Department of
STATISTICS
統計系

DEPARTMENT OF STATISTICS

OUR PLEDGE

The Department of Statistics at The Chinese University of Hong Kong was founded in 1982. Our primary mission is to provide a quality education and undertake cutting-edge research. In today's Information Age, statistics has become an indispensable tool in business, social studies, engineering, medicine, clinical studies, genetics and marketing. To meet the increasing demand for well-rounded statistics graduates, we offer undergraduate programmes in Statistics and Risk Management Science. We also offer postgraduate programmes leading to MPhil and PhD degrees to students who intend to become experts in the field.

Details of the Risk Management Science Programme are presented in a separate leaflet.

UNDERGRADUATE PROGRAMME IN STATISTICS

The curriculum of the Statistics Programme is specially designed to prepare students for careers in fields such as business, teaching and research. The curriculum covers the core of the subject and maintains a balance between theory and practice. Students can choose to specialise in either the Data Science and Business Statistics Stream, the Statistical Learning and Data Mining Stream, or the Data Analytics Stream.

> The Data Analytics Stream was newly introduced in 2016. The curriculum includes interdisciplinary subjects covering the fields of Statistics, Mathematics and Computer Science. The objective of the stream is to meet the increasing need for skilled data analysts to turn massive data into usable information for decision making and prediction.

	Data Science and Business Statistics Stream	Statistical Learning and Data Mining Stream	Data Analytics Stream
Required Courses			
1st Year	• Introduction to Statistics OR Statistics for Life Sciences • Data Science Toolbox • University Mathematics OR University Mathematics for Applications • Any One Course from Groups A/B/D in the Science Faculty Package		
			• Introduction to Computing Using C++ OR Introduction to Computing Using Java OR Computer Principles and C++ Programming OR Computer Principles and JAVA Programming
2nd Year	• Basic Concepts in Statistics and Probability I • Basic Concepts in Statistics and Probability II • Linear Algebra OR Methods of Matrices and Linear Algebra	• Programming Languages for Statistics • Workshop on Data Exploration and Technical Writing	
			• Introduction to Data Science
3rd Year	• Applied Regression Analysis	• Workshop on Data Analysis and Statistical Computing	
	• Foundation of Financial and Managerial Statistics	• Statistical Inference	• Statistical Inference
4th Year	• Statistics Projects OR Practicum		
Elective Courses			
	8 courses from a list of courses in RMSC and STAT, 1 capstone course from STAT	7 courses from a list of courses in RMSC and STAT, 1 capdtone course from STAT	8 courses from a list of courses in CSCI, ENGG, RMSC and STAT, 1 capdtone course from STAT
Major Units	63	63	69

Examples of Elective Courses from Statistics (STAT):

- Survey Methods
- Recommender Systems
- Nonparametric Statistics
- Statistical Computing
- Applied Multivariate Analysis

- Statistical Principles of Deep Learning with Business Application
- Introduction to Stochastic Processes
- Data Mining and Statistical Learning
- Statistical Techniques in Life Sciences

- Actuarial Science
- Time Series
- Categorical Data Analysis
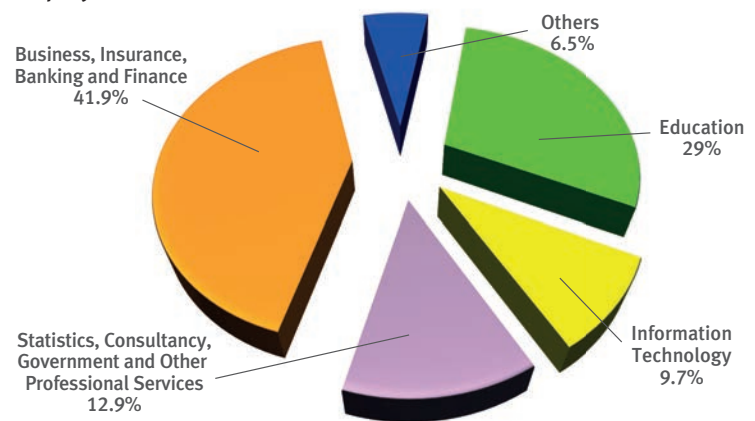- Bayesian Learning
- Survival Modelling

Examples of Elective Courses from Risk Management Science (RMSC):

- Simulation Methods for Risk Management Science and Finance
- Financial Data Analytics with Machine Learning
- Statistical Modelling in Financial Markets

- Theory of Risk and Insurance
- Stochastic Calculus for Finance and Risk
- Operational Risk Management

CAREER PROSPECTS

Although some of our graduates continue their studies and pursue a higher degree, most join the workforce after graduation. The career development of our graduates shows that they are well-received in various sectors of the community. Many now hold key positions in the civil service and in private sector fields such as business, finance and banking, and research and marketing.

Employment Records of 2021 Graduates

- Others 6.5%
- Education 29%
- Information Technology 9.7%
- Statistics, Consultancy, Government and Other Professional Services 12.9%
- Business, Insurance, Banking and Finance 41.9%

INTERNSHIPS

The internship programme reflects our continued efforts to enhance our students' career prospects. The main objective is to provide participating undergraduate students with opportunities to engage in research activities at both academic and non-academic institutions and to equip them with additional professional and statistical expertise. The Department seeks out available intern positions at both government and private institutions.

