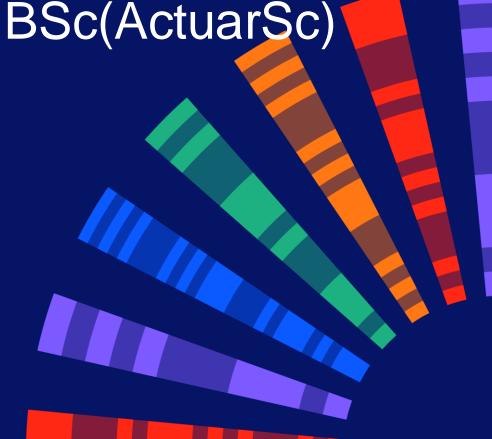
# Admission Talk for HKU Actuarial Science - BSc(ActuarSc)

JUPAS Programme Code: 6729

26 October 2024





### About School of Computing & Data Science (CDS)

#### Empowering Changemakers of the Future

- Newly established school at The University of Hong Kong
- Encompasses the Department of Computer Science and the Department of Statistics and Actuarial Science
- Aims to foster innovation, collaboration, and excellence in the vital fields of
  - Computing
  - Statistical Sciences
  - Data Science
  - Artificial Intelligence





# International rankings of HKU



#2

#17

in Asia (2024)

in the world (2025)

#25

Data Science and Artificial Intelligence (2024)



#6

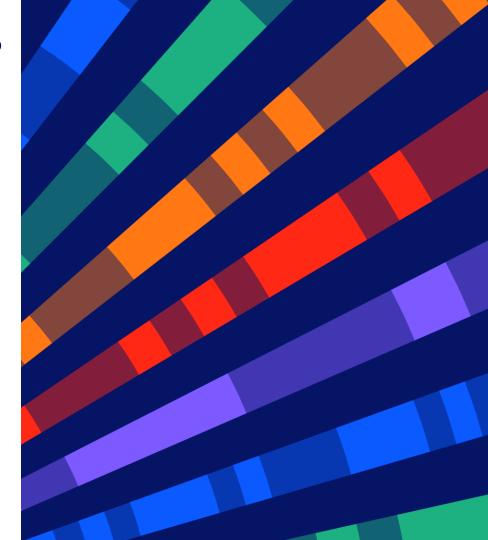
in Asia (2024)

#35

in the world (2025)

The University of Hong Kong School of Computing & Data Science





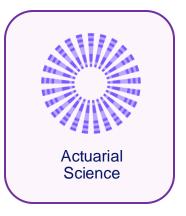
## Programme Overview







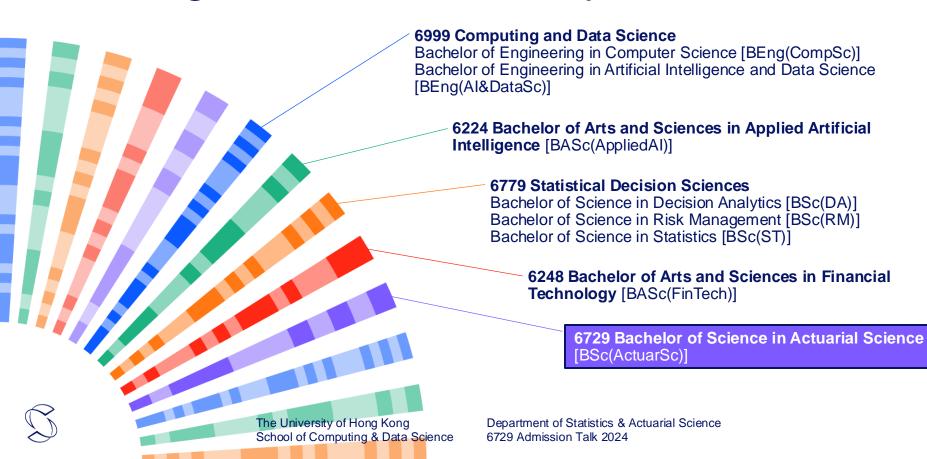




精算學



## UG Programmes Offered by the School



### What is Actuarial Science? 什麽是精算?

• Actuarial science is the discipline that applies modern mathematical (數學) and statistical (統計) methods to assess and manage risk (風險) in the insurance (保險) and finance (金融) industries

• Actuarial science includes a number of interrelating subjects, including probability (概率) and statistics (統計), data science (數據科學), finance (金融), and economics (經濟)



## Actuary's Work 精算師的工作

- Actuaries are **experts and professionals**, qualified in this field through examinations and experience, that utilize actuarial methods and techniques to address future financial risk
- 精算師是運用精算方法和技術去解決未來財務風險的專家和專業人士





## Actuary's Work 精算師的工作

- Actuaries are the **leading professionals** in finding ways to manage risk.
  - It takes a combination of strong analytical skills and business knowledge to manage today's complex risks facing our society.
- Actuaries are **key players** on the management team of companies that deal with risk.
  - In a fast-changing world, with emerging risks and the need for more creative ways to tackle them, there are constant opportunities for personal and professional growth.
- Actuaries are the **analytical backbone** of our society's financial security programs.

