



香港中文大學
The Chinese University of Hong Kong



RISK MANAGEMENT
SCIENCE PROGRAMME
風險管理科學課程

FACULTY OF SCIENCE | 理學院

RISK MANAGEMENT SCIENCE PROGRAMME

The financial crises during the late 1990s not only stimulated public interest in risk management, but also raised awareness of its importance in today's investment environment. Since early 2000, there has been growing public interest in big data analytics, and the ability to extract insights from data and a good understanding of risk management have become vital to financial institutions. This programme is designed to fulfil the rising demand for professionals in this area.

Our programme caters to students who would like to pursue a career in financial industries and who have a strong leaning towards scientific methodologies. Our programme equips students with the expertise and skills needed to master the theory and methodologies of risk management and to apply them in insurance, finance and other related areas. As risk management is an interdisciplinary subject, our students receive not only a solid training in statistics, but also comprehensive exposure to other subjects such as finance, economics, accounting, mathematics and computer science. Core courses in the curriculum cover fundamental concepts and theories in risk management, and elective courses provide students with more technical and analytical skills in risk management, including stochastic calculus for finance and risk, statistical modelling, categorical data analysis and simulation methods with financial applications. In addition, research-based projects and industry internships provide a bridge between the classroom and the business world, enhancing students' research capabilities and communication skills.

UNDERGRADUATE ADMISSION REQUIREMENTS

Core Subjects

Chinese Language

Minimum Level: Level 3
Weighting: 1

English Language

Minimum Level: Level 3
Weighting: 1

Core Mathematics

Minimum Level: Level 3
Weighting: 2

Liberal Studies

Minimum Level: Level 2
Weighting: 0.5

Elective Subjects

Mathematics (Module 1 or 2)

Minimum Level: Level 3
Weighting: 2

Electives (Any 1 New Senior Secondary Category A elective subject)

Minimum Level: Level 3
Weighting: 1

The programme admission score is computed based on the best five subjects (after weighting). Bonus points will be granted to each extra core or elective subject, if any.

COURSES

FACULTY PACKAGE

- Introduction to Statistics; University Mathematics;
- 1 course from the Science faculty package except STAT and MATH courses OR 1 course from the BA faculty package

REQUIRED COURSES

- **Risk Management Science (RMSC):**
Elementary Concepts in Risk Management;
Introduction to Risk Management;
Introductory Topics in Risk Management;
Special Topics in Risk Management;
Simulation Methods for Risk Management Science and Finance;
Statistical Modelling in Financial Markets;
- **Statistics (STAT):**
Basic Concepts in Statistics and Probability I, II;
Introduction to Stochastic Processes;
Applied Regression Analysis;

ELECTIVE COURSES

Students are required to take at least 6 courses from a list of courses in RMSC, STAT, MATH, FINA, ECON and CSCI, in addition to 1 RMSC capstone/research course.

- **Accountancy (ACCT):**
Foundations in Financial Accounting OR
Introductory Financial Accounting;
- **Decision Sciences and Managerial Economics (DSME):**
Economics for Business Studies I;
- **Finance (FINA):**
Financial Management;
Financial Management: Foundations and Analysis;
Investment Analysis and Portfolio Management;
- **Mathematics (MATH):**
Linear Algebra I;
Advanced Calculus I;

CAREER PROSPECTS

Equipped with rigorous qualitative, analytical and business skills, our graduates have various career choices in risk management, finance, banking, insurance, IT and other related areas. Possible positions for new graduates include accounting officer, actuarial officer, market risk analyst, market risk officer, financial analyst, credit risk officer, assistant risk manager, quantitative analyst and other positions in major commercial banks, investment banks, security houses, insurance companies and the Big Four accounting firms. Some of our graduates have pursued master's and doctoral degrees in prestigious schools overseas and in Hong Kong.

Accounting

- Deloitte & Touche
- KPMG
- Ernst & Young

Commerical Banks

- HSBC
- Standard Chartered Bank
- Bank of East Asia

Investment Banks

- ABN AMRO Bank
- JP Morgan
- BNP Paribas
- Royal Bank of Scotland
- Goldman Sachs
- Morgan Stanley

Financial Services

- Bloomberg
- Penjing Asset Management
- Convoy Financial Group

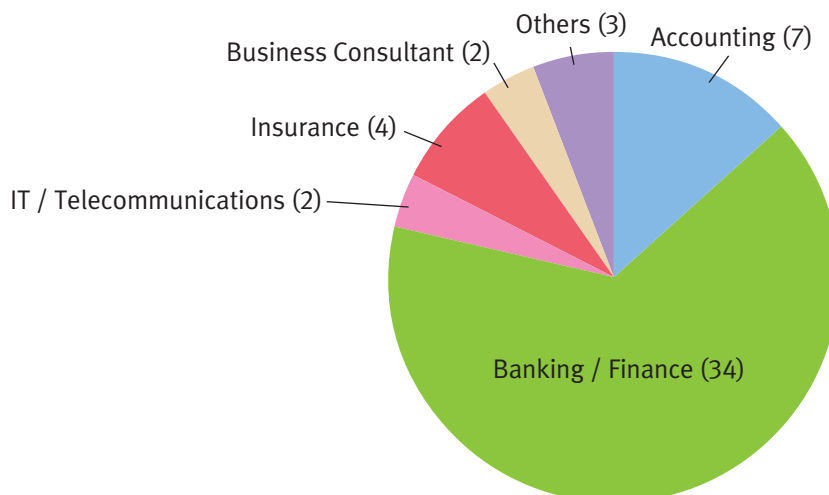
Insurance

- HSBC Insurance (Asia)
- ING Life Insurance Co
- AIA Company Ltd
- Aon Corporation Hong Kong

Government Services

- Census and Statistics Department
- Hong Kong Monetary Authority
- Airport Authority Hong Kong

OUR GRADUATES IN COMMERCIAL AND INDUSTRIAL SECTORS FOR 2014 AND 2015



WORDS FROM ALUMNI

CAREER PROSPECTS

WENDY YAU (BSC IN RMSC 2014)

ANALYST, DEAL IMPLEMENTATION AND PROCESS IMPROVEMENT, CB ITO APAC, BNP PARIBAS

RMSC is a well-designed undergraduate programme that can provide comprehensive training in diverse aspects. During my three years of study, I gained knowledge in areas such as data analysis, risk control, financial and economic evolution and computer programming. In addition to academic expertise, the programme provides internships and career guidance to students to enhance their competency.

Thanks to the well-rounded curriculum and full support from the department, students can enjoy a wide spectrum of career prospects. In addition to the popular banking and finance industry, some students will play leading roles in the marketing, education and data mining fields, and some will pursue further study.

My life in the RMSC programme was always fruitful and full of challenges. With all of the knowledge and skills acquired in the RMSC programme, I am sure students will be well equipped to become competitive leaders in the future.

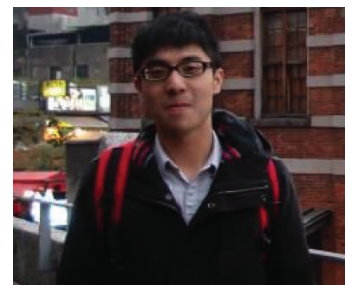


CARLOS AU YEUNG (BSC IN RMSC 2013)

ANALYST, CHIEF INVESTMENT OFFICE, JP MORGAN

Recent economic instability highlights the growing importance of risk control amongst financial institutions and regulatory agencies. The Risk Management Science programme, which offers comprehensive training in risk analysis and computer programming, is definitely helpful to students who want to pursue a career in the financial industry.

In addition to a well-structured curriculum, the programme provides students with career counselling services and internship and research opportunities. With all of these opportunities, I am sure that students can easily decide the direction they should pursue upon graduation.



TONY LAU (BSC IN RMSC 2014)

BUSINESS ANALYST, HANG SENG BANK

The Risk Management Science (RMSC) programme provides students with comprehensive training in a wide range of disciplines including statistics, finance, mathematics and computer science. During my four years of study, I had opportunities to understand more about the financial industry, and I also received training in analytically defining, measuring and managing risks. All of these opportunities prepared me to easily meet the demands of my current job at Hang Seng Bank. Equipped with a risk management-oriented mind-set, I now emphasise planning ahead for every contingency, which I believe is of great importance to maintaining the stability and reliability of the company's service.



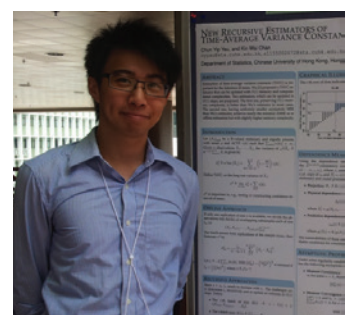
FURTHER STUDIES

KEITH CHAN (BSC IN RMSC 2013, MPhil IN RMSC 2015)

PHD STUDENT OF HARVARD UNIVERSITY

I received Bachelor's degree and Master's degree in Risk Management Science. This programme trained me to be a statistician who can translate financial risk problems into mathematical problems and then resolve them through the use of data. I am interested in the theoretical aspect of statistical analysis, which motivated me to pursue a PhD degree in statistics at Harvard University.

Statistics gives me a lot of excitements. This 'sexy' subject, on one side, inherits the beauty of mathematics; and, on the other side, it never strays too far from real problems. I find it fascinating to apply advanced statistical tools to manage the unfavorable uncertainties, which we call risks, in the financial industry.



ENRICHMENT ACTIVITIES

COMPETITION HIGHLIGHTS

IVAN LEUNG (BSC IN RMSC 2016)

1ST RUNNER-UP IN THE HONG KONG REGIONAL FINAL OF THE GLOBAL MANAGEMENT CHALLENGE

The Global Management Challenge is the largest strategy and management competition in the world. Participants are required to make various numerical decisions about the daily operations of a simulated company within a time limit. This valuable experience teaches all of the participants how operational procedures and decision-making processes can affect a company's gains and losses. Using the skills and techniques learned in our undergraduate studies, our team analysed financial statements, studied opponents' strategies and projected future profits and losses. We overcame many difficulties, large and small, and I am proud of our excellent performance.



JACK SUNG (BSC IN RMSC YEAR 4)

CHAMPION IN THE HONG KONG TERTIARY STUDENTS VIRTUAL SECURITIES INVESTMENT CONTEST

The Bank of China (Hong Kong) Limited (BOCHK) has held the Hong Kong Tertiary Students Virtual Securities Investment Contest for three years. From the end of September to October 2015, participating students were given HK\$1 million and RMB1 million to trade for stocks on a virtual securities investment platform. The contest taught me that choosing investments is a very difficult job. Investors must thoroughly study both the market and the securities every day before making decisions.

I would like to express my heartfelt gratitude to the Risk Management Science programme and BOCHK for providing me with theoretical and practical training in investment practices. I sincerely hope more students from our programme will participate in activities organised by the industry. I am certain that these practical and fruitful experiences will equip our students for their future careers.



EXCHANGE HIGHLIGHTS

VINCENT LI (BSC IN RMSC YEAR 4)

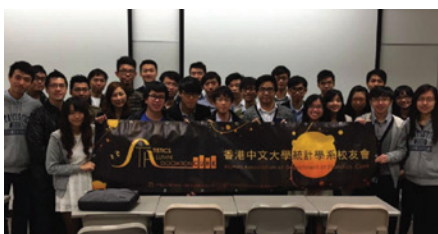
UNIVERSITY OF WESTERN AUSTRALIA

I went to the University of Western Australia for my exchange programme in the second term of 2014-15. While in Australia, I took courses such as politics and philosophy to broaden my horizons and exchange opinions with people from various cultural backgrounds. I also participated in a social service programme called the Out Reach Programme, which was organised by my residential college – St. Thomas More College. Different volunteer jobs, like preparing food for homeless people and teaching Aboriginal students English and mathematics, made me reflect on similar programmes in Hong Kong and gave me new perspectives on how to help others.



OTHER ENRICHMENTS

INTERVIEW AND CAREER WORKSHOPS



SHARING BY PROFESSIONALS



TUTORIAL ON BLOOMBERG



INTERNSHIPS AND PRACTICUM

Our students may enhance their work experience through summer internships or other internship opportunities. For this purpose, a credit-bearing (3 credit) practicum course, RMSC4202, is offered to students, which fulfils major-elective requirements. This course bridges the gap between the classroom and business world. Due to their outstanding performance, some of our students have received offers to return to the positions.

Here are some of the companies in which our students have had practicums and internships:



PACO WONG (BSC IN RMSC YEAR 3 – SUMMER 2015)

SUMMER INTERN IN THE HEALTH & BENEFITS DEPARTMENT OF AON RISK SOLUTIONS,
AON SERVICES HONG KONG LIMITED

Aon Services Hong Kong Limited is a provider of risk management, insurance and reinsurance brokerage services. Working under the benchmarking team, my main responsibilities were to conduct data analysis in different ad hoc projects and prepare benchmarking reports for clients upon request. A benchmarking report compares clients' benefits to the market so the company can provide customised consultations to clients. I gained experience from this internship that I could never have obtained in a classroom.

Through the internship program, I had a deeper understanding in benefit insurance broking and consulting services. Not only assigning projects to me, my supervisor taught me a lot regarding the projects and the industry. Under his supervisions and advices, my programming and statistical skills were enhanced in dealing with huge amount of data in the projects and benchmarking reports. Putting knowledge and skills that I acquired from my coursework into real practices gave me great satisfactions.

Last but not least, I would like to express my gratitude to my supervisor for teaching me so patiently, and my appreciation to the Department of Statistics at CUHK for always encouraging us to learn outside the lectures. The internship opportunity has provided me with invaluable experience working in the business world. It helped to equip me for my future career.



ANGELA TONG (BSC IN RMSC YEAR 3 – SUMMER 2015)

SUMMER INTERN IN EFG BANK AND STANDARD CHARTERED BANK

I participated in two internships in the summer of 2015. First, I served as an intern at EFG Bank AG under the Investment Product Unit. My job responsibilities included (I) preparing comprehensive Structured Product Brochures; (II) generating Automation Project in Key Fact Statements; and (III) in-depth risk analysis of investment products on the Swiss Derivative Map. Each step in the process aimed at illustrating the product features and analysing the payoff scenarios, including key risks disclosure to investors, to minimise mismatches. It was a fruitful yet enjoyable experience that gave me a comprehensive understanding of private banking and structured products thanks to my supportive colleagues who guided me through the process.

My second summer internship was at equity derivatives – a structured team of a standard chartered bank. Thanks to our programme, my work with funds and indices went smoothly. Due to its course diversity, the risk management science curriculum gave me a strong foundation for facing challenges in my future career. It covers both practical theories and technical skills, and is a good choice for students wishing to establish a quantitative background.



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