Bachelor of Science

Empowers scientific intellectuals to formulate solutions to society's challenges

Science of Drawing Conclusions

The world is rife with uncertainty. Decisions are often made in the face of incomplete data, imperfect knowledge and random variation. Statistics is the study of such variables through the development and application of analytic and quantitative tools that involve logical thinking, problem formulation, probability reasoning and intensive data analysis. The discipline is applicable to almost all areas of science, business and research and to many practical areas in which data are collected to support the decision-making process. Therefore, statistics is often described as the generic science of drawing conclusions in the presence of uncertainty.

Our Majors cater for students with a good mathematics background and are designed to meet the steadily rising demand for specialist statisticians and analysts in government, industry, research and teaching in local and overseas institutions. Students interested in the subject of statistics may choose Decision Analytics, Risk Management or Statistics as their major or as an additional (second) major or minor. Minor in Actuarial Studies, in particular, is a good option in combination with the aforesaid Majors.

Given the expanding use of data in all realms of society, the Department of Statistics and Actuarial Science encourages students from all fields to consider pursuing a Major in Decision Analytics, Risk Management or Statistics. We have students who are pursuing double majors in a variety of fields of application, along with minors from a wide range of departments. Meanwhile, a Minor in Risk Management or Statistics can be an excellent complement to a degree in almost any fields.

Major

- Decision Analytics
- Risk Management
- Statistics

Minor

- Actuarial Studies
- Risk Management
- Statistics

Major in **Decision Analytics**

The Decision Analytics Major aims to equip students with the skills and expertise in leveraging and managing big data in real time amidst an upsurge of digital data produced worldwide nowadays. It enables students to examine, translate and classify data, uncover hidden patterns and unknown correlations, and most importantly, pinpoint precisely the most critical areas and the implications suggested by the data. With a coordinated approach to teaching across different disciplinary fields, namely computer science, mathematics and statistics, the Major is designed to provide students with solid training in making digitized information a strategic part of critical decision making and resource allocation with greater clarity and accuracy.

Decision analytics promotes the applications of computer technology, operational research, mathematical and statistical modelling, and simulation to decision-making and problem-solving in all organisations and enterprises within the private and public sectors. Applications of decision analytics are virtually to all kinds of disciplines: science, social science, education, engineering, medicine, economics, business, etc. Students will acquire a competitive advantage in becoming vital assets of any organisations which need to make decisions.

Required Courses (96 credits)*

Introductory Level Courses (48 credits)	STAT2601	Probability and statistics I
	STAT2602	Probability and statistics II
	SCNC1111	Scientific method and reasoning
	SCNC1112	Fundamentals of modern science
	COMP1117	Computer programming
	COMP2119	Introduction to data structures and algorithms
	MATH1013	University mathematics II
	MATH2014	Multivariable calculus and linear algebra
Advanced Level Courses (30 credits)	STAT3600	Linear statistical analysis
	STAT3612	Statistical machine learning
	STAT4609	Big data analytics
	COMP3278	Introduction to database management systems
	MATH3904	Introduction to optimization
Disciplinary Electives (12 credits)	*At least 12 credits selected from the following courses:*	
	STAT3620	Modern nonparametric statistics
	STAT3621	Statistical data analysis
	STAT3622	Data visualization
	STAT3655	Survival analysis
	STAT4011	Natural language processing
	STAT4023	Medical image analysis
	STAT4601	Time-series analysis
	STAT4602	Multivariate data analysis
	STAT4610	Bayesian learning
	COMP3250	Design and analysis of algorithms
	COMP3270	Artificial intelligence
	COMP3323	Advanced database systems
	COMP3407	Scientific computing
Capstone Requirement (6 credits)	*At least 6 credits selected from the following courses:*	
	STAT3799	Directed studies in statistics
	STAT4710	Capstone experience for statistics undergraduates
	STAT4766	Statistics internship
	STAT4799	Statistics project *(12 credits)*

All courses are 6-credit bearing unless otherwise stated.

* The programme structures of the Majors are subject to change. For the most updated syllabus, please visit the Science Faculty's website.

Major in **Risk Management**

The Risk Management Major aims to equip students with the skills and expertise to master the theory and methodology behind the scientific process of risk management, with application to actuarial science, finance and other areas of interest. It is designed to provide solid training in the concepts of the risk management process, statistical models and methods of risk management, and good risk management practice. Core courses in the curriculum emphasise fundamental concepts and nature of risk assessment, risk management and governance from different standpoints while elective courses provide either training in specific risk management disciplines or an extension of knowledge aiming to give students more modelling, technical and analytical skills in risk management, including discrete-time models in finance, stochastic calculus with financial applications, and financial time series modelling. Through participating in experiential learning activities including research-based projects, industrial internships and overseas exchanges, students could enhance their knowledge in risk management, increase exposure in managing risk in practice, and improve their thinking and communication skills.