(Be An Actuary)



保險公司的後勤部門設有不同的工作崗位,不少崗位是由精算師出任。大家又是否知道,精算師在一間保險公司內,是擔任什麼角色呢?

其實,精算師於保險行業一直擔當著重要角色。他們的工作範圍廣泛,從新保險產品的設計,保費定價及準備金預算,到為保險公司進行風險評估及制定投資策略等,都離不開精算師的參與。隨著風險為本資本制度(RBC regime)的實施,以及國際財務報告準則第17號(IFRS 17)將於2023年生效,保險公司對於富經驗的精算師,更加是求賢若渴。

就 而言,於高級管理層當中,便有7位具有精算師資格,包括副行政總裁暨首席財務官、首席 產品總監、首席風險總監、首席投資及資產負債管理總監、首席精算師、首席資本管理總監以及中國項 目負責人。此外,超過20位同事亦擁有精算師資格,於不同部門中擔當著重要崗位。各人憑著其專業知 識,在瞬息萬變的市場環境中,為公司制定良策部署,做好風險管理,達致財務穩健,為保單持有人謀 取最佳利益。

Source: https://www.stheadline.com/columnists/lifestyle/3179047/%E5%AF%8C%E9%80%9A%E4%BF%9D%E9%9A%AA-%E7%B2%BE%E7%AE%97%E5%B8%AB%E6%96%BC%E4%BF%9D%E9%9A%AA%E5%85%AC%E5%8F%B8%E8%88%89%E8%B6%B3%E8%BC%95%F9%87%8D%F7%9A%84%F8%AZ%92%F8%89%B2%F5%9F%8F%F4%B8%AD%F7%86%B1%F4%BA%8B



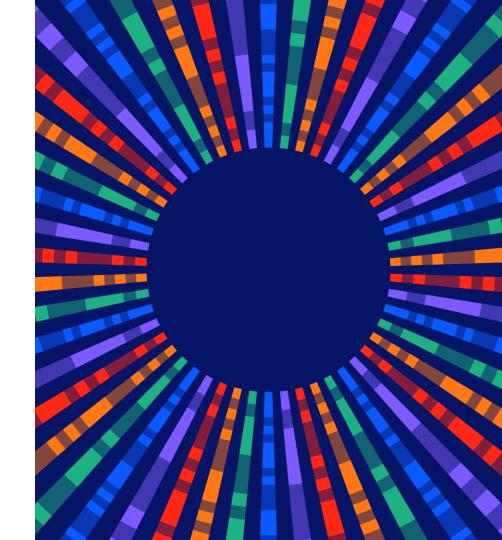
# How to Become an Actuary?

怎樣成為一個精算師?

# Actuaries

Risk is Opportunity.®





# Becoming an Actuary 成為一個精算師

• Admitted into one of the professional bodies in the US, UK, or Australia 考取美國、英國、澳洲等地其中一個專業資格

- There are usually two stages —般分兩個階段
  - 1. Associateship (準/副精算師會員)
  - 2. Fellowship (精算師會員)
- Generally takes 5 8 years 需時大概 5 – 8 年





# Typical Exam Systems 典型考試制度

### **Fellowship**



Specialist examinations, professionalism



### **Associateship**



Fundamentals of actuarial practice, actuarial control cycle, investment practice, professionalism

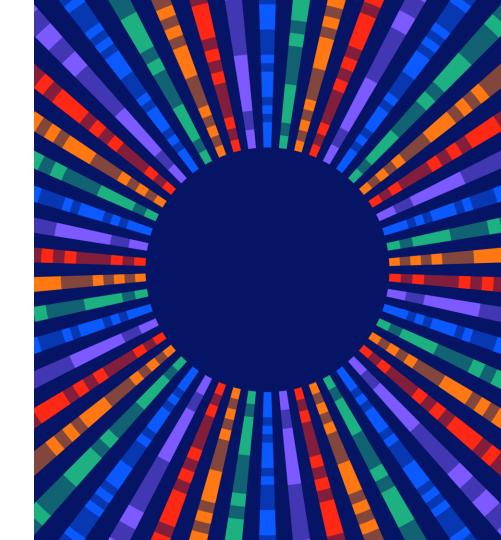


Actuarial models, statistics, data analytics, economics, corporate finance, etc.