FUNG, CHUN YIN CY
(Semester Intern, Retail Distribution Department, Hang Seng Bank)

I worked in the Retail Distribution Department of Hang Seng Bank during Term 2 last year. I mainly kept track of sales from retail branches and provided support to front-line staff. During the internship, I participated in various projects to analyse business performance in various dimensions, so as to provide better business insights to senior management.

Throughout the internship, my statistical mindset and analytical skills helped me a lot, in particular to consolidate and analyse complicated tables and figures. The computer skills (e.g., Excel, VBA, Access, R) I acquired from the STAT curriculum boosted my working efficiency. Not only did I gain better insights into the industry, but also got an opportunity to implement my statistical knowledge.

KUOK, CHIO LENG
(SUMMER INTERN AT THE CENSUS AND STATISTICS DEPARTMENT, HKSAR)

I worked as an intern in the Trade Analytics Section of the Census and Statistics Department. My main task was to apply deep learning techniques to classify commodity codes with a commodity description. My exposure to this project was valuable because in running a neural network, there are stringent requirements on the size of the dataset and the amount of computational power.

The work gave me a taste of what the work of a real statistician is like, especially because the projects undertaken at C&SD are demanding and call for the application of statistical theories in real-world projects.

LAM, Ka Yu Sally
(Summer Intern at ParaDM)

Through studying statistics I have been trained to think deeply and critically when attempting to understand a problem, and to analyze data, explore meaningful findings and present them in a well-organized manner. During my summer internship in ParaDM, I suggested a regression model design and a hypothesis test for predicting the reading priority of a list of shared documents, thus leading to more efficient business decision making. The review sessions with my supervisors also enabled me to express my thoughts and discuss opinions with professionals. I believe my experience in these two months will be extremely helpful in my future career.

CHAN, Chun Ho Benjamin
(Summer Intern at Mercer)

I worked as a summer intern in the Employee Health and Benefits Department at Mercer, a company offering consultations in the area of employee benefits. I was responsible for carrying out the survey process that produces benchmark tables and provides insights into the market. I was required to become familiar with specific insurance terminology before I could extract the data from more than 750 benefit schedules. Being a statistics student, I have an affinity for figures. I have been trained to be meticulous and data sensitive so I was confident carrying out data input, validations and cleaning using Excel and the Access database. In short, this internship provided me with a fruitful experience working in a consulting firm.

EXCHANGE PROGRAMMES

Well recognised as valuable learning opportunities, exchange programmes are popular among statistics students. Every year many of them participate in student exchanges.

YIP, Chit Hoi Steven

When I was in Year 3, I got the chance to be an exchange student at Syracuse University in New York. Many people may think that an exchange is just travelling abroad for half a year, but it is much more than that. Apart from taking courses that are beyond my major area of study, the cultural experience activities and city tours really broadened my horizons. It was the first time I had immersed myself in a totally foreign culture for such a long period. I made a lot of new friends and discovered impressive new things. My time in Syracuse was definitely the most invaluable learning experience of my life. I would like to thank the department and CUHK for giving me the opportunity to explore this wonderful world.

LAM, Chui Pik

I studied at Nanyang Technological University through the OAL exchange programme. The most important thing I have learnt is to integrate myself into a new environment as quickly as possible. It seems to me that the biggest difference between Singapore and Hong Kong is the culture. Singapore is a multi-racial country that is accepting of different customs, beliefs and cultures. During this journey, I met people from various backgrounds and heard their unique stories. This has broadened my horizons and opened my mind. I have also taken some major courses in Singapore to compare different teaching methods and materials in CUHK and NTU, which has given me a deeper understanding of my major.

ALUMNI

Several alumni are happy to share their experiences as CUHK Statistics graduates.

Name: LAM, Hiu Fung Willis (BSc 2011, MPhil 2013)
Statistician at the Census and Statistics Department, HKSAR

The importance of statistics is growing. In recent years, the government has adopted an evidence-based approach to policy making by using survey results, such as those for the Statutory Minimum Wage and Standard Working Hours. Banks make use of statistical models to identify potential customers of marketing programmes. I acquired the necessary knowledge and skills in the BSc and MPhil programmes to work in these areas. The programmes helped me build a solid foundation in statistical theories and also provided me with opportunities to apply my knowledge through case studies. If you are looking to study a practical science with many job opportunities in the future, the CUHK Statistics programme will suit you well.

Name: TSE, Kwan Nok Tony (BSc 2019)
Junior Trader at the Hong Kong Jockey Club Football Betting Ltd.

It has been almost a year since I joined the Hong Kong Jockey Club as a Football Trader. As a statistics graduate and a football enthusiast, I appreciate this rare opportunity to apply my knowledge and extend my lifelong passion to my work. My daily work requires the use of various statistical models to perform simulations and computations, understand the performances of teams from historical matches. This helps us better gauge the strength of the teams in an upcoming match and thus predict the results. CUHK Statistics has provided me with the essential theories, techniques and tools to help me beat the odds and create value for my company.

Name: CHOW, Wai Kit Benjamin (BSc 2010, MPhil 2012)
Computational Scientist at the Cluster Technology Limited

I am working as a computational scientist on an arbitrage team at Cluster Technology Limited. I am required to conduct research on quantitative trading strategies related to different kinds of assets, such as index futures and options. The MPhil and BSc programmes laid a solid foundation for my career. With the well-designed course curriculum, I acquired valuable statistical knowledge and programming techniques that could be applied to financial data analysis. With the case study and statistical project experience I gained in the BSc programme, I am able to put interesting statistical theories into practice.

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