Career opportunities are available in financial institutions and large corporations including banks and consulting firms. Graduates readily find employment in government, banking, finance, risk management, insurance, IT, marketing research and many other related sectors in which expertise in quantitative risk analysis and management is in great demand due to the data-driven environment nowadays. A growing number of professions depend on such an expertise to help manage risk in the midst of increasing uncertainty in the economy and an upsurge in financial and operational crises.

Required Courses (96 credits)*

Introductory Level Courses (42 credits)	STAT1600	Statistics: ideas and concepts
	STAT2601	Probability and statistics I
	STAT2602	Probability and statistics II
	SCNC1111	Scientific method and reasoning
	SCNC1112	Fundamentals of modern science
	MATH1013	University mathematics II
	MATH2014	Multivariable calculus and linear algebra
Advanced Level Courses (18 credits)	STAT3600	Linear statistical analysis
	STAT3609	The statistics of investment risk
	STAT3615	Practical mathematics for investment
Disciplinary Electives (30 credits)	*At least 30 credits selected from the following courses:*	
	STAT3603	Stochastic processes
	STAT3610	Risk management and insurance
	STAT3612	Statistical machine learning
	STAT3618	Derivatives and risk management
	STAT3655	Survival analysis
	STAT3911	Financial economics II
	STAT4601	Time-series analysis
	STAT4603	Current topics in risk management
	STAT4606	Risk management and Basel Accords in banking and finance
	STAT4607	Credit risk analysis
	STAT4608	Market risk analysis
Capstone Requirement (6 credits)	*At least 6 credits selected from the following courses:*	
	STAT3799	Directed studies in statistics
	STAT4710	Capstone experience for statistics undergraduates
	STAT4766	Statistics internship
	STAT4799	Statistics project *(12 credits)*

All courses are 6-credit bearing unless otherwise stated.

* The programme structures of the Majors are subject to change. For the most updated syllabus, please visit the Science Faculty's website.

Major in **Statistics**

The Statistics Major centres on the study of statistics, a scientific discipline characterised by the development and applications of analytic and quantitative tools which involve logical thinking, problem formulation, probability reasoning and intensive data analysis. The programme aims to equip students with powerful mathematical, analytical and computational skills, which are in great demand in practical areas where data are obtained for the purpose of finding information in support of decision making. It helps students to build a strong background in statistical concepts, and provides broad and solid training in applied statistical methodologies. Indeed, such applications of statistics as an analytical tool have been given growing prominence in the modern society. Therefore, the curriculum is constantly revised to meet a steadily rising demand for specialist statisticians or quantitative analysts in government, business, finance, industry, as well as in research and teaching in local and overseas institutions.

Graduates of the Statistics Major readily find employment in banking, finance, risk management, insurance, IT, marketing research, environmental protection, government, hospitals, scientific research, and universities. Statisticians often play critical roles in large-scale and multi-disciplinary projects, providing guidance on all aspects of data collection and determining objective findings. Statistics is a profession which is growing rapidly all over the world, as the quantitative demands from every field rise. The degree from HKU provides a superb training for this profession.

Required Courses (96 credits)*

Introductory Level Courses (42 credits)	STAT1600	Statistics: ideas and concepts
	STAT2601	Probability and statistics I
	STAT2602	Probability and statistics II
	SCNC1111	Scientific method and reasoning
	SCNC1112	Fundamentals of modern science
	MATH1013	University mathematics II
	MATH2014	Multivariable calculus and linear algebra
Advanced Level Courses (12 credits)	STAT3600	Linear statistical analysis
	STAT4602	Multivariate data analysis
Disciplinary Electives (36 credits)	*At least 36 credits from Lists A and B, among which at least 18 credits from List A:*	
	List A	
	STAT3602	Statistical inference
	STAT3603	Stochastic processes
	STAT3620	Modern nonparametric statistics
	STAT3621	Statistical data analysis
	STAT3655	Survival analysis
	STAT4601	Time-series analysis
	List B	
	STAT3604	Design and analysis of experiments
	STAT3606	Business logistics
	STAT3607	Statistics in clinical medicine and bio-medical research
	STAT3608	Statistical genetics
	STAT3612	Statistical machine learning
	STAT3613	Marketing analytics
	STAT3617	Sample survey methods
	STAT4610	Bayesian learning
Capstone Requirement (6 credits)	*At least 6 credits selected from the following courses:*	
	STAT3799	Directed studies in statistics
	STAT4710	Capstone experience for statistics undergraduates
	STAT4766	Statistics internship
	STAT4799	Statistics project *(12 credits)*

All courses are 6-credit bearing unless otherwise stated.