### **Top 6 Reasons**

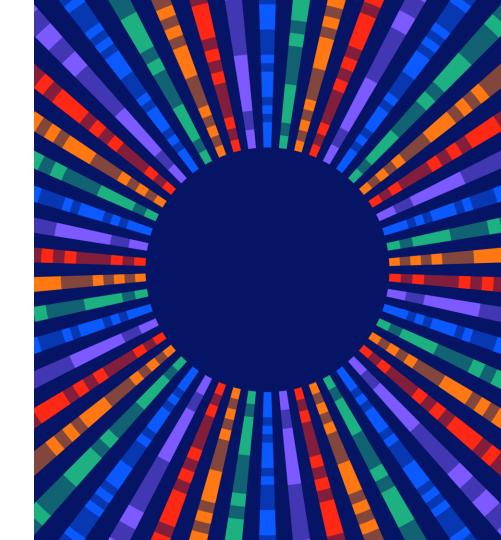
you should choose HKU Actuarial Science





### Reason #1

# Excellent Employment Prospect





Economics & Mathematics & Business » Actuarial Science » Asia

#### **Best Universities for Actuarial Science in Asia**

Updated: February 29, 2024 EduRank

Below is a list of best universities in Asia ranked based on their research performance in Actuarial Science. A graph of 456K citations received by 68.4K academic papers made by 313 universities in Asia was used to calculate publications' ratings, which then were adjusted for release dates and added to final scores.

We don't distinguish between undergraduate and graduate programs nor do we adjust for current majors offered. You can find information about granted degrees on a university page but always double-check with the university website.

1. University of Hong Kong

China | Hong Kong

For Actuarial Science

#1 in China

#19 in the World



Source:

https://edurank.org/business/actuarial-science/as/

Acceptance Rate 17% • Enrollment 21,652 • Founded 1911









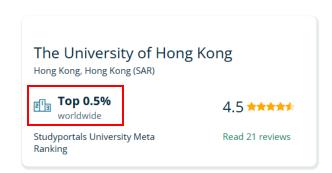




All studies > Actuarial Science > Asia > Hong Kong (SAR) > The University of Hong Kong > Actuarial Science

#### **About**

This Actuarial Science programme from The University of Hong Kong equips you with a solid background and specialist training in actuarial science. You will acquire the confidence and analytical skills to define and tackle problems in actuarial science and related fields.



Source: https://www.bachelorsportal.com/studies/191372/actuarial-science.html?ref=search\_card



# Prospect of Actuaries 精算師出路多!

• Actuarial qualification is recognized worldwide 精算專業資格,世界通行







#### **Forbes**

CAREERS

# The Top 5 Growing Career Fields In 2022

Ashley Stahl Contributor (1)

Follow

Nov 8, 2021, 09:00am EST

#### 5. Actuarial and Statistician

Actuaries enjoy an almost 20% growth rate by the end of the decade and a median income over six figures. If you enjoy data and statistics, this could be the perfect high-growth field. Most work for insurance companies, deciding whether or not to insure a potential customer. Being able to evaluate risk is an in-demand skill. Actuaries often have a degree in actuarial science and have passed a series of licensing exams. Statisticians fulfill a similar role for companies by analyzing data and projecting future sales, profits, and obstacles to growth. Data Scientists, who help companies better utilize information, enjoy a projected 30% growth in employment by 2030.



https://www.forbes.com/sites/ashleystahl/2021/11/08/the-top-5-growing-career-fields-in-2022





Q Search jobs or companies

JOB SEARCH

CAREER PATHS

SUCCEEDING AT WORK

**DIVERSITY AND INCLUSION** 

ADVICE / CAREER PATHS / EXPLORING CAREERS

### 15 High-Paying Jobs That'll Be in Demand for Years to Come

by <u>Deanna</u>
<u>deBara</u>
Updated 10/8/2024









#### Source:

https://www.themuse.com/advice/high-paying-jobs-in-demand-for-future



Median salary in 2023: \$120,000

Projected growth rate between 2023 and 2033: 21.8%

Actuaries typically work for insurance companies and are responsible for evaluating risk. They use math, data, and statistics to determine whether their employer should issue a policy to a potential customer and what the premium should be—whether that's an individual or a business.

As an actuary, you'd make evaluations regarding health, life, automobile, homeowners, medical malpractice, and workers' compensation insurance, as well as retirement benefits and other investments.

A degree in actuarial science (which focuses on using math and statistical modeling to assess risk) or a related field, such as math or statistics, is a must. Plus, actuaries need to pass a series of rigorous exams over the course of several years in order to be certified by the Casualty Actuarial Society (CAS) or the Society of Actuaries (SOA).



# These are the 6 fastest-growing jobs of the decade that pay over \$100,000

Published Wed, Sep 29 2021-3:10 PM EDT

Job	Projected Employment Change, 2020-2030	Median Pay
Nurse practitioners	52.2%	\$111,680
Information security analysts	33.3%	\$103,590
Medical and health services managers	32.5%	\$104,280
Physician assistants	31.0%	\$115,390
Actuaries	24.5%	\$111,030
Software developers, software quality assurance analysts and testers	22.2%	\$110,140

Source: Bureau of Labor Statistics • Get the data

Source: https://www.cnbc.com/2021/09/29/the-6-fastest-growing-jobs-of-the-decade-that-pay-over-100000.html





Enter search keyword(s)

Q





#### 01倡議 | 人才政策要從入境、產業、 經濟、教育全面著手



撰文:評論類證室

出版: 2022-10-08 08:00 更新: 2022-10-08 16:10

近年泰國、新加破、英國等都推出了吸引海外人才的政策, 而李家超政府 將於本月19日發表的《施政報告》,人才政策預計也會是重點。不少團體 和智庫的建議都包括了人才政策,例如香港新方向建議針對新興產業吸引 内地和海外的創科人才來港創業、取消優才計劃的年度配額,簡化其程序 和更新評分標準。由立法會議員等人十組成的香港人才大融合促進組則列 出了十點人才政策建議,包括建立人才信息庫、跨灣區科研人才庫等。

#### 人才清單便利入境 指定領域重點投資

首先,人才政策必須具針對性,延攬及留住的人才應是對香港經濟和產業發 展有重要作用的人才。香港政府2018年制訂首份人才清單,經2021年檢討後 現時涵蓋13項專業,包括資產管理合規專才、FSG相關財經專才、廢物處理 專家、資產管理專才、海事保險專才、精算師、金融科技專才、數據科學家 及網絡安全專家、創新及科技專家、造船師、輪機工程師及船舶總管、創意 產業和表演藝術專才、爭議解決專才及業務交易律師。



Source: https://www.hk01.com/01%E8%A7%80%E9%BB%9E/823146





く返回



2024-10-08 16:33:00

#### 美國研究列出大學十大最有價值學系 最強學科年薪近90萬 港元

#### 10.精算學

年薪中位數: 95,000美元 (約73.8萬港元)

失業率: 1.9%

具有高級學位的工人比例: 20%

上述調查可見,精算科學成為10大最有價值的學位中唯一真正的非工程學位。報導指出,精算師是幫助保險公司或其他行業的公司確定、評估和預測自然災害或其他不確定事件等風險的成本。根據美國勞工統計局 (BLS) 的數據,這些專業人員的勞動力預計在未來十年將以驚人的22%的速度成長。

#### Source:

https://www.am730.com.hk/%E5%9C%8B%E9%9A%9B/%E7%BE%8E%E5%9C%8B%E7%A0%94%E7%A9%B6%E5%88%97%E5%87%BA%E5%A4%A7%E5%AD%B8%E5%8D%81%E5%A4%A7%E6%9C%80%E6%9C%89%E5%83%B9%E5%80%BC%E5%AD%B8%E7%B3%BB-

%E6%9C%80%E5%BC%B7%E5%AD%B8%E7%A7%91%E5%B9%B4%E8%96%AA%E8%BF%9190%E8%90%AC%E6%B8%AF%E5%85%83/494833



美國求職網站CareerCast.com稱,精算行業在薪資和增長潛力方面在所有行業中名列前十。

CareerCast.com對職業的薪酬和增長前景進行了年度排名,透過排名發現,在這個領域占主導地位的是精算師等以處理數字為基礎的職業。

資料科學家、統計學家和資訊保安分析師的排名也很高。

精算師被評為「最佳職業排行榜的中流砥柱」, 平均年薪為102,880美元(67萬人民幣), 到 2026年的增長前景為22%。

CareerCast.com的調查結果基於美國勞工統計局的資料,並根據環境、收入、前景和壓力這四項核心標準對調查結果進行了分析。

Source: https://www.jasve.com/zh-tw/zhichang/a415e9f61636a73a022f9a99296e1d75.html)

The Best Jobs of 2021



#### 9. Actuary

Median Salary: \$111,030

Projected Growth: 18.00%



根據美國職涯網站O\*NET ONLINE統整 出的職業壓力量表,其以「必須接受批 評、同時從容應對高壓情況的程度」為 標準,列出各項職業得承受的壓力指 數,而求職網站the muse則將壓力指數 低於70、年薪高於7萬美元(美國家庭年 收中位數,約新台幣210萬)的工作,定 義為「低壓高薪」的職業,並從中推薦 下列13種職缺,其中某些工作不僅前途 好、待遇佳,也不需要頂尖學歷就能勝

#### 2.精算師 (Actuary)

壓力指數:70

**年薪中位數:**102,880美元(約台幣290萬)

學經歷條件:需要有數學相關領域的學士學位,並得獲得執業證書。

10年內薪資預估成長:20%



Source:

https://www.storm.mg/lifestyle/3513587?page=1

精算師須利用統計數據分析各式風險,他們通常替金融或保險公司工作,為其開發模組來預測各種突發狀況(例如天災、疫情、意外事故等),評估背後的財務風險與成本。由於攸關公司的存亡和經濟體系的穩定,因此**精算師除了須具備相關科系的學士學位,還要通過一系列的證照考試,才能獲得執業證書**。



## Salary Survey 2024



(PERSOLKELLY Hong Kong Salary Guide 2024)



## Salary Survey 2024

#### FINANCIAL SERVICES | 1 of 3

2024 Salary Guide



Hong Kong's financial services hiring landscape is experiencing a transformative surge as a key player in the hedge fund industry, with robust growth of family offices and the creation of new career opportunities in the region.

Most	in-demand	funct	ional	areas

Compliand	ie .	
Operation	al Risk	
Fund Acco	unting	
Corporate	Accounting	
Actuarial		
Finance O	perations	
IT Audit		

#### In-demand technical skills and experience

IFRS 17 Reporting and Accou <mark>nting P</mark> olicy	
RBC and Capital Reporting	
IT skills (Python, C+ BASIC, C, C++, COBOL, Java, R, Tableau, SQL, VBA, and Macro)	
Operational Risk, Information and IT Risk, Risk Transformation, Risk Analytics, Internal Control Framework	

(Robert Half Hong Kong Salary Guide 2024)



## Salary Survey 2024

**SALARIES | FINANCIAL SERVICES | 4 of 17** 

2024 Salary Guide

	JOB TITLE	25th	50th	75th
	Assistant Actuarial Analyst / Actuarial Analyst / Senior Actuarial Analyst	\$ 249,000	\$ 436,000	\$ 603,000
	Assistant Manager / Manager - Actuarial	\$ 540,000	\$ 720,000	\$ 900,000
Incurance Actuarial	Senior Manager - Actuarial	\$ 884,000	\$ 1,060,000	\$ 1,248,000
Insurance - Actuarial	Sub Team Head / Director - Actuarial	\$ 1,248,000	\$ 1,508,000	\$ 1,747,000
	Appointed Actuary / Senior Director / Chief Actuary	\$ 1,976,000	\$ 2,308,000	\$ 2,704,000
	CFO - Insurance / Actuarial	\$ 2,028,000	\$ 2,392,000	\$ 3,016,000

(Robert Half Hong Kong Salary Guide 2024)



### **UK Salaries**

Earning Potential in Insurance					
Business Function Entry Level* Senior roles* Partner/Head					
Underwriting	£25,000	£120,000	£250,000		
Claims	£25,000	£95,000	£150,000		
Broking	£25,000	£120,000	£250,000		
Risk and Compliance	£30,000	£85,000	£125,000		
Projects, Change and Operations	£30,000	£110,000	£175,000		
Actuarial	£37,500	£150,000	£208,000		

<sup>\*</sup>Salaries based on jobs in London. Source Hays' **UK Salary & Recruiting Trends 2024 Guide**.

Source: https://www.insurancecareers.co.uk/profession-overview/insurance-salary-survey-2024-hays/



Life Insurance Average Salaries						
London South Midlands North Scotl						
Partner	£295,000	£283,000	£268,000	£252,000	£247,000	
Associate Partner	£230,000	£210,000	£202,500	£194,000	£180,000	
Chief Risk Officer	£215,000	£195,000	£193,000	£170,000	£170,000	
Chief Actuary	£177,000	£160,000	£155,000	£148,000	£138,000	
Director	£155,000	£142,000	£137,500	£130,000	£127,000	
Senior Manager	£110,000	£104,000	£96,000	£82,000	£88,000	
Manager	£81,000	£77,500	£72,000	£70,000	£66,000	
Senior Actuarial Analyst/ Consultant	£75,000	£59,500	£58,000	£55,000	£53,000	
Actuarial Analyst/ Consultant	£47,500	£42,000	£40,000	£38,000	£36,000	
Graduate	£38,000	£33,000	£33,000	£32,750	£27,250	

Source: Hays UK Salary & Recruiting Trends 2024 Guide

Source: Actuarial Careers UK



### **US Salaries**

#### **US Life Actuaries, All Employment Types**

©2023 EzraPenland.com

Years of Experience	2 Exams	3 Exams	4 – 5 Exams	ASA	FSA
0-1 years	64-83	67-86			
1	72-92	75-95	79-100		
2	76-95	78-101	82-104	91-125	
3	79-97	83-105	85-108	94-136	
4	82-102	88-109	90-111	98-142	111-165
5		91-112	92-116	101-148	117-183
6		93-117	94-121	107-162	121-197
7		94-122	97-125	112-167	127-216
8			98-129	116-174	133-234
9			101-135	121-182	140-257
10				124-189	147-268
11				131-197	152-275
12				137-204	157-284
13				144-212	163-295
14				148-215	168-308
15				153-221	174-336
16				156-231	181-366
17				161-242	186-399
18				167-261	192-434
19				173-303	196-471
20+ years				180-336	202-504

\*Base Salary Plus Paid Bonuses, In US\$thousands





### 2023 Actuarial Science Graduates

• Employed 74.1% Further Studies 22.2%

• Mean Salary

Basic: \$28,265Gross: \$29,741

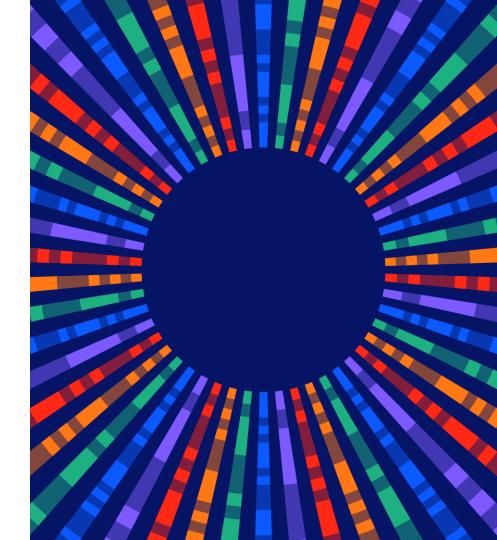
• Number of Full-time Job Offers

One: 40%
Two: 45%
Three: 10%
Four: 5%



### Reason #2

# Comprehensive and Flexible Curriculum





### Cover over 90% of the ASA exam requirement of the SOA

覆蓋北美精算學會 (SOA) 準精算師考試課程 90% 以上

FOUNDATIONS	ACTUARIAL I	ACTUARIAL II	ADVANCED	PROFESSIONALISM
FINANCIAL MATHEMATICS STAT2902, STAT3905	EXAM FUNDAMENTALS OF ACTUARIAL MATHEMATICS STAT3901, STAT3906 STAT3908, STAT4903	EXAM ADVANCED LONG-TERM ACTUARIAL MATHEMATICS OR	e-LEARNING FUNDAMENTALS OF ACTUARIAL PRACTICE STAT3953	SEMINAR ASSOCIATESHIP PROFESSIONALISM COURSE
PROBABILITY STAT2901, STAT3902	VEE MATHEMATICAL STATISTICS STAT3902	ADVANCED SHORT-TERM ACTUARIAL MATHEMATICS STAT3901, 3909, 3956 OR STAT3906, 3908, 4903		
VEE ECONOMICS ECON1210, ECON1220		PREDICTIVE ANALYTICS STAT4904	e-LEARNING ADVANCED TOPICS IN PREDICTIVE ANALYTICS (STAT4904)	
VEE ACCOUNTING AND FINANCE ACCT1101, STAT3904	EXAM STATISTICS FOR RISK MODELING STAT3907, STAT4904			
e-LEARNING PRE-ACTUARIAL FOUNDATIONS	e-LEARNING ACTUARIAL SCIENCE FOUNDATIONS (STAT3953)			

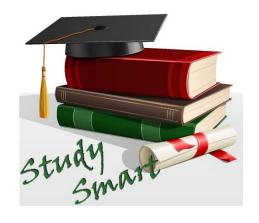


# Students can freely choose to take any major or minor study 學生可自由選擇主副修課程

#### Possible combinations

- ✓  $1^{st}$  Major (AS) +  $2^{nd}$  Major
- ✓ 1<sup>st</sup> Major (AS) + Minor
- ✓  $1^{st}$  Major (AS) +  $1^{st}$  Minor +  $2^{nd}$  Minor

Popular choices of 2nd Major Computer Science; Economics; Finance; Sociology



#### Popular choices of Minor

Accounting; Computer Science; Economics; Finance; Hong Kong Studies; Mathematics; Physics; Spanish; Sustaining Cities, Cultures, and the Earth (SCCE)



### **Industry Collaboration**

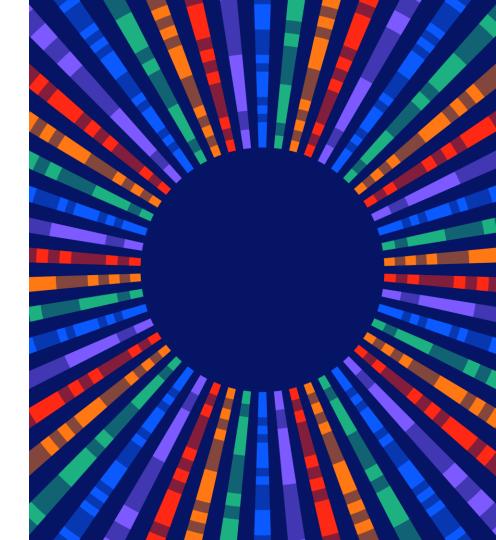
• Collaborate with **AIA Group** (largest publicly traded life insurance group in the Asia-Pacific region) and **Fidelity National Information Services** (FIS, one of the largest financial technology companies in the world) to offer a new course.

#### • Features of the course:

- Taught by a team of experienced actuaries from AIA
- Students will learn how to perform **actuarial modelling** through practical business case studies
- Students will gain hands-on experience of using Insurance Risk Suite (formerly Prophet), a state-of-the-art professional actuarial modelling solution, developed and sponsored by FIS.



# Recognition by Professional Bodies

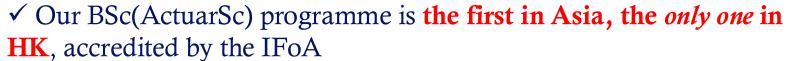




#### **Institute and Faculty of Actuaries (UK)**

✓ Accreditation for SIX Core Principles subjects

CS1, CS2, CM1, CM2, CB1, CB2



#### **Society of Actuaries (US)**

- ✓ All 3 VEEs
- ✓ Center of Actuarial Excellence
- ✓ **Exemption** of professional exams: FM, SRM, ALTAM, ASTAM



Institute

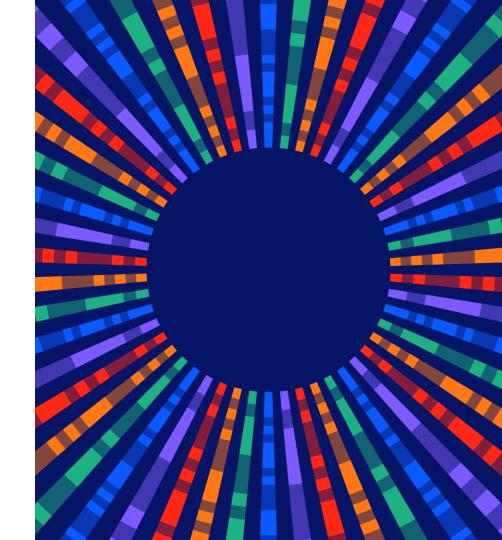
and Faculty

of Actuaries





# Comprehensive Career Support





#### **Career Advising Programme**

- Professional Preparation Programme (PPP)
- Individual consultation on cover letter, CV and interview skills
- Corporate Mentorship Programme (CMP) AIA Group, AIA International, AXA, Bloomberg, China Life, Chubb, Cigna, Deloitte, Ernst & Young, HSBC, KPMG, SCOR Re, Swiss Re, etc
- Market information workshops
- Firm visits and alumni sharing
- Career Fair



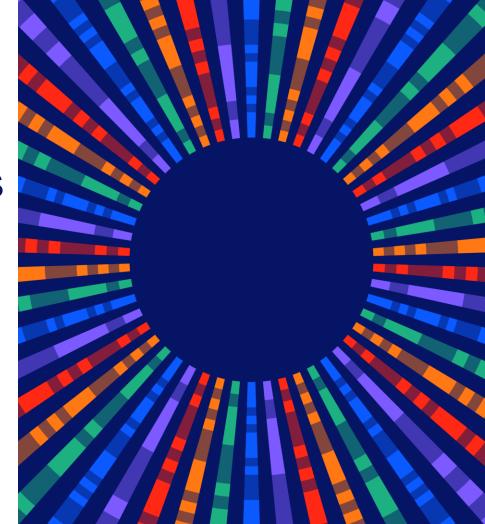








## Internship Opportunities











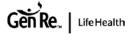




















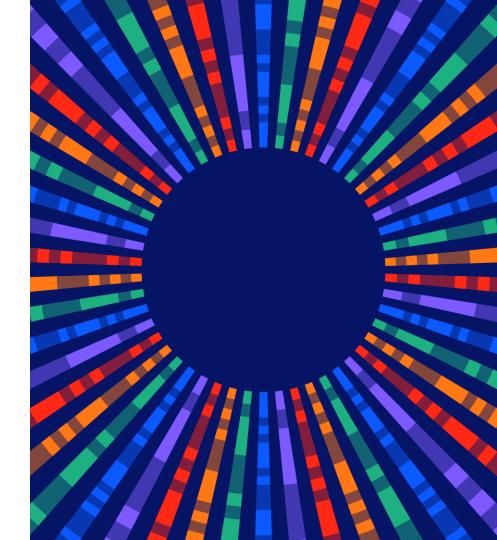
**94**% of our students have participated in the internship programme!

- ABN AMRO Asset Management
- ACE Life
- American International Assurance (AIA)
- Aon Hewitt
- AXA
- BOC Group Life Assurance
- Citibank
- Dah Sing Life
- Deloitte
- Deutsche Bank
- Ernst & Young
- FTSE Group
- FWD Life Insurance Company (Bermuda)
   Ltd.
- Goldman Sachs
- Hang Seng Bank
- Hewitt Associates

- HSBC Investment (HK) Ltd.
- ING Life
- JP Morgan
- KPMG
- Manulife (International) Ltd.
- Morgan Stanley
- Munich Reinsurance Co.
- New York Life
- Prudential Assurance Co. Ltd.
- Rabobank
- RGA Reinsurance
- Standard Chartered Bank (Hong Kong) Ltd.
- Swiss Re
- Towers Watson



# Scholarships





#### Dr Patrick S C Poon Scholarship in Actuarial Science

- ★ 5 scholarships
- \* Awarded to first year students admitted through JUPAS with most outstanding entrance record
- ★ Each at HK\$50,000 or HK\$60,000 per year, all renewable based on satisfactory performance in each year's study in the programme





#### **Hong Kong Federation of Insurers Scholarship**

**Award of HK\$20,000** 



#### Sir Edward Johnston Prize (by Institute and Faculty of Actuaries (IFoA))

- Only for actuarial students at specific universities
- ❖ An annual award of £250



#### The Life Underwriters Association of Hong Kong Scholarship

Award of HK\$10,000



#### YF Life Scholarship in Actuarial Science and Risk Management

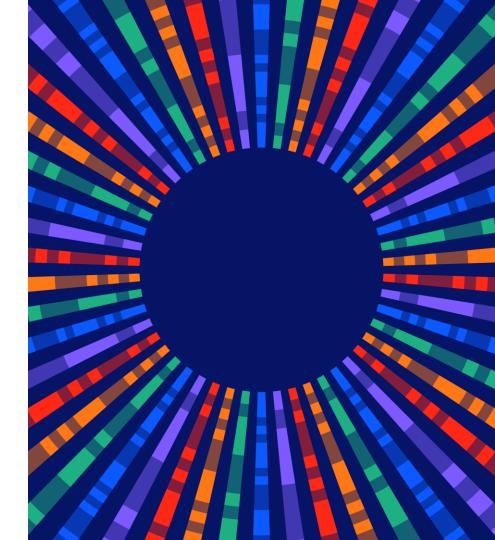
Award of HK\$15,000





# **BSc(ActuarSc) Admission Requirement**

精算課程入學要求





## Admission Requirements 入學要求

#### **HKDSE**

© English Language Level 3

© Chinese Language Level 3

© Mathematics (Compulsory Part) Level 4

© Mathematics (Extended Part – Module 1 or 2) Level 4

© Citizenship & Social Development/Liberal Studies Attained/Level 2

© 1 Elective Level 3

#### Admission formula = $[Eng + Math + (M1 \text{ or } M2)] \times 1.2 + Best 2$

DSE Level	3	4	5	5*	5**
Score	3	4	5.5	7	8.5



## Any questions? Feel free to ask here!



**English** 



中文







## Enquiries

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Website



Facebook Page



