BSc in
Actuarial Science

Syllabuses and Regulations
(4-year curriculum)

2012-13

Faculty of Science
The University of Hong Kong
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SECTION I  Objectives and Learning Outcomes

Degree  :  Bachelor of Science in Actuarial Science

Objectives : The Actuarial Science curriculum aims at providing formal academic and professional training to students who wish to join the actuarial profession. Although actuarial science is a separate discipline with its own area of knowledge, modern actuarial training requires multidisciplinary knowledge such as probability, statistics, economics, investment, finance, law, taxation, and accounting. The Actuarial Science curriculum reflects this by incorporating various interdisciplinary courses into the basic actuarial training. The programme is set up to equip students with solid background in actuarial science, to develop their confidence and analytical skills to define and tackle problems in actuarial science and other related fields. Specifically, the programme is designed to provide adequate knowledge for students to sit for the early professional examinations organized by international actuarial organizations so that they can successfully join the actuarial profession after graduation. In addition, the programme provides enough academic training for students who wish to pursue postgraduate studies in actuarial science or other related areas.

Learning Outcomes of Actuarial Science Programme

By the end of this programme, students should be able to:

1. understand and apply various analytic and quantitative methods to define and solve problems in insurance, finance, economics, investment, pension, financial risk management and demography
   (by means of coursework and tutorial classes and/or research-based project in the curriculum)

2. understand and identify the nature of insurance, finance and investment risks
   (by means of coursework and tutorial classes and/or research-based project in the curriculum)

3. develop analytical skills to evaluate and measure various kinds of risk, and appraise the related moral and ethical issues
   (by means of coursework and tutorial classes and/or research-based project in the curriculum)

4. formulate effective business strategies to manage various kinds of risk
   (by means of coursework and tutorial classes and/or research-based project in the curriculum)

5. communicate and collaborate with people effectively on issues related to actuarial science
   (by means of coursework and tutorial classes and/or research-based project in the curriculum)

6. pass the early professional examinations organized by international actuarial organizations, and pursue postgraduate studies in actuarial science or other related fields
   (by means of coursework and tutorial classes and/or research-based project in the curriculum)

7. discuss current actuarial issues and acquire and apply practical knowledge in some specially designed courses
   (by means of coursework and tutorial classes and/or research-based project in the curriculum)
1. General guideline for contact hours requirement in the BSc (Actuarial Science) Degree Curriculum

(a) A 6-credit course has around 120-180 total study hours, including contact hours, study time, assignment and assessment.
(b) About 30% of the total study hours are actual contact hours in the form of a class, e.g. lecture hours.
(c) A 6-credit course has around 36 to 45 lecture hours.
(d) For lecture-based courses, normally there will be tutorial/discussion sessions.
(e) For courses employing a non-lecture or lab-based approach, e.g. IT-based or project-based courses, students are expected to devote about 120-180 hours for a 6-credit course.

2. Credit Unit Statement of the BSc (Actuarial Science) Degree Curriculum

The BSc(Actuarial Science) degree curriculum consists of five major types of courses based on the learning activities. The courses in the curriculum are 6 credits. Examples of the contact hours requirements for the five categories of courses are described as follows.

(a) Lecture-based courses (6 credits)
   Contact hours: 36 hours of lectures and 12 hours of tutorial/discussion
   These courses are taught predominantly by lectures and tutorials. Assessment is by a combination of examination (0-80%) and continuous assessment (20-100%). Continuous assessment tasks include written assignments (totaling no more than 8,000 words) such as essays and project reports, and oral presentations. Details of the assessment tasks can be found in the description of individual courses.

(b) Lecture with laboratory component courses (6 credits)
   Contact hours for 6-credit course: 24 hours of lectures, 24 hours of laboratory and 6 hours of tutorial
   These courses are taught by a combination of lectures and laboratory/practical sessions. Assessment is by a combination of examination (0-70%) and continuous assessment (30-100%). Continuous assessment tasks include written assignments (totaling no more than 8,000 words) such as essays, laboratory reports, and project reports, and oral presentations. Details of the assessment tasks can be found in the description of individual courses.

(c) Laboratory and Workshop courses (6 credits)
   Contact hours: 48 hours of laboratory or workshop and 12 hours of tutorial
   These courses aim at enriching the student's research skills and encourage group work through hands-on activities in which science research is introduced. Students are expected to spend an additional 100 hours on self-study, preparation work for the laboratory, and writing reports. Continuous assessment tasks (100%) include written assignments (totaling no more than 8,000 words) such as laboratory report for each experiment (normally no more than 10 experiments) and essays. Details of the assessment tasks can be found in the description of individual courses.

(d) Project-based courses (6 credits)
   These courses aim at providing students with an opportunity to pursue their own research interest under the supervision of a teacher. The teacher normally meets with the student weekly to discuss project progress. Assessment task is normally through research reports or a dissertation (totaling no more than 10,000 words for a 6-credit course and 20,000 words for a 12-credit course). Oral presentation will form part of the assessment. Details of the assessment tasks can be found in the description of individual courses.
(e) Internship (6 credits)
Students have to undertake at least 160 hours of internship work.
Internships aim to offer students the opportunity to gain work experience related to their major of study. The teacher meets with the student regularly to discuss work progress. Students have to undertake at least 160 hours of internship work arranged formally. Assessment tasks normally include the following outputs: a written report of no more than 2000 words and feedback from the internship supervisor and an oral presentation on students’ internship experience. Details of the assessment tasks can be found in the description of individual courses.
## SECTION III  List of BSc(ActuarSc) Courses on offer in 2012/13 and 2013/14

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit</th>
<th>Pre-requisite</th>
<th>Available in 2012-2013</th>
<th>Semester offered in 2012-2013</th>
<th>Exam held in 2012-2013</th>
<th>Quota</th>
<th>Course Coordinator</th>
<th>Major / Minor</th>
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</thead>
<tbody>
<tr>
<td>CAES1000</td>
<td>Core University English</td>
<td>6</td>
<td>NIL</td>
<td>Y Y</td>
<td>Dec, May</td>
<td>---</td>
<td>Mr P D Desloge, English</td>
<td>Compulsory Course (Must Take)</td>
<td></td>
</tr>
<tr>
<td>CAES9820</td>
<td>Academic English for science students</td>
<td>6</td>
<td>NIL</td>
<td>N Y TBC</td>
<td>TBC</td>
<td>---</td>
<td>Mr P D Desloge, English</td>
<td>Core Course (With Choices)</td>
<td></td>
</tr>
<tr>
<td>CSCI9001</td>
<td>Practical Chinese for science students</td>
<td>6</td>
<td>NIL</td>
<td>N N TBC</td>
<td>TBC</td>
<td>---</td>
<td>Mr K W Wong, Chinese</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Department of Mathematics

| MATH1821 | Mathematical methods for actuarial science I | 6 | Level 4 or above in HKDSE Mathematics plus Module 1, or Level 4 or above in HKDSE Mathematics plus Module 2, or equivalent | Y Y | 1 | Dec | --- | Dr J T Chan, Mathematics | 2012 BSc in Actuarial Science |
| MATH2822 | Mathematical methods for actuarial science II | 6 | Pass in MATH1821 Mathematical methods for actuarial science I | Y Y | 2 | May | --- | Dr J T Chan, Mathematics | 2012 BSc in Actuarial Science |

### Department of Statistics and Actuarial Science

| STAT2901 | Probability and statistics: foundations of actuarial science | 6 | (Pass in MATH1821 Mathematical methods for actuarial science I for BSc(ActuarSc) students) or already enrolled in this course) or (Pass in MATH1013 University mathematics II or already enrolled in this course (for students outside the BSc(ActuarSc) programme); and Not for students who have passed or enrolled in any of these courses: STAT1601 Elementary statistical methods, STAT1602 Business statistics, STAT2601 Probability and statistics I, STAT1603 Introductory statistics | Y Y | 2 | May | --- | Prof H L Yang, Statistics and Actuarial Science | 2012 BSc in Actuarial Science |
| STAT2902 | Financial mathematics | 6 | Pass in STAT2901 Probability and statistics: foundations of actuarial science or already enrolled in this course; and Not for students who have passed in STAT3615 Practical mathematics for investment, or already enrolled in this course. | Y Y | 2 | May | --- | Prof K C Yuen, Statistics and Actuarial Science | 2012 BSc in Actuarial Science |

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* As the 1st semester of 2012-13 will be shortened to cater for the double cohorts of UG freshmen, the teaching and learning activities for 1st semester courses will be adjusted accordingly. Assessment methods and weighting may also be adjusted which would be announced by the teachers at class.

Written examination (if any) may be extended beyond the Xmas and the New Year holidays, up to January 5, 2013 if necessary.

* Availability of courses in 2013-2014 is subject to change.

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### Table of Equivalence between HKDSE and Other Qualifications

<table>
<thead>
<tr>
<th>HKDSE</th>
<th>Grade</th>
<th>Equivalent Qualification to HKDSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>3 or above</td>
<td>IB: Biology (SL/HL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GCE: Biology (AL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SATII: Biology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AP: Biology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gao Kao (高考)</td>
</tr>
<tr>
<td>Chemistry</td>
<td>3 or above</td>
<td>IB: Chemistry (SL/HL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GCE: Chemistry (AL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SATII: Chemistry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AP: Chemistry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gao Kao (高考)</td>
</tr>
<tr>
<td>Physics</td>
<td>3 or above</td>
<td>IB: Physics (SL/HL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GCE: Physics (AL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SATII: Physics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AP: Physics B or C</td>
</tr>
<tr>
<td>Mathematics</td>
<td>2 or above</td>
<td>IB: Mathematics (SL)/Mathematical Studies (SL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GCE: Mathematics (AL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SATII: Mathematics Level 1 or 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AP: Further Mathematics (AL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gao Kao (高考)</td>
</tr>
<tr>
<td>Mathematics + (M1 or M2)</td>
<td>2 or above</td>
<td>IB: Mathematics (HL)/Mathematical Studies (HL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GCE: Pure Mathematics (AL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SATII: Calculus AB or BC</td>
</tr>
</tbody>
</table>

**Note:**
- HL: Higher Level
- SL: Standard Level
- AL: Advanced Level

**Remarks:**

*For science students admitted through non-JUPAS scheme, the equivalent subject qualification(s) to HKDSE, if possessed, can be identified by the SIS for on-line course selection.*

*For other non-science students admitted through non-JUPAS scheme, they are still required to obtain the written approval from the Course Selection Adviser of the course offering department even they have possessed the equivalent HKDSE subject qualification(s) to meet the course prerequisite requirement. Once approval is given, they need to forward it to their home faculties to add the course on-line.*
Programme Title: BSc in Actuarial Science

Offered to students admitted to Year 1 in 2012

Objectives:
The Actuarial Science curriculum aims at providing formal academic and professional training to students who wish to join the actuarial profession. Although actuarial science is a separate discipline with its own area of knowledge, modern actuarial training requires multidisciplinary knowledge such as probability, statistics, economics, investment, finance, law, taxation, and accounting. The Actuarial Science curriculum reflects this by incorporating various interdisciplinary courses into the basic actuarial training. The programme is set up to equip students with solid background in actuarial science, to develop their confidence and analytical skills to define and tackle problems in actuarial science and other related fields. Specifically, the programme is designed to provide adequate knowledge for students to sit for the early professional examinations organized by international actuarial organizations so that they can successfully join the actuarial profession after graduation. In addition, the programme provides enough academic training for students who wish to pursue postgraduate studies in actuarial science or other related areas.

Learning Outcomes:
By the end of this programme, students should be able to:

1. understand and apply various analytic and quantitative methods to define and solve problems in insurance, finance, economics, investment, pension, financial risk management and demography (by means of coursework and tutorial classes and/or research-based project in the curriculum)
2. understand and identify the nature of insurance, finance and investment risks (by means of coursework and tutorial classes and/or research-based project in the curriculum)
3. develop analytical skills to evaluate and measure various kinds of risk, and appraise the related moral and ethical issues (by means of coursework and tutorial classes and/or research-based project in the curriculum)
4. formulate effective business strategies to manage various kinds of risk (by means of coursework and tutorial classes and/or research-based project in the curriculum)
5. communicate and collaborate with people effectively on issues related to actuarial science (by means of coursework and tutorial classes and/or research-based project in the curriculum)
6. pass the early professional examinations organized by international actuarial organizations, and pursue postgraduate studies in actuarial science or other related fields (by means of coursework and tutorial classes and/or research-based project in the curriculum)
7. discuss current actuarial issues and acquire and apply practical knowledge in some specially designed courses (by means of coursework and tutorial classes and/or research-based project in the curriculum)

Impermissible Combination:
Minor in Actuarial Studies

Required courses (144 credits)

1. Year 1 Courses

Core courses (42 credits):

- ACCT1101 Introduction to accounting (6)
- ECON1210 Introduction to economics I (6)
- ECON1220 Introduction to economics II (6)
- MATH1821 Mathematical methods for actuarial science I (6)
- MATH2822 Mathematical methods for actuarial science II (6)
- STAT2901 Probability and statistics: foundations of actuarial science (6)
- STAT2902 Financial mathematics (6)

2. Year II Courses

Core courses (42 credits):

- COMP1117 Computer programming I (6)
3. Year III Courses

Core courses (30 credits):

- STAT3901 Life contingencies (6)
- STAT3902 Statistical models (6)
- STAT3903 Stochastic models (6)
- STAT3904 Corporate finance for actuarial science (6)
- STAT3905 Introduction to financial derivatives (6)
- STAT3906 Risk theory I (6)

4. Year IV Courses

At least 24 credits selected from the following courses:

- STAT3602 Statistical inference (6)
- STAT3612 Data mining (6)
- STAT3616 Advanced SAS programming (6)
- STAT3951 Advanced contingencies (6)
- STAT3952 Investment and asset management (6)
- STAT3953 Fundamentals of actuarial practice (6)
- STAT3954 Current topics in actuarial science (6)
- STAT3955 Survival analysis (6)
- STAT3956 Pension funds and pension mathematics (6)
- STAT4602 Multivariate data analysis (6)
- STAT4607 Credit risk analysis (6)
- STAT4608 Market risk analysis (6)
- STAT4901 Risk theory II (6)
- STAT4902 Selected topics in actuarial science (6)

5. Capstone requirement (6 credits)

At least 6 credits selected from the following courses:

- STAT4971 Project in statistics and actuarial science (6)
- STAT4972 Internship in actuarial science (6)

Notes:
1. Students should be in full-time status for at least eight academic semesters (in additional to their 6-month or
longer full-time internships) in order to fulfill the degree requirements.

2. Students may optionally take Majors or Minors outside the BSc(ActuarSc) programme, provided that they fully satisfy the requirements.

**Remarks:**
Important! Ultimate responsibility rests with students to ensure that the required pre-requisites and co-requisite of selected courses are fulfilled. Students must take and pass all required courses in the programme in order to satisfy the degree graduation requirements.
### Course Descriptions

**CAES1000 Core University English (6 credits)**

**Offering Department**: English  
**Academic Year**: 2012

**Course Co-ordinator**: Mr P D Desloge, English  
**Teachers Involved**: Mr P D Desloge, Centre for Applied English Studies

### Course Objectives

The Core University English (CUE) course aims to enhance first-year students’ academic English language proficiency in the university context. CUE focuses on developing students’ academic English language skills for the Common Core Curriculum. These include the language skills needed to understand and produce spoken and written academic texts, express academic ideas and concepts clearly and in a well-structured manner and search for and use academic sources of information in their writing and speaking. Students will also complete four online-learning modules through the Moodle platform on academic grammar, academic vocabulary, citation and referencing skills and understanding and avoiding plagiarism. This course will help students to participate more effectively in their first-year university studies in English, thereby enriching their first-year experience.

### Course Learning Outcomes

On successful completion of the course, students should be able to:

1. Identify and distinguish between main ideas and supporting details in lectures and written texts and demonstrate an understanding of the arguments / facts expressed;  
2. Form and express personal opinions through critical reading and listening;  
3. Argue for and defend a position in a clear and structured way using academic sources, through writing and speaking; and  
4. Demonstrate control of grammatical accuracy and lexical appropriacy in academic communication.

### Course Grade

A+ to F

### Grade Descriptors

- **A**
  - Excellent to outstanding result. Students are able to produce spoken and written academic texts which are at all times appropriately structured. Students can clearly and concisely explain academic concepts and critically argue for a detailed position. Students always use appropriate academic sources to support their ideas in writing and speaking. They cite and reference correctly with only a few non-systematic errors. Students demonstrate an ability to fully comprehend and critically interpret spoken and written texts. Written language contains very few, if any, systematic errors in grammar and vocabulary. Spoken language is always comprehensible and fluent.

- **B**
  - Good to very good result. Students are able to produce spoken and written academic texts which are appropriately structured with only minor errors. Students can almost always clearly and concisely explain academic concepts and almost always critically argue for a detailed position. Students almost always use appropriate academic sources to support their ideas in writing and speaking. They cite and reference correctly with only a few non-systematic errors. Students can comprehend and interpret texts with ease, although they may miss some implied meanings and opinions. Written language is mostly accurate but contains a few systematic errors in complex grammar and vocabulary. Spoken language is mostly comprehensible and fluent.

- **C**
  - Satisfactory to reasonably good result. Spoken and written academic texts produced by students are sometimes not well-structured but there is some evidence of this ability. Students are sometimes unable to clearly and concisely explain academic concepts. While they can argue for a position, it is not very detailed and tend to be simplistic rather than critical. Students sometimes use sources which are nonacademic and/or not appropriate to support their ideas in writing and speaking. There are some systematic errors in citation and referencing but also evidence of correct systematic use. Students have some difficulty comprehending and critically interpreting texts. They can always understand the main ideas but may miss some of the writer’s views and attitudes. Written language is sometimes inaccurate, although errors, when they occur, are more often in complex grammar and vocabulary and there is some evidence of control of simple grammatical structures. Spoken language is generally comprehensible and fluent but at times places strain on the listener.

- **D**
  - Barely satisfactory result. Spoken and written academic texts produced by students are often inappropriately structured but there may be some evidence of this ability. Students are often unable to clearly and concisely explain academic concepts and argue for a position. There is some evidence of an ability to explain academic concepts but not to critically argue for a position. Students often use sources which are nonacademic and/or not appropriate to support their ideas in writing and speaking. There are many systematic errors in citation and referencing however there is evidence of an understanding of some of the conventions of citation and referencing. Students often have difficulty comprehending and interpreting texts, sometimes failing to understand the main ideas and writer’s views and attitudes. Written language is often inaccurate containing errors in a range of simple and complex grammar and vocabulary. Spoken language is only sometimes comprehensible and fluent, and strain is frequently placed on the listener.

- **F**
  - Unsatisfactory result. Productive skills are too limited to be able to successfully carry out spoken and written assessments. Texts are unstructured and unclear. Students are unable to follow and interpret texts. There are language errors in almost every sentence. Spoken language is often incomprehensible. Assessments may not have been attempted or contain plagiarism.

### Course Type

Lecture-based course

### Course Teaching & Learning Activities

<table>
<thead>
<tr>
<th>Activities</th>
<th>Details</th>
<th>No. of Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures - contact hours</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Tutorials - contact hours</td>
<td></td>
<td>6</td>
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<tr>
<td>Reading / Self study</td>
<td></td>
<td>84</td>
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### Assessment Methods and Weighting

<table>
<thead>
<tr>
<th>Methods</th>
<th>Details</th>
<th>Weighting in final course grade (%)</th>
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<tbody>
<tr>
<td>Examination</td>
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<td>40</td>
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<tr>
<td>Assignments</td>
<td></td>
<td>60</td>
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</table>
## MATH1821 Mathematical methods for actuarial science I (6 credits)

### Offering Department
Mathematics

### Course Co-ordinator
Dr J T Chan, Mathematics (jtchan@hku.hk)

### Teachers Involved
Dr J T Chan, Mathematics

### Course Objectives
This course is the first of the two mathematics courses designed to provide actuarial science students with a solid background of calculus of one and several variables and an introduction to linear algebra. The course focuses on single variable calculus and elementary matrix theory. It aims at students with Core Mathematics plus Module 1 or Core Mathematics plus Module 2 background.

### Course Contents & Topics
- Functions; graphs; inverse functions
- Limits, continuity and differentiability
- Mean value theorem; implicit differentiation; L'Hopital's rule
- Bisection method and Newton's method
- Higher order derivatives, maxima and minima, graph sketching
- Taylor approximation and error estimation
- Improper integrals, partial fractions, integration by parts
- Numerical integration, Trapezoidal rule and Simpson's rule
- Complex numbers, polar form, de Moivre's formula
- Basic matrix and vector (of order 2 and 3) operations, determinants
- Simple differential equations

### Course Learning Outcomes
On successful completion of this course, students should be able to:
1. Describe properties of a function and an inverse function.
2. Evaluate various kinds of limits, and determine continuity and differentiability of functions.
3. Apply advanced rules/techniques of differentiation and integration to compute derivatives and integrals; sketch graphs of functions.
4. Approximate integrals by numerical methods.
5. Perform matrix and vector operations, compute determinants.

### Pre-requisites
Level 4 or above in HKDSE Mathematics plus Module 1, or Level 4 or above in HKDSE Mathematics plus Module 2, or equivalent

### Offer in 2012 - 2013
Y 1st sem

### Examination
Dec

### Offer in 2013 - 2014
Y

### Course Grade
A+ to F

### Grade Descriptors

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Demonstrate an excellent understanding of key concepts and ideas by being able to identify the appropriate theorems and their applications through correctly analysing problems, clearly and elegantly presenting correct logical reasoning and argumentation and being able to carry out computations carefully and correctly, and with some innovative approaches to solving problems.</td>
</tr>
<tr>
<td>B</td>
<td>Demonstrate a good understanding of key concepts and ideas by being able to identify the appropriate theorems and their applications through correctly analysing problems, but with some minor inadequacies in arguments, identifying the appropriate theorems or their applications and presentation or with some minor computational errors.</td>
</tr>
<tr>
<td>C</td>
<td>Demonstrate an acceptable understanding of key concepts and ideas by being able to correctly identify appropriate theorems, but with some inadequacies in applying the theorems through incorrectly analysing problems with poor argument or presentation or a number of minor computational errors.</td>
</tr>
<tr>
<td>D</td>
<td>Demonstrate some understanding of key concepts and ideas by being able to correctly identify appropriate theorems, but with substantial inadequacies in applying the theorems through incorrectly analysing problems with poor argument or presentation or with substantial computational errors.</td>
</tr>
<tr>
<td>Fail</td>
<td>Demonstrates poor and inadequate understanding by not being able to identify appropriate theorems or their applications, or not being able to complete the solution.</td>
</tr>
</tbody>
</table>

### Course Type
Lecture-based course

### Course Teaching & Learning Activities

<table>
<thead>
<tr>
<th>Activities</th>
<th>Details</th>
<th>No. of Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures - contact hours</td>
<td></td>
<td>36</td>
</tr>
<tr>
<td>Tutorials - contact hours</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Reading / Self study</td>
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### Assessment Methods and Weighting

<table>
<thead>
<tr>
<th>Methods</th>
<th>Details</th>
<th>Weighting in final course grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examination</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Assignments</td>
<td></td>
<td>50</td>
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</tbody>
</table>

### Required/recommended reading and online materials
George B. Thomas; as revised by Maurice D. Weir and Joel Hass: Thomas' Calculus, 12th edition (Addison Wesley)
Steven J. Leon: Linear Algebra with Applications (Pearson Prentice Hall) NIL

### Course Website
http://hkumath.hku.hk/course/MATH1821/
MATH2822 Mathematical methods for actuarial science II (6 credits) | Academic Year 2012
---|---
Offering Department | Mathematics
Course Co-ordinator | Dr J T Chan, Mathematics (jtchan@hku.hk)
Teachers Involved | Dr J T Chan, Mathematics

Course Objectives
This course is the second of the two mathematics courses designed to provide actuarial science students with a solid background of calculus of one and several variables and an introduction to linear algebra. The course focuses on multivariable calculus and linear algebra. It aims at students with MATH1821. It can be followed by other 2000 or 3000 level mathematics courses.

Course Contents & Topics
- Matrices, systems of linear equations, determinants
- Eigenvalues and eigenvectors, diagonalization of matrices
- Quadratic functions and their standard forms
- Vector spaces and subspaces
- Functions of several variables; partial differentiation
- Gradients and directional derivatives
- Taylor approximation, systems of nonlinear equations, Newton's method
- Maxima and minima; Lagrange multipliers
- Double and triple integrals, areas and volumes

Course Learning Outcomes
On successful completion of this course, students should be able to:
1. Understand various topics in linear algebra such as the basic arithmetic of matrices, determinants, systems of linear equations, eigenvalues and eigenvectors, diagonalizable matrices, basis and dimension, and the rank-nullity theorem.
2. Understand various topics in functions of several variables including partial differentiation, the Hessian test for local extrema, Newton's method for solving systems of nonlinear equations, vector-valued functions, Jacobians, the method of Lagrange multipliers, double/triple integrals and the change of variable formula.

Pre-requisites (and Co-requisites and Impermissible combination)
Pass in MATH1821 Mathematical methods for actuarial science I

Offer in 2012 - 2013
| Y | 2nd sem | Examination | May |
Offer in 2013 - 2014
| Y |

Course Grade
A+ to F

Grade Descriptors
A
Demonstrate an excellent understanding of key concepts and ideas by being able to identify the appropriate theorems and their applications through correctly analysing problems, clearly and elegantly presenting correct logical reasoning and argumentation and being able to carry out computations carefully and correctly, and with some innovative approaches to solving problems.

B
Demonstrate a good understanding of key concepts and ideas by being able to identify the appropriate theorems and their applications through correctly analysing problems, but with some minor inadequacies in arguments, identifying the appropriate theorems or their applications or presentation or with some minor computational errors.

C
Demonstrate an acceptable understanding of key concepts and ideas by being able to correctly identify appropriate theorems, but with some inadequacies in applying the theorems through incorrectly analysing problems with poor argument and presentation or a number of minor computational errors.

D
Demonstrate some understanding of key concepts and ideas by being able to correctly identify appropriate theorems, but with substantial inadequacies in applying the theorems through incorrectly analysing problems with poor argument or presentation or with substantial computational errors.

Fail
Demonstrates poor and inadequate understanding by not being able to identify appropriate theorems or their applications, or not being able to complete the solution.

Course Type
Lecture-based course

Course Teaching & Learning Activities
<table>
<thead>
<tr>
<th>Activities</th>
<th>Details</th>
<th>No. of Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures - contact hours</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Tutorials - contact hours</td>
<td>12</td>
<td></td>
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<tr>
<td>Reading / Self study</td>
<td>100</td>
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Assessment Methods and Weighting
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<thead>
<tr>
<th>Methods</th>
<th>Details</th>
<th>Weighting in final course grade (%)</th>
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<tr>
<td>Examination</td>
<td>50</td>
<td></td>
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<tr>
<td>Assignments</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

Required/recommended reading and online materials
K Binmore and J Davies: Calculus - Concepts and Methods (Cambridge University Press, 2001)
George B. Thomas; as revised by Maurice D. Weir and Joel Hass: Thomas’ Calculus, 12th edition (Addison Wesley)
Steven J. Leon: Linear Algebra with Applications (Pearson Prentice Hall)
NIL

Course Website
http://hkumath.hku.hk/course/MATH2822/
STAT2901 Probability and statistics: foundations of actuarial science (6 credits)  

Offering Department: Statistics and Actuarial Science  
Academic Year: 2012  
Quota: ---

Course Co-ordinator: Prof H L Yang, Statistics and Actuarial Science (hlyang@hku.hk)

Teachers Involved: Prof H L Yang, Statistics & Actuarial Science

Course Objectives: The purpose of this course is to develop knowledge of the fundamental tools in probability and statistics for quantitatively assessing risk. Applications of these tools to actuarial science problems will be emphasized. Students will have a thorough command of probability topics and the supporting calculations.

Course Contents & Topics:
1. General Probability
   - Basic elements of probability in set notation
   - Mutually exclusive events
   - Addition and multiplication rules
   - Independence of events
   - Combinatorial probability
   - Conditional probability and expectations
   - Bayes Theorem / Law of total probability
   - Random variables
2. Univariate probability distributions (including binomial, negative binomial, geometric, hypergeometric, Poisson, uniform, exponential, chi-square, beta, Pareto, lognormal, gamma, Weibull and normal) and bivariate normal distribution
   - Probability functions and probability density functions
   - Cumulative distribution functions
   - Mode, median, percentiles and moments
   - Variance and measures of dispersion
   - Central Limit Theorem
3. Sampling distributions and introduction of estimation

Course Learning Outcomes: On successful completion of this course, students should be able to:
1. Understand the mathematical theory underlying the modern practice of statistics.
2. Develop skills in probabilistic analysis for problems involving randomness.
3. Apply techniques in probability and statistics to solve actuarial science problems.

Pre-requisites (and Co-requisites and Impermissible combination):
(Pass in MATH1821 Mathematical methods for actuarial science I (for BSc(ActuarSc) students) or already enrolled in this course) or (Pass in MATH1013 University mathematics II or already enrolled in this course (for students outside the BSc(ActuarSc) programme); and Not for students who have passed or enrolled in any of these courses: STAT1601 Elementary statistical methods, STAT1602 Business statistics, STAT2601 Probability and statistics I, STAT1603 Introductory Statistics

Offer in 2012 - 2013: Y 2nd sem Examination May
Offer in 2013 - 2014: Y

Course Type: Lecture-based course

Grade Descriptors:
A: Demonstrate thorough mastery at an advanced level of extensive knowledge and skills required for attaining all the course learning outcomes. Show strong analytical and critical abilities and logical thinking, with evidence of original thought, and ability to apply knowledge to a wide range of complex, familiar and unfamiliar situations. Apply highly effective organizational and presentational skills.

B: Demonstrate substantial command of a broad range of knowledge and skills required for attaining at least most of the course learning outcomes. Show evidence of analytical and critical abilities and logical thinking, and ability to apply knowledge to familiar and some unfamiliar situations. Apply effective organizational and presentational skills.

C: Demonstrate general but incomplete command of knowledge and skills required for attaining most of the course learning outcomes. Show evidence of some analytical and critical abilities and logical thinking, and ability to apply knowledge to most familiar situations. Apply moderately effective organizational and presentational skills.

D: Demonstrate partial but limited command of knowledge and skills required for attaining some of the course learning outcomes. Show evidence of some coherent and logical thinking, but with limited analytical and critical abilities. Show limited ability to apply knowledge to solve problems. Apply limited or barely effective organizational and presentational skills.

Fail: Demonstrate little or no evidence of command of knowledge and skills required for attaining the course learning outcomes. Lack of analytical and critical abilities, logical and coherent thinking. Show very little or no ability to apply knowledge to solve problems. Organization and presentational skills are minimally effective or ineffective.

Course Teaching & Learning Activities:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Details</th>
<th>No. of Hours</th>
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<td>36</td>
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<tr>
<td>Tutorials - contact hours</td>
<td>tutorials/example classes</td>
<td>12</td>
</tr>
<tr>
<td>Reading / Self study</td>
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<td>100</td>
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</tbody>
</table>

Assessment Methods and Weighting:

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<thead>
<tr>
<th>Methods</th>
<th>Details</th>
<th>Weighting in final course grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examination</td>
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<td>75</td>
</tr>
<tr>
<td>Assignments</td>
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<td>25</td>
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</table>

Required/recommended reading and online materials:
M. A. Bean: Probability: The Science of Uncertainty with Applications to Investments, Insurance, and Engineering (Brooks/Cole, Thomas Learning)
Course Website webct.hk.hk

STAT2902 Financial mathematics (6 credits)  Academic Year  2012
Offering Department  Statistics and Actuarial Science  Quota  ---
Course Co-ordinator  Prof K C Yuen, Statistics and Actuarial Science (kcyuen@hku.hk)
Teachers Involved  Prof K C Yuen, Statistics & Actuarial Science
Course Objectives  This course introduces the fundamental concepts of financial mathematics which plays an important role in the development of basic actuarial techniques. Practical applications of these concepts are also covered.
Course Contents & Topics  Key topics include: measurement of interest, annuities certain; discounted cash flow analysis; yield rates; amortization schedules and sinking funds; bonds and related securities; practical applications such as real estate mortgage and short sales; stochastic approaches to interest; and key terms of financial analysis such as yield curves, spot rates, forward rates, duration, convexity, and immunization.
Course Learning Outcomes  On successful completion of this course, students should be able to:
1. Understand the fundamental concepts of financial mathematics.
2. Learn standard actuarial notations for a variety of annuities.
3. Do simple discounted cashflow analysis using basic annuities.
4. Learn the operations of some commonly-encountered financial instruments such as bonds, mortgages, short sales, and so on.
5. Quote interest in various modes and determine interest rate based on a series of financial transactions.
Pre-requisites (and Co-requisites and Impermissible combination)  Pass in STAT2901 Probability and statistics: foundations of actuarial science or already enrolled in this course; and Not for students who have passed in STAT3615 Practical mathematics for investment, or already enrolled in this course.
Offer in 2012 - 2013  Y  2nd sem  Examination  May
Offer in 2013 - 2014  Y
Course Grade  A+ to F
Grade Descriptors
A  Demonstrate thorough mastery at an advanced level of extensive knowledge and skills required for attaining all the course learning outcomes. Show strong analytical and critical abilities and logical thinking, with evidence of original thought, and ability to apply knowledge to a wide range of complex, familiar and unfamiliar situations. Apply highly effective organizational and presentational skills.
B  Demonstrate substantial command of a broad range of knowledge and skills required for attaining at least most of the course learning outcomes. Show evidence of analytical and critical abilities and logical thinking, and ability to apply knowledge to familiar and some unfamiliar situations. Apply effective organizational and presentational skills.
C  Demonstrate general but incomplete command of knowledge and skills required for attaining most of the course learning outcomes. Show evidence of some analytical and critical abilities and logical thinking, and ability to apply knowledge to most familiar situations. Apply moderately effective organizational and presentational skills.
D  Demonstrate partial but limited command of knowledge and skills required for attaining some of the course learning outcomes. Show evidence of some coherent and logical thinking, but with limited analytical and critical abilities. Show limited ability to apply knowledge to solve problems. Apply limited or barely effective organizational and presentational skills.
Fail  Demonstrate little or no evidence of command of knowledge and skills required for attaining the course learning outcomes. Lack of analytical and critical abilities, logical and coherent thinking. Show very little or no ability to apply knowledge to solve problems. Organization and presentational skills are minimally effective or ineffective.
Course Type  Lecture-based course
Course Teaching & Learning Activities
Activities  Details  No. of Hours
Lectures - contact hours  36
Tutorials - contact hours  tutorials/example classes  12
Reading / Self study  100
Assessment Methods and Weighting
Methods  Details  Weighting in final course grade (%)
Examination  75
Assignments  25
Course Website  webct.hk.hk

14
REGULATIONS FOR THE DEGREE OF
BACHELOR OF SCIENCE IN ACTUARIAL SCIENCE
BSc(ActuarSc)

These regulations apply to students admitted under the 4-year ‘2012 curriculum’ to the BSc in Actuarial Science degree curriculum in the academic year 2012-2013 and thereafter.
(See also General Regulations and Regulations for First Degree Curricula)

Definitions

AS1 For the purpose of these regulations and the syllabuses for the degree of BSc in Actuarial Science, unless the context otherwise requires:

“Course” means a course of study, with a credit value expressed as a number of credit-units as specified in the syllabuses for a degree curriculum.

“Syllabus” means courses taught by departments, centres, and schools, offered under a degree curriculum.

“Credits” or “credit-units” means the value assigned to each course to indicate its study load relative to the total study load under a degree curriculum. The study load refers to the hours of student learning activities and experiences, both within and outside the classroom, and includes contact hours and time spent on assessment tasks and examinations. Candidates who satisfactorily complete courses with a credit value earn the credits assigned to these courses.

Admission to the BSc in Actuarial Science degree

AS2 To be eligible for admission to the BSc in Actuarial Science degree, candidates shall:

(a) comply with the General Regulations;

(b) comply with the Regulations for First Degree Curricula; and

(c) satisfy all the requirements of the curriculum in accordance with these regulations and the syllabuses.

Period of study

AS3 The curriculum for the BSc(ActuarSc) degree shall normally require eight semesters of full-time study, extending over not fewer than four academic years, and shall include any assessment to be held during and/or at the end of each semester. Candidates shall not in any case be permitted to extend their studies beyond the maximum period of registration of six academic years.

Selection of courses

AS4 Candidates shall select their courses in accordance with these regulations and the guidelines specified in the syllabuses before the beginning of each semester. Any change to the selection of courses shall be made only during the add/drop period of the semester in which the course begins, and such changes shall not be reflected in the transcript of the candidate. Requests for changes after the designated add/drop period of the semester shall not be considered.

1 This regulation should be read in conjunction with UG1 of the Regulations for First Degree Curricula.
Curriculum requirements and progression in curriculum

AS5

(a) Candidates shall satisfy the requirements prescribed in UG5 of the Regulations of First Degree Curricula.

(b) Candidates shall take not fewer than 240 credits, in the manner specified in these regulations and the syllabuses, including 144 credits of the required courses as prescribed in the professional core of the BSc(ActuarSc) degree curriculum.

(c) Candidates shall normally be required to take not fewer than 24 credits nor more than 30 credits in any one semester (except the summer semester) unless otherwise permitted or required by the Board of the Faculty, or except in the last semester of study when the number of outstanding credits required to complete the curriculum requirements may be fewer than 24 credits.

(d) Candidates may, of their own volition, take additional credits not exceeding 6 credits in each semester, and/or further credits during the summer semester, accumulating up to a maximum of 72