* The programme structures of the Majors are subject to change. For the most updated syllabus, please visit the Science Faculty's website.

MINOR
OPTIONS

Students majoring in other disciplines are welcome to minor in Risk Management or Statistics. A minor in Actuarial Studies is also available to eligible students, particularly those majoring in Decision Analytics, Risk Management and Statistics.

Introductory Level Courses	Advanced Level Courses
(12 credits)	(30 credits)

Minor in **Actuarial Studies**

The Minor in Actuarial Studies provides students with an introduction to the basic concepts and methodologies of actuarial science. The curriculum is specially designed to boost the interest of students from different majors in actuarial science and to strengthen their confidence and ability to solve a range of mathematical, financial, economic and investment-related problems.

At least 12 credits selected from the following courses:

STAT2601	Probability and statistics I
STAT2602	Probability and statistics II
STAT2604	Introduction to R/Python programming and elementary data analysis
FINA1310	Corporate finance
MATH1013	University mathematics II

At least 30 credits selected from the following courses:

STAT3612	Statistical machine learning
STAT3615	Practical mathematics for investment
STAT3901	Life contingencies I
STAT3904	Corporate finance for actuarial science
STAT3906	Risk theory I
STAT3908	Credibility theory and loss distributions
STAT3910	Financial economics I
STAT3911	Financial economics II
STAT3953	Fundamentals of actuarial practice
STAT4903	Actuarial techniques for general insurance

Minor in **Risk Management**

The Minor in Risk Management aims to provide students with the basic concepts of risk management and the fundamental skills needed to perform various statistical techniques to manage risk. The curriculum is specially designed to boost the interest of students from different backgrounds in risk management and to complement their major area of study.

At least 12 credits selected from the following courses:

STAT2601	Probability and statistics I
STAT2602	Probability and statistics II
STAT2604	Introduction to R/Python programming and elementary data analysis

At least 30 credits selected from the following courses:

STAT3609	The statistics of investment risk
STAT3610	Risk management and insurance
STAT3612	Statistical machine learning
STAT3615	Practical mathematics for investment
STAT3618	Derivatives and risk management
STAT4601	Time-series analysis
STAT4603	Current topics in risk management
STAT4606	Risk management and Basel Accords in banking and finance
STAT4607	Credit risk analysis
STAT4608	Market risk analysis

Minor in **Statistics**

The Minor in Statistics is specifically designed to cater for the general needs of non-statistical disciplines and to provide basic training in statistical methodologies and applications to practical problems. Its aim is to provide students with the rigorous quantitative reasoning that has become an indispensable skill in nearly all disciplines.

At least 12 credits selected from the following courses:

STAT1018*	Foundations of data science
STAT2601	Probability and statistics I
STAT2602	Probability and statistics II
STAT2604	Introduction to R/Python programming and elementary data analysis

* Course code and course title to be confirmed.

At least 30 credits selected from the following courses:

STAT3600	Linear statistical analysis
STAT3602	Statistical inference
STAT3603	Stochastic processes
STAT3604	Design and analysis of experiments
STAT3606	Business logistics
STAT3607	Statistics in clinical medicine and bio-medical research
STAT3608	Statistical genetics
STAT3612	Statistical machine learning
STAT3613	Marketing analytics
STAT3617	Sample survey methods
STAT3620	Modern nonparametric statistics
STAT3621	Statistical data analysis
STAT3655	Survival analysis
STAT4601	Time-series analysis
STAT4602	Multivariate data analysis
STAT4610	Bayesian learning

The programme structures of the Minors are subject to change. For the most updated syllabus, please visit the Science Faculty's website. All courses are 6-credit bearing unless otherwise stated.

Internship Programme

There is no better training than obtaining solid hands-on experience in the real workplace. Our Internship Programme serves precisely this purpose. As an intern, the student will gain insight into the challenging world and daily activities of a data analyst, a risk manager and a statistician while strengthening his/her technical, analytical and communication skills.

Under the Internship Programme, students who declare Decision Analytics / Risk Management / Statistics as their First Major are eligible to use the Department's **Internship / Job Online-application System**, where related internships and other job openings including graduate positions will be posted. Our alumni may wish to know that normally they will still be eligible to use the System after graduation from our Department.

The Internship Programme assists students by advertising part-time, summer, temporary and full-time internship positions, sending the CVs of interested students to employers, and arranging interviews for shortlisted students. For details about our Internship Programme, please visit: *https://saasweb.hku.hk/teaching/ internship-details.php*

Student Sharing

Lao Ka Chon *BSc (Major in Risk Management)*
Census and Statistics Department (2021)

In this internship period, I learnt to prepare the job interview in a better way. If students want to apply for a position, they should find out the company's nature and required knowledge. They can think of the challenged questions which is possible to be asked by the interviewers. For students who wish to apply for similar positions to it, they should understand themselves and strengthen their advantages in data processing. And students can keep learning new technical skills, for example the programming skills which is beneficial in the statistic related working field. During the job period, I learnt to ask question in a proper way and not to work on tasks under the situation that something is unclear. It would waste time and effort if we misunderstand the need of the tasks. Students should not be afraid of asking simple questions and try to understand all the details.

