Bachelor of Science

(4-year Curriculum)

Major in Risk Management
Minor in Actuarial Studies
What is Risk Management?

- **Risk Management** is a logical and systematic methodology of studying the risks involved in any activity or process.

  - Identifying risk
  - Analyzing risk
  - Treating risk
  - Monitoring risk
How to avoid or minimize potential losses?

How to help managers make best use of their available resources?
Risk Management practices are widely used in public and the private sectors. Examples are:

- Finance and Investment
- Insurance
- Health Care
- Natural Hazards
- Governments
An all-rounded risk manager should have a combined skill that includes concepts and techniques from many fields:

- Statistics and financial econometrics
- Actuarial modeling
- Mathematical finance
- Other skills: communication skill and computer programming skill
Professional Qualification

- **Financial Risk Manager (FRM) Certificate Exam**
  - awarded by Global Association of Risk Professionals (GARP)

- **Professional Risk Managers (PRM) Exam**
  - awarded by Professional Risk Managers’ International Association (PRMIA)
    - [http://www.prmia.org](http://www.prmia.org)
7 introductory level courses (42 credits)

- SCNC1111 Scientific method & reasoning
- SCNC1112 Fundamentals of modern science
- *MATH1013 University mathematics II
- *MATH2014 Multivariable calculus & linear algebra
- *STAT1600 Statistics: ideas & concepts
- *STAT2601 Probability and statistics I
- *STAT2602 Probability and statistics II

* replaced by other advanced level STAT course(s) if above course(s) already taken to fulfill other majors/minors
Mathematical background adequate?

- Students must have level 2 or above in HKDSE Extended Module 1 or 2 of Mathematics or equivalent

- Otherwise, strongly advised to take MATH1011 University Mathematics I in Semester 1.
What do we need from your Mathematics?

- Set notation and theory
- Functions (incl. limits, continuity)
- Sequences, series
- Basic calculus (incl. partial differentiation, double integration)
- Vectors, matrices (basic operations)
# Suggested / Example Structure of BSc (Major in Risk Management) Curriculum

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<thead>
<tr>
<th>Year</th>
<th>One</th>
<th>Two</th>
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<tbody>
<tr>
<td>Semester</td>
<td>One</td>
<td>Two</td>
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<td><strong>Disciplinary Core</strong></td>
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<tr>
<td>MATH1013 University Mathematics II</td>
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<td>MATH2014 Multivariable Calculus and Linear Algebra</td>
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<td>STAT3615 Practical Mathematics for Investment</td>
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<td><strong>Science Foundation Courses</strong></td>
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<td><strong>Common Core</strong></td>
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<td>Six common core courses within the first three years</td>
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<td><strong>Language</strong></td>
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<td>CAES1000 Core University English (offered in both semesters)</td>
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<td>CAES9820 Academic English for Science Students (offered in both semesters)</td>
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4 Core advanced level courses
(24 credits)

** STAT3600  Linear statistical analysis
* STAT4601  Time-series analysis
STAT3609  The statistics of investment risk
STAT3615  Practical mathematics for investment

** also core to Decision Analytics / Statistics Major
* also core to Statistics Major
Other advanced level courses (24 credits)

- **Four courses** to be selected from...

- STAT3603 Probability modelling
- STAT3612 Data mining
- STAT3911 Financial economics II
- STAT4607 Credit risk analysis
- STAT4608 Market risk analysis

- STAT3610 Risk management & insurance
- STAT3618 Derivatives & risk management
- STAT4603 Current topics in risk management
- STAT4606 Risk management & Basel Accords in banking and finance
Capstone requirement
(6 credits)

At least 6 credits from:

- STAT3799  Directed studies in statistics (6 credits)
- STAT4799  Statistics project (12 credits)
- STAT4710  Capstone experience for statistics undergraduates (6 credits)
- STAT4766  Statistics internship (6 credits)
Major in Risk Management vs Major in Statistics

- All 7 introductory level courses **SAME**
- Advanced level core courses:
  - 2 **SAME**, 2 **DIFFERENT**

**Risk Management** –

courses focus primarily on business-related topics: e.g.

  *investment, insurance, finance, banking, etc.*

**Statistics** –

courses cover wide range of topics with emphasis on

  *“METHODS”, their applications, and underlying theory.*

**Students CANNOT** double major or major/minor in

**Risk Management & Statistics**
Minor in Actuarial Studies
(42 credits)

- Introductory level courses (12 credits)

  2 courses from...
  - FINA1310 Corporate finance
  - MATH1013 University mathematics II
  - STAT2601 Probability and statistics I
  - STAT2602 Probability and statistics II
  - STAT2605 Demographic and socio-economic statistics
  - STAT2901 Probability and statistics: foundations of actuarial science
Minor in Actuarial Studies

- **Advanced level courses** (30 credits)

  5 courses from...

  - STAT3615  Practical mathematics for investment
  - STAT3901  Life contingencies
  - STAT3904  Corporate finance for actuarial science
  - STAT3906  Risk theory I
  - STAT3908  Credibility theory and loss distributions
  - STAT3910  Financial economics I
  - STAT3911  Financial economics II
  - STAT4903  Actuarial techniques for general insurance
Reminder

- plan ahead
- watch out for pre-requisites of individual courses
- courses **CANNOT** be double-counted to fulfill different majors/minors

( exception for double major in Science:

**SCNC1111** & **SCNC1112** & up to 12 credits of compulsory courses

*REQUIRED by both Science majors can be double-counted*)

- consult course selection advisors if necessary
Contact Persons

- Course Selection Advisors
  - C W Kwan
  - Stephen M S Lee
  - K Zhu

- Tel: 3917 2466

- Email: ug_enquiry@saas.hku.hk
Support from University and Department

- **Department**: Computing facilities
  - two statistical computer laboratories
  - up-to-date software for teaching, learning, research
Support from University and Department

- **HKU**: Career Development and Resources for Students
  - NETmatch, NETjobs, JIJIS (Joint Institution Job Info. System)
- **Department**: Internship / Job Online Application System

Contact person: Dr C W Kwan
<cwkwan@hku.hk>
Career Development Training

- **Summer IT course:**
  - Essential IT skills for statistical and risk analysts

- **Career Advising Programme (CAP) to prepare students for:**
  - Internships and job opportunities
  - Advancing resume and interview skills
Exchange study

Faculty of Science
Course Equivalence Database
(for credit transfer reference):

http://webapp.science.hku.hk/student/servlet/course_equiv

Contact person:
Dr ZHU Ke
<mazhuke@hku.hk>
Scholarships

Available to students majoring in Risk Management / Statistics / Decision Analytics based on academic performance and/or other qualities
Student Peer Advisers in 2018-19

• General roles
  – to **offer advice** in relation to academic studies to freshmen; and
  – to **facilitate** freshmen’s **smooth transition** from secondary to university education

• You are highly encouraged to contact the following **Student Peer Advisers (SPAs)** if you have any questions about your study (their contacts can be found at the Faculty’s website)
  – Mr CHAN Ka Ho Andy (BSc Year 4)
  – Miss LIANG Wenxin (BSc Year 3)
  – Mr SU Yun-kuan (BSc Year 3)
  – Miss ZHAO Jie (BSc Year 4)

Let’s talk to our SPAs!
Q & A