
- Financial Risk Management
- Life Insurance & Takaful
- Multivariate Analysis
- Research Project
- Risk-Based Capital Modelling for Non-life Insurers
- Stochastic Processes
- Time Series & Forecasting

## ADDITIONAL MOHE COMPULSORY GENERAL STUDIES SUBJECTS

### For Local students:

- Appreciation of Ethics and Civilisation
- Philosophy and Current Issues
- 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
- Appreciation of Ethics and Civilisation

## PATHWAY TO:



Institute and Faculty of Actuaries



SOCIETY OF ACTUARIES

JPT/BPP(U)[R/462/6/0013/FA1631]07/22

# DISTINCTIVE SUNWAY EXPERIENCE

## THE SUNWAY ADVANTAGE

### LSE SUMMER SCHOOL (3 WEEKS)



Obtain additional credits from the world-renowned London School of Economics.



Courses taught during the Summer School are based on regular LSE undergraduate courses, and taught to the same standards by leading LSE faculty. Lecturers are experts in their chosen fields and committed to teaching with academic rigour and contemporary relevance.

### Subjects you can pursue in LSE:

- Introduction to Financial Mathematics
- Introduction to Data Science and Machine Learning
- Statistical Methods in Risk Management
- Computational Methods in Financial Mathematics

### ACTUARIAL PRACTICE COURSE

This 3-month course is designed to prepare actuarial students of Sunway University to be employment-ready, and incorporates the feedback from the industry practitioners in the course design. This course covers several topics with practical assignments, including long-term reserve, long-term pricing and IFRS 17.

Track record of 100%\* employment in actuarial-related positions for students who successfully completed this 3-month course.

\*Based on School of Mathematical Sciences graduate tracer study

## IN-HOUSE ACTUARY

Together with academic staff, our in-house actuaries ensure that our programme syllabus is in close alignment with the industry needs. Our students are highly employable as they are at the forefront in meeting the rising needs for actuarial expertise globally.



### Nicholas Yeo

Founder of Nicholas Actuarial Solutions, with clients across the ASEAN region. Lectures on Actuarial Statistics and Mathematics subjects.



### Sophia Ch'ng

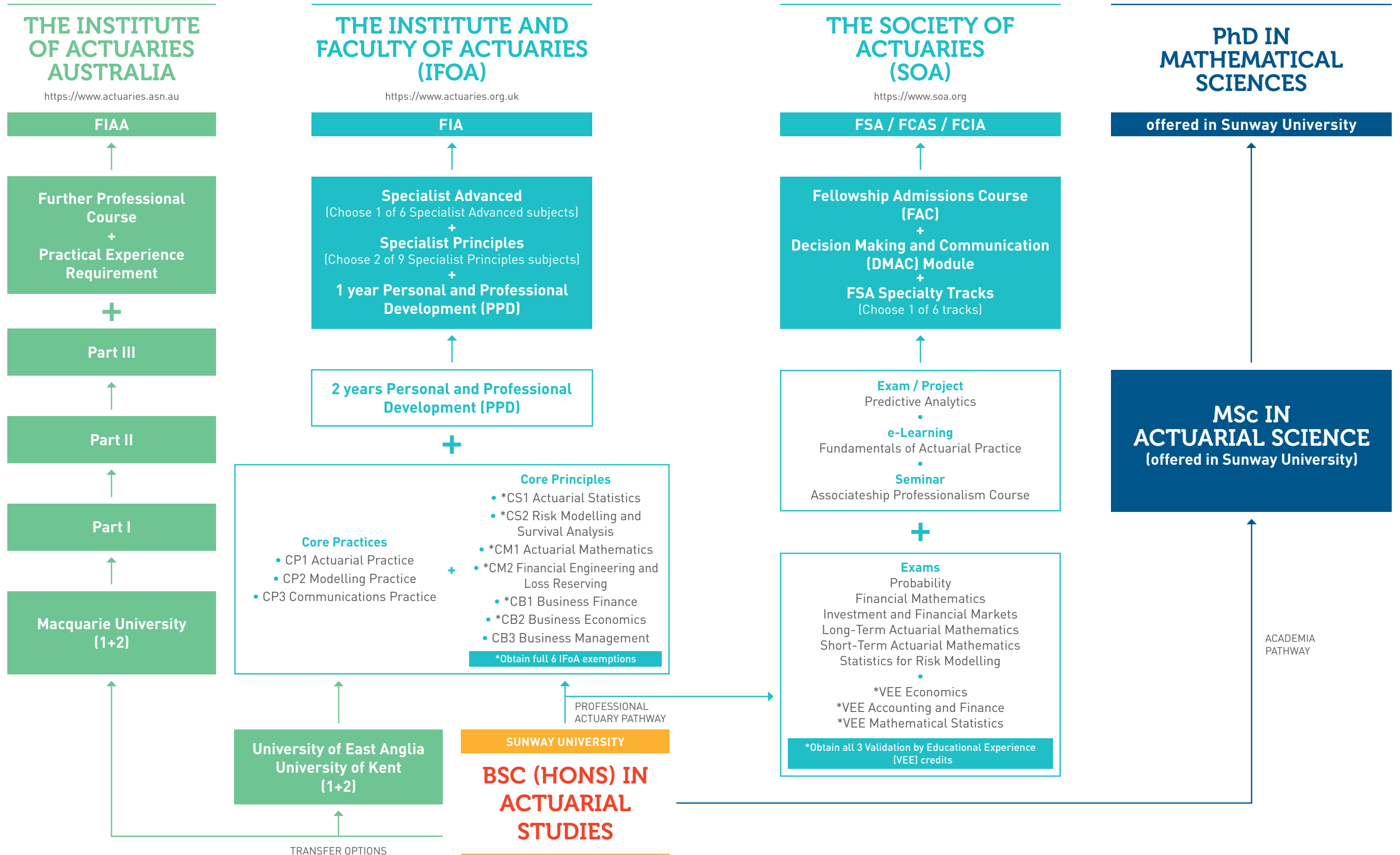
Immediate Past President of Actuarial Society of Malaysia. About 20 years of experience in the insurance industry, ranging from life insurance, general insurance, takaful business to shared services.

## PARTNER UNIVERSITIES

UNIVERSITY	TRANSFER OPTION: 1+2
	Students must achieve a minimum overall average of 65% in the 1st year of study*
	Students must achieve a minimum overall average of 65% in the 1st year of study* and Pre-U results stated below or equivalent: <ul style="list-style-type: none"> <li>• A Level/STPM – ABB (A in Mathematics)</li> <li>• UEC – 4A</li> <li>• CIMP – 80%</li> <li>• ATAR 88</li> <li>• MUFY 65%</li> </ul> English: <ul style="list-style-type: none"> <li>• SPM 1119</li> <li>• English – C</li> <li>• IELTS – 6.5</li> </ul>
	Students must achieve a minimum overall average of 80% in the 1st year of study* and Pre-U results stated below or equivalent: <ul style="list-style-type: none"> <li>• A Level – AAA</li> <li>• ATAR 96 or equivalent</li> </ul>

\*Please consult with programme leader on the subjects.

# PATHWAYS





# BSC (HONS) IN INDUSTRIAL STATISTICS

## PROGRAMME INTRODUCTION

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.



## DISTINCTIVE SUNWAY EXPERIENCE

The BSc (Hons) in Industrial Statistics Programme helps prepare students to sit and pass the following exams leading to the globally recognised SAS Certified Data Scientist qualification:

- Exam 1: Data Curation for SAS Data Scientists
- Exam 2: Predictive Modeling
- Exam 3: Advanced Predictive Modeling
- Exam 4: Text Analytics, Time Series, Experimentation and Optimization

To produce industry-ready graduates and enhance our students' employability, professional exam preparatory courses and workshops such as R, SAS, Excel, and Python are being conducted.

## PROGRAMME STRUCTURE - Subjects

### Year 1

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

### Year 2

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

### Year 3

- Big Data Technologies
- Internship
- Machine Learning Techniques for Data Mining
- Multivariate Analysis
- Social and Professional Responsibilities
- Time Series & Forecasting

## Electives (choose 4)

- Advanced Data Analytics
- Analysis of Panel Data
- Applied Nonparametric Statistics
- Bayesian Forecasting
- Categorical Data Analysis
- Regression Analysis for Spatial Data
- Research Project
- Risk Theory
- Simulation and Credibility Theory
- Survival Analysis
- Survival Model

## ADDITIONAL MOHE COMPULSORY GENERAL STUDIES SUBJECTS

- For Local students:**
- Appreciation of Ethics and Civilisation
  - Philosophy and Current Issues
  - Community Service
  - 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
  - Appreciation of Ethics and Civilisation

## CAREER PROSPECTS

- Audit analytics
- Biostatistician
- Business/Corporate data analyst
- Chief statistician
- Cryptographer
- Data analytics expert
- Data scientist
- Fraud investigator
- Healthcare statistician
- Investment/Risk data analyst
- Operations research analyst
- Optimisation & Forecasting engineer
- Quantitative analyst
- Researcher
- SAS programmer
- Sports performance analyst
- Statistical project consultant
- Statistical quality control engineer

# DISTINCTIVE SUNWAY EXPERIENCE

## PROFESSIONAL DEVELOPMENT ROADMAP

To produce employment-ready graduates

### INDUSTRIAL CONSULTANCY PROJECTS (ICP)

Through our Centre for Actuarial and Analytics Research (CAAARE), students gain practical experiences doing Industrial Consultancy Projects (ICP) from various industries.

### ELIGIBLE FOR 2 SAS JOINT CERTIFICATES

- Advanced Statistical Techniques for Data Science and Predictive Analytics
- Data Science

### IMPROVED INDUSTRY VALIDATED SKILLS

Our programme prepares students for the globally recognised SAS Certified Data Scientist certification.

Summer school\*  
**LONDON SCHOOL OF ECONOMICS (LSE)**  
 3 weeks summer school



\*Subject to changes & lifting of travel restrictions

## PARTNER UNIVERSITY

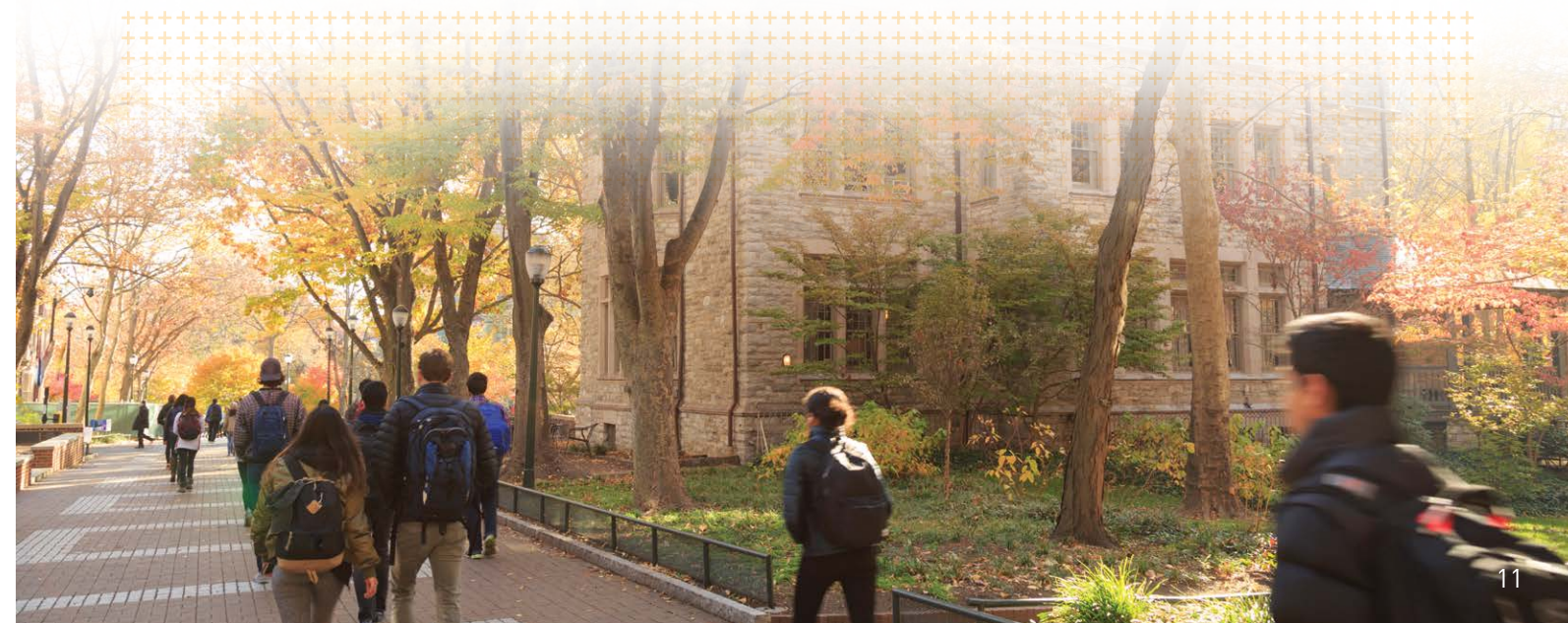
UNIVERSITY	TRANSFER OPTION: 2+1
<p>University of Essex</p> <p>entering BSc Data Science and Analytics</p>	<p>Students must achieve a minimum CGPA of 3.0 and above</p> <p>+</p> <p>English:</p> <ul style="list-style-type: none"> <li>• Credit in SPM 1119</li> <li>• IELTS – 6.5</li> </ul>

## ESSEX GLOBAL PARTNERS' SCHOLARSHIP

Undergraduate scholarship for Sunway University students

- £2,000 maximum for entry into the second year of study
- £1,500 maximum for entry into the third year of study

Please refer to the University of Essex's website: [www.essex.ac.uk](http://www.essex.ac.uk) for more information.



# PATHWAYS

## STATISTICIAN

#1 Best Business Jobs  
 #2 Best STEM Jobs  
 #2 100 Best Jobs  
 U.S. NEWS & WORLD REPORT\*

## THE SOCIETY OF ACTUARIES (SOA)

<https://www.soa.org>

## CASUALTY ACTUARIAL SOCIETY (CAS)

<https://www.casact.org>

## SAS INSTITUTE

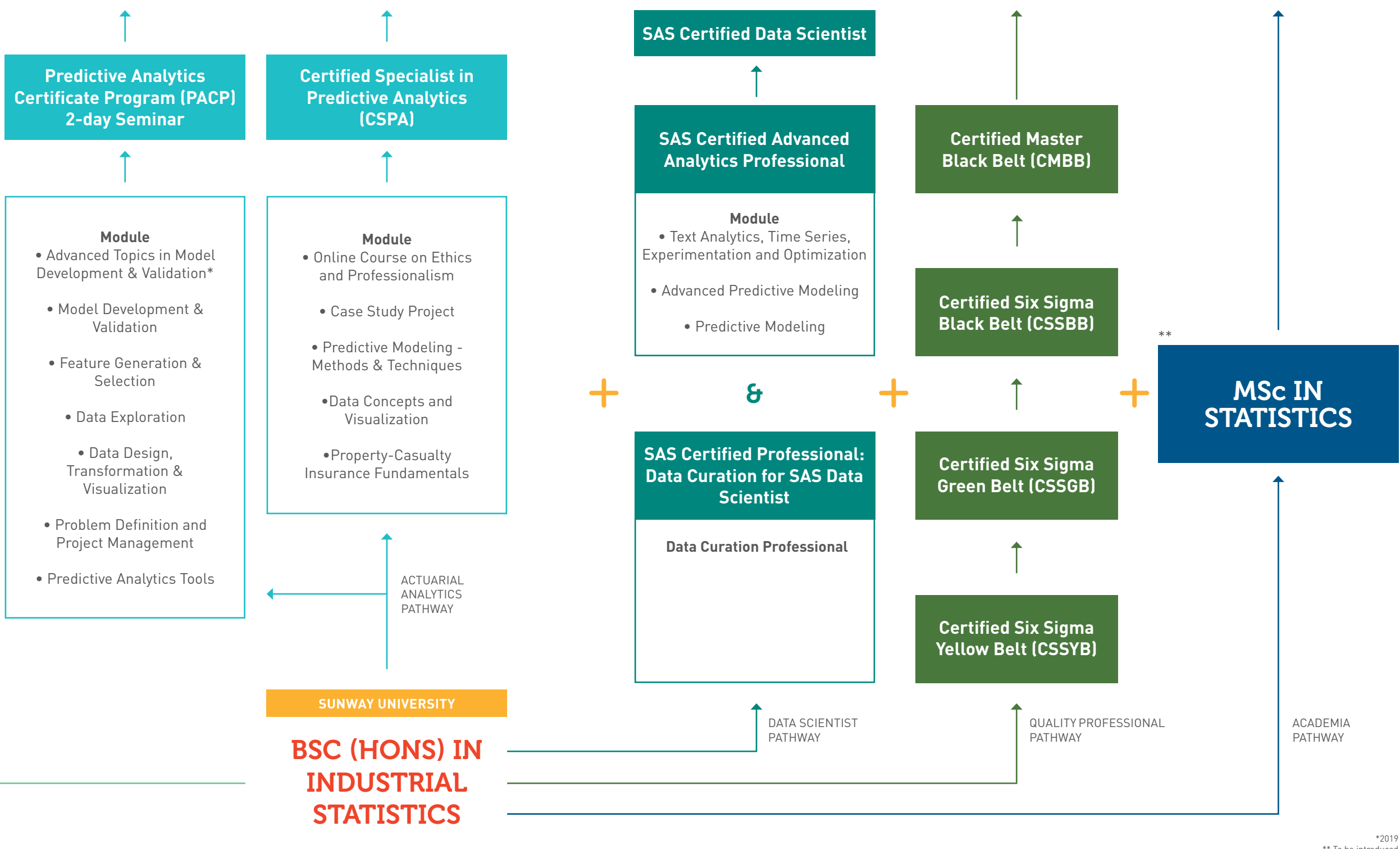
<https://www.sas.com>

## AMERICAN SOCIETY FOR QUALITY (ASQ)

<https://asq.org>

## PhD IN MATHEMATICAL SCIENCES

offered in Sunway University





# BRINGING YOU FURTHER

## INTERNSHIP COMPANIES AND COMPANIES OUR GRADUATES WENT TO

### Accounting

- Deloitte
- Ernst & Young
- PricewaterhouseCoopers (PwC)
- Public Bank Berhad

### Banking

- Bank Negara Malaysia
- CIMB Bank Berhad
- Hong Leong Bank
- Malayan Banking Berhad
- OCBC Bank (Malaysia) Berhad

### Consulting

- Accenture
- Actuarial Partners Consulting Sdn Bhd
- JPWall Consulting Partners
- Milliman
- Nicholas Actuarial Solutions
- NMG Consulting

### Financial Management

- Affin Hwang Asset Management Berhad

### Industrial Product & Service

- PETRONAS
- Sunway Trading and Manufacturing

### Insurance

- AIA Berhad
- AIG Malaysia Insurance Berhad
- Allianz General Insurance Company (Malaysia) Berhad
- Allianz Life Insurance Company (Malaysia) Berhad
- AmGeneral Insurance Berhad
- AmMetLife Insurance Berhad
- AXA Affin Life Insurance Berhad
- Etiqa General Insurance Berhad
- FWD Takaful Berhad
- Gibraltar BSN Life Berhad
- Great Eastern General Insurance (Malaysia) Berhad
- Great Eastern Life Assurance (Malaysia) Berhad

- Hannover Rueck SE Malaysian Branch
- Hong Leong Assurance Berhad
- Lonpac Insurance Berhad
- Malaysian Life Reinsurance Group Berhad
- Manulife Malaysia
- MCIS Insurance Berhad
- MSIG Insurance (Malaysia) Berhad
- Prudential Assurance Malaysia Berhad
- Prudential BSN Takaful Berhad
- QBE Insurance (Malaysia) Berhad
- Sun Life Malaysia Assurance Berhad
- Takaful Ikhlas Family Berhad
- Takaful Malaysia Sdn Bhd
- Tokio Marine Life Insurance Malaysia Berhad
- Tune Insurance Malaysia Berhad
- Zurich Life Insurance Malaysia Berhad



WHERE ARE OUR GRADUATES NOW?

### FOO HUI SZE BSC (HONS) IN ACTUARIAL STUDIES



Company:  
Zurich Life Insurance  
Malaysia Berhad

Position:  
Senior Pricing Analyst

### AHMED THANZEEM BSC (HONS) IN ACTUARIAL STUDIES



Company:  
Dhivehi Insurance  
Company Private  
Limited (Maldives)

Position:  
Assistant Manager  
– Underwriting &  
Statistics, Technical  
Department

### NIK MOHAMAD KHALID BSC (HONS) IN ACTUARIAL STUDIES



Company:  
Actuarial Partners  
Consulting

Position:  
Actuarial Analyst

### ZULAIKHA ASYIQIN BINTI ABDUL SAMAD BSC (HONS) IN ACTUARIAL STUDIES



Company:  
Takaful Ikhlas Family  
Berhad

Position:  
Executive – Actuarial  
Pricing & Product  
Development

### CARMEN CHOONG WAI LUM BSC (HONS) IN ACTUARIAL STUDIES



Company:  
Great Eastern Life  
Assurance

Position:  
Bancassurance Product  
& Transformation  
Assistant Manager

### TANUSHIA PARANSOTHY BSC (HONS) IN ACTUARIAL STUDIES



Company:  
Etiqa Insurance and  
Takaful

Position:  
Senior Risk Analyst

### FOO HUI SHEE BSC (HONS) IN ACTUARIAL STUDIES



Company:  
HSBC Hong Kong

Position:  
Senior Actuarial  
Analyst

### LIM YOU SHENG BSC (HONS) IN ACTUARIAL STUDIES



Company:  
Takaful Malaysia  
Sdn Bhd

Position:  
Actuarial Executive



## IN PARTNERSHIP WITH THE WORLD

UNIVERSITY OF CALIFORNIA, BERKELEY

HARVARD UNIVERSITY

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

LANCASTER UNIVERSITY

UNIVERSITY OF OXFORD

UNIVERSITY OF CAMBRIDGE

LE CORDON BLEU

ALIBABA BUSINESS SCHOOL

As part of our nation building ambitions, Sunway University has travelled the world seeking out the finest educational opportunities, bringing them closer to you.

### LIVE

Whilst most universities have a campus, only Sunway University has a city. Experience a world-class education right here at Sunway City, Malaysia's model smart-sustainable city enabled by 5G.

### LEARN

International collaborations with the world's most renowned institutions offer Malaysians world-class education at local prices, avoiding the expensive cost of overseas travel and unfavourable exchange rates.

### LEAD

Currently pioneering research with the University of Cambridge to collaborate on ways to combat the Covid-19 pandemic in the Jeffrey Cheah Biomedical Centre at the University of Cambridge.

### LEGACY

Located at Sunway City, Malaysia, Sunway University joins New York & Paris as one of the three United Nations Sustainable Development Solutions Network (SDSN) Centres in the world to coordinate continent-wide sustainable initiatives.

ONE UNIVERSITY, A WORLD OF OPPORTUNITIES.

## A CLASS ABOVE