Au Chun Fai *BSc (Major in Risk Management)*
AIA Company Limited, Hong Kong (2021)

The Department gave us lots of opportunities to learn, to improve, and to breakthrough. But what is vitally important is that whether we grab each of the chance and go for it. Internship is our opportunity to prove ourselves, to challenge to our limits and to utilize what we have learnt. Study and practice have an invisible link with each other. We may think we are a well-educated intellectual, but we can only see our weaknesses through real-life practice.

Winning the Scholarship ($30,000 in total; 2 winners from 20+ interns). [Right: Chief Actuary from HK Office

Me (fourth from the left) with the fellow interns who nominated to the AIA Actuarial Intern Scholarship Programme.

Partial list of companies participating in the Department's internship programme:

- AXA Insurance
- Bank of China (Hong Kong) Limited
- BNP Paribas
- Census and Statistics Department, HKSARG
- Citibank
- Deutsche Bank AG
- Ernst and Young
- FTSE
- Guy Carpenter
- Hang Seng Bank
- HSBC Life
- Hong Kong Exchange and Clearing Ltd
- Hong Kong Institute for Monetary Research
- Hong Kong Monetary Authority
- Hong Kong Observatory
- Hong Kong Police Force
- Hong Kong Public Libraries Head Office
- Hospital Authority
- JP Morgan Chase & Co
- Microsoft Hong Kong Limited
- SAS Institute
- Standard Chartered Bank

Chan Chin Kiu *BSc (Major in Risk Management)*
FWD Life Insurance Company (Bermuda) Limited (2022)

An internship helps one to gain a good insight in how the industry works and allows one to grow. During my internship period, I was awarded with new knowledge such as user acceptance testing and programming. These are some essential skills in the statistics-related working field, ensuring the system in the company can be implemented appropriately. By extending the lectures into reality, one can learn to manage and perform tasks within the company professionally.

Moreover, internship opportunities enhance one's personal growth and development. Through asking questions and communicating with other interns and staff, I have learnt to be a better communicator, as well as talking efficiently and effectively to bring out my message. Also, I have understood the importance of finishing tasks in a timely manner, as it may affect others' working schedules since we are working as a team. Internship therefore trains your attitude and manner towards work.

An internship experience is useful as it helps one to discover his strengths and weaknesses, which leads to self-understanding. Through practical experiences, it further develops and provides one guidance of the future career path, influencing future goals and accomplishments.

All in all, internship programmes are valuable for students in university. Not only do you learn new skills and knowledge, they also promote personal growth and develop your future career. Treasure each of the opportunities to explore your future dreams and goals.

HKU Worldwide Undergraduate Student Exchange Programme

HKU's Worldwide Undergraduate Student Exchange Programme offers exchange opportunities for students in world-renowned universities such as Harvard University, Columbia University, McGill University, the University of Toronto, the University of California at Berkeley, Davis, Santa Barbara and Los Angeles, the University of Melbourne, the University of British Columbia, the University of New South Wales, the University of Amsterdam, Georgetown University and the University of Waterloo. The following are messages from some of the Department's former exchange students.

QIAN Zhaozhi *BSc (Major in Statistics)*
Exchange at University of California, Davis, USA, 2014

My exchange experience at UC Davis is certainly memorable. I feel proud and lucky that I had such an opportunity to explore a different culture. Everything was fresh. Davis is a place just 20 minutes by car from the nearest Walmart. It is also a place where you could enjoy a 2000-square-meter state-of-the-art gym all year round. The majority of the people in town work for the University, making Davis one of the most educated and safest towns in the US. Collaboration and problem-solving skills are highly emphasized. It was beyond my imagination that students are allowed to solve problems in written assignments in groups. Statistics there was pragmatic. Students got hand-on experience in investigation design and data analysis. The exchange was eye opening and rewarding. I think I made a wise choice to go exchange in UC Davis.

LI Ka Ho *BSc (Major in Risk Management)*
Exchange at Harvard University, USA, 2012

Living in another country definitely allows you to immerse yourself in another culture that you are not familiar with. I could never imagine that trains could be routinely delayed for an hour, that people could have their meals at random times and that could people work so hard. The US also has a totally different learning environment from Hong Kong. A combination of six-hour lessons and eight hours of homework is definitely hardcore. Students at Harvard don't really have too much time for entertainment. Instead, we just spent time together at weekends in a café, pub or park or stayed in the dormitory. The experience granted me an opportunity to meet people from all over the world.

Lau Hoi Lam *BSc (Major in Risk Management)*
Prudential Services Limited (2022)

I have been working in Prudential for 6 months and it is a valuable experience for me to learn on site. I was interning in the EEV reporting team which help to conduct EEV report on regular basis. It allows me to learn more in-depth about how insurance company are showing their business performance to the public and different types of reporting standard.

It is also a great opportunity to meet new people, managers and fellow interns. The managers are so supportive and nice. I have also made friends with interns from different teams and different universities.

We can share our experience working in different positions.

Prizes & Bursaries

Many scholarships are available to our students in each year of study. The following are examples of some of the scholarships which have been awarded to our students.

- C.V. Starr Scholarship
- Centenary Scholarship Fund Award
- CMA and Donors Scholarship
- HKSAR Government Scholarship
- HKU-Notre Dame Scholarships for Student Exchange
- HKU Class Giving Scholarship
- HKU Foundation Entrance Scholarship
- HKU Foundation Entrance Scholarships for President's Scholars
- HKU Foundation Scholarships for Outstanding International Students
- HKU Foundation Scholarships for Outstanding Mainland Students
- HKU Foundation Scholarships for Outstanding Students
- HKU Worldwide Undergraduate Student Exchange Scholarships
- Ho Kam Chiu Lo Lai Ching Memorial Scholarship
- HSBC Hong Kong Scholarship
- Kai Chong Tong Scholarship
- Lee Shau Kee Scholarships
- Lee Shau Kee Scholarships for Student Enrichment
- Li Po Chun Charitable Trust Fund Undergraduate Scholarship
- Science Entrance Scholarship
- Sports Scholarships
- The Bank of East Asia Scholarship

Scholarships

Dr Patrick S C Poon Scholarship in Statistics

In 2012, Dr Patrick S C Poon made a generous pledge to the University of Hong Kong to establish four scholarships in support of outstanding undergraduates who wish to pursue studies in Decision Analytics, Risk Management or Statistics in the Department of Statistics and Actuarial Science. The scholarships will be awarded annually on the basis of academic merit to final-year candidates pursuing a first major in Decision Analytics, Risk Management or Statistics. In addition, a candidate's participation in extra-curricular activities and his/her performance in an interview, if arranged by the Selection Committee, will also be treated as helpful supplementary information in the selection process. Each scholarship is valued at HK$50,000, and is awarded on a non-renewable basis.

Saw Prize in Statistics

To commemorate his 1969-71 stay at the University and to promote the development of statistics, Professor Saw pledged to establish a prize to be awarded in the form of a gold medal in 1971, which was converted to a cash prize in 2017. One prize of HK$8,000 shall be awarded annually to a final-year Bachelor of Science student whose first major is Decision Analytics, Risk Management or Statistics, and who has obtained First Class Honours and the highest average marks in the papers taken for Statistics courses.

Saw Swee Hock Statistics Scholarship

In 2005, Professor Saw Swee Hock, founding Professor of Statistics of the University from 1969 to 1971, donated a capital sum of HK$300,000 to set up a scholarship in recognition of the academic achievement of BSc graduates whose first majors are in the Department of Statistics and Actuarial Science. Two awards of HK$5,000 each shall be awarded annually on the basis of academic merit.

Statistics and Actuarial Science (SAAS) Scholarships

In addition to the aforementioned university-wide scholarships, 28 scholarships, each worth between HK$4,000 and HK$20,000, are made available each academic year by the Department of Statistics and Actuarial Science. The Department awards these scholarships annually on the basis of academic merit to outstanding students in different years of study who are pursuing a BSc degree in Actuarial Science or a first major in Decision Analytics, Risk Management or Statistics.

For more details about the Department's scholarships, please visit: *https://saasweb.hku.hk/ programme/scholarship.php*

For details about all HKU's scholarships, please visit: *https://www.scholarships.hku.hk*

Student Society

The Statistics and Actuarial Science Society (SASS) has been serving students of the HKU Department of Statistics and Actuarial Science since its establishment in 1969. Over the years, the student society has grown into a large family with thousands of members.

The SASS has dedicated itself to promoting the study of actuarial science, decision analytics, risk management, statistics and applied artificial intelligence. It also serves to provide a sense of unity, promote the welfare of its members and maintain a harmonious relationship between staff members and students.

Orientation Camp

Every year, the SASS organises a variety of functions, including the alumni mentorship scheme, annual dinner, annual survey, firm visits and many more. The SASS works closely with the Department and serves its members with enthusiasm. They strive in the best interests of their members and aim to ensure they enjoy a fruitful and joyful university life.

Superpass Dinner

Annual Dinner

Career Talk

Alumni Mentorship Scheme The alumni mentorship scheme provides two-way communication between mentors and mentees. Through regular gatherings and mutual sharing, mentees can learn from their mentors' life experience and, at the same time, better understand the employment situation and their career prospects. In return, mentors receive up-to-date information on the current student population, the Statistics and Actuarial Science Society, the Department and the University at large. Mentors also enjoy opportunities to become acquainted with their counterparts working in similar fields.

The Department of Statistics and Actuarial Science has introduced the Career Advising Programme (CAP) to help students pinpoint their strengths and weaknesses in terms of interview/CV writing skills and better prepare students to seize career opportunities readily. Besides one-to-one career consultation, the CAP will organise other career-related activities to deepen students' understanding of the industries.

The following is a non-exhaustive list of services and activities provided under the CAP:
- Tailored consultation on CV and cover letter writing
- One-to-one or group consultation on interview skills, e.g. mock interview
- Tailored modules of Professional Preparation Programme (PPP)
- Career talks
- Company visits
- Alumni sharing
- Corporate Mentorship Programme

Finance, Credit Scoring, Actuarial Work

Business Market Research, Industry

Government

Being well-trained in our majors can open many doors

Environment, Life Sciences, Genetics

Medical Research, Public Health

Education, Social Sciences, Research

Employment Statistics of 2021 Graduates

Employment Sectors of Graduates	DA	RISMG	STAT
Commerce & Industry	100%	91.3%	80%
Civil Service	0.0%	4.35%	0.0%
Community, Social & Personal Service	0.0%	4.35%	20%
Educational Institutions	0.0%	0.0%	0.0%

Salary (Gross Monthly Income)	DA	RISMG	STAT
Mean	HK$25,977	HK$23,070	HK$20,950
Median	HK$20,000	HK$20,000	HK$21,000
Maximum	HK$43,333	HK$70,000	HK$25,200
Minimum	HK$17,000	HK$15,000	HK$16,000

* DA, RISMG and STAT stand for Decision Analytics, Risk Management and Statistics respectively.

The world is becoming increasingly quantitative and data-focused in nature. Many professions depend on statistical knowledge to make decisions in the midst of economic uncertainty and operational crises. As the demand for quantitative and analytical skills continues to rise in virtually every field, an increasing number of talents in decision analytics, risk management and statistics will be needed within the private and public sectors in the society. Our majors provide a comprehensive training for those who wish to follow a career path in this direction.

Our graduates readily find employment in various sectors, including but not limited to the government, banking, finance, risk management, insurance, IT, marketing research, healthcare, hospitals, environmental protection, scientific research, academia and other related sectors in which statistical and analytical expertise is needed due to the data-driven environment nowadays. They often play important roles in large-scale, multidisciplinary projects involving data analytics, providing guidance on all aspects of data collection and producing objective findings. Our graduates are also sought after by top graduate schools and research firms worldwide.

In this new era of big data, it is projected that job opportunities in decision analytics, risk management and statistics will remain favourable in the foreseeable future.

To date, our graduates have found employment in the following organisations [*positions in brackets*]:

- ABN AMRO N.V., Private Banking [*Special Products Assistant*]
- Acorn
- Aviva General Insurance Limited [*Analyst*]
- Bank of Communications [*Credit Analyst*]
- Census and Statistics Department, HKSARG [*Commissioner / Senior Statistician / Statistician / Research Manager*]
- Citibank (Hong Kong) Limited [*Vice President*]
- DKR Oasis, HK (Product Controller) First Shanghai Capital Limited [*Strategist*]
- FTSE
- Hang Seng Bank [*Assistant Database Marketing Manager, Knowledge Management Department*]
- Hong Kong Exchanges and Clearing Limited [*Senior Officer*]
- Hong Kong Monetary Authority [*Senior Manager*]
- Hospital Authority [*Research Officer*]
- HSBC [Assistant Manager, Campaign Management, Marketing]
- HSBC [*Credit and Risk Manager, Asia Pacific Consumer Credit Risk*]
- Independent Commission Against Corruption
- Magna Finance Limited [*Financial Analyst, Investment*]
- Marketing Decision Research (Pacific) Limited [*Senior Research Executive*]
- Pacific Century Insurance Company Limited [*Actuarial Analyst*]
- SAS Institute Limited [*Senior Analyst*]
- Sun Life Financial [*Analyst*]
- Synovate China Limited [*Market Researcher*]
- Willis Towers Watson [*Analyst*]

Testimonials from Graduates

TAO Yufeng
2021 BSc graduate (Major in Decision Analytics)

Over the four years growing with SAAS, I have learned an incredible amount both academically and professionally. Professors are kind and willing to help, not just in the classroom. A fulfilling research journey awaits if you actively approach them, and their valuable advice will guide you to the right path. Career advising and professional engagement are among the highlights as well. There is a wide array of internship opportunities along with company visits and corporate mentorship, thanks to the department's network. Most importantly, the program offers the flexibility to explore what fits you the most. I'm grateful to have spent a summer researching quantitative trading and another working in data analytics. The experiences brought me clarity about my future career.

ZHAO Jie
2020 BSc graduate (Major in Risk Management)

When I reflect on my four years in the University of Hong Kong BSc(4) program, I conclude that the experience not only made me a better student, but also prepared me to be a confident, independent and open-minded girl. Through the BSc Program, I met the professors with a wide range of knowledge. Also, with the incredibly supportive classmates and teamwork opportunities, these form a wonderful memory in my life, and the best educational experience I've had. Having been shaped in part by the collegial and creative, yet rigorous, environment at HKU, I found myself able to communicate, innovate, and collaborate in ways that enabled me to build a successful communications consulting practice, independent thinking ability and eventually to get my dream job – the investment analyst in an Asset Management Firm in central.

HUANG Feiqing *2018 BSc graduate (Major in Statistics)*

One of the best things in life that happened to me is to spend my undergraduate years in HKU under the Department of Statistics and Actuarial Science. I consider myself as the kind of person who can never stay put and is always keen on exploring new experiences. Luckily, my Department provides me with a diversity of opportunities that satisfy my cravings for inspiration and all-round development. There are overseas research fellowship scheme and career advising programme (CAP) tailor-made for Statistics and Actuarial Science students. By fully utilizing the resources posted on the CAP platform, I managed to obtain a quant internship in an investment firm which turned out to be a dramatic turning point of my life. Aspired by my research topic during the internship, I decided to further pursue a PhD study into this specific area in HKU. And with the wholehearted support from my professors and the Department, I am granted with the Hong Kong Postgraduate Fellowship for my upcoming PhD study.

I remember seeing a saying in a blog that touched me deeply in the heart. It says, 'When you say yes to an opportunity that is calling you, even when you are scared, even if you are not sure you are ready, you build your confidence. When you say yes, you will evolve.' The accessibility to abundant opportunities is what I am truly grateful for in this program. Because it gives me a choice to say yes and prepares me to embrace the challenge when the time arrives.

Other Information

Computing Facilities

One of the primary aims of our majors is to equip students with powerful mathematical, analytical and computational skills, all of which are in great demand in practical areas where data are gathered and analysed to support the decision-making process.

The Department of Statistics and Actuarial Science currently houses a large statistical computer laboratory, supplemented by a smaller one, both of which are equipped with up-to-date statistical software for teaching and learning and research purposes.

World-class Research and Excellence in Teaching and Learning

Since its establishment in 1967, the HKU Department of Statistics and Actuarial Science has always dedicated itself to reaching world-class standards with aspirations to be an international centre of excellence for both research and teaching and learning (T&L). Underpinning this enduring dedication is the Department's dynamic research profile with wide-ranging areas of expertise. Over the years, the Department has been awarded General Research Fund (GRF) grants by the University Grants Committee (UGC) to undertake numerous research projects in statistics and actuarial science.

According to the UGC's Research Assessment Exercise (RAE) 2020, we rank No.1 in terms of the percentage judged to meet the standard of 4-star, the highest starred level for overall quality profile of research, out of seven comparable units of assessment for Mathematics and Statistics. Our impact and environment sub-profiles even reach 100% of 4-star quality, i.e. outstanding in terms of reach and significance, and world-leading in terms of vitality and sustainability respectively, as defined by the UGC.

The RAE is part of the UGC's commitment to assessing the performance of the UGC-funded universities in Hong Kong. It is a criterion-referenced exercise against agreed quality levels as defined by international standards, covering research outputs completed during October 2013 to September 2019. To maintain the credibility of the assessment process, international experts and members with discipline-specific expertise and knowledge of local conditions have been engaged.

Over the years, the outcome of the RAE has provided guidance for universities' developments in respect of pursuing research excellence. Universities' performance in the RAE also informs the allocation of part of the Research Portion of the Block Grant.

We will continue to strive for excellence in research and T&L endeavours in the coming years.

Our Teaching Staff and Research Fields

Dr. Y. CAO
BS *Fudan*; MS, PhD *Princeton*
Machine Learning; Learning Theory; High-dimensional Data Analysis; Optimization

Professor K.C. CHEUNG
BSc(ActuarSc), PhD *HK*; ASA
Actuarial Science; Dependent Structures; Stochastic Orders; Risk Measures; Optimal Insurance; Extreme Value Theory

Dr. L. FENG
BS *Renmin U*; PhD *Rutgers*
Statistical Machine Learning; Image Data Analysis; High-dimensional Statistics; Deep Learning

Dr. K. HAN
PhD *HK*
Computer Vision; Machine Learning; Deep Learning

Dr. Marius HOFERT
MSc *Syracuse*; Dipl.-Math. oec., Dr. rer. nat.*Ulm*
Dependence Modeling; Computational Statistics; Data Science; Quantitative Risk Management

Dr. C.W. KWAN
BSc, PhD *HK*
Influential Observations; Multivariate Statistics; Non-linear Random Model

Dr. Eddy K.F. LAM
Associate Head (Teaching and Learning)
BA *St. Thomas*; MA *New Brunswick*; PhD *HK*
Survival Analysis; Biostatistics; Public Health; Analysis of Infectious Diseases

Dr. Adela S.M. LAU
BEng *City*; MSc *HK*; PhD *CUHK*
Big Data Analytics and Risk Management; Social Media Analytics; Video Analytics, AI Chatbot; Metaverse; Intelligent Marketing; Business/Health Informatics; Knowledge Management and IS Adoption; E-business Strategies and Applications

Dr. David LEE
BSc(ActuarSc), MPhil *HK*; PhD *British Columbia*; ASA
Copula Modelling; Extreme Value Theory; High-dimensional Dependence Structures; Multivariate Tail Dependence

Professor Stephen M.S. LEE
Interim Head of Department
BA, PhD *Cantab*
Bootstrap; Resampling Methods; Statistical Theory: Asymptotics and Applications

Dr. Eric A.L. LI
BSc *HK*; MEcon, PhD *Syd*
Real Option Theory and Applications; Resource Economics; Quantitative Trading; Quantum Computing, Blockchain and Smart Contracts

Professor G.D. LI
Associate Head (Research)
BSc, MSc *Peking*; PhD *HK*
Time Series Analysis; Financial Econometrics; Quantile Regression; High Dimensional Data Analysis; Machine Learning

Dr. W.Y. LI
BSc, BEc, MEc *SWUFE*; PhD *UWaterloo*
Actuarial Science; Insurance Economics; Mathematical Finance

Dr. L.Q. QU
BEng *CSU*; PhD *UCAS*;*CityU*
AI in Healthcare; Medical Image Processing; Illumination Modeling; Deep Learning

Dr. C. WANG
PhD *NUS*
Random Matrix Theory; Time Series Analysis; High-dimensional Data Analysis

Dr. K.P. WAT
BSc(ActuarSc), PhD *HK*; SFHEA; FSA; FASHK; CERA; FRM
Actuarial Science; Financial Mathematics; Insurance Risk Models; Financial Risk Analysis; Enterprise Risk Management

Dr. L.Q. YU
BEng *ZJU*; PhD *CUHK*
Medical Image Analysis; Machine Learning; Computer Vision; Clinical NLP; AI in Healthcare

Professor K.C. YUEN
BSc, MSc, PhD *Calgary*; ASA
Insurance Risk Modelling; Financial Risk Analysis; Survival Analysis

Dr. Dora Y. ZHANG
BSc *Nankai*; MSc, PhD *NCSU*
Big Data Analytics; Bayesian Methods; Biostatistics; Statistical Genetics; Bioinformatics; Public Health and Biomedical Research

Dr. Michael M.Y. ZHANG
BS *UCSB*; MS, PhD *UT Austin*
Machine Learning; Bayesian Non-parametrics; Scalable Inference

Dr. Z.Q. ZHANG
BSc *Nankai*; MSc *E China Normal*; PhD *HK*
Time Series Analysis; Extreme Value Theory; Insurance Risk Modelling; Machine Learning

Dr. K. ZHU
BSc *USTC*; PhD *HKUST*
Time Series Analysis; Econometrics; Causal Inference

For details of the Department's research directions, please visit: *https://saasweb.hku.hk/research/staff_interest.php*

Admissions Requirements

Students who wish to pursue Majors in Decision Analytics, Risk Management or Statistics can apply for entry to HKU's BSc programme (code: 6901). Under its 'Single Admission Policy', students will be provided with a choice of 14 Science Majors and 7 Intensive Majors, and may change their Major and Minor during their study.

JUPAS Stream

Minimum level required for JUPAS candidates:

EN	English Language	Level 3
中	Chinese Language	Level 3
	Mathematics	Level 2
	Liberal Studies	Level 2
	Elective Subjects: Category A subjects and Extended Module 1 or 2 in Mathematics (M1/M2)	Level 3 in 2 elective subjects*

* One of the elective subjects must be a Science subject: Biology, Chemistry, Physics, Combined Science, or Integrated Science

NON-JUPAS Stream

Students holding non-HKDSE qualifications are considered individually.

More Information

For more information, please visit our website:
https://saasweb.hku.hk/programme/programme.php

statistics & actuarial science
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https://saasweb.hku.hk

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HKU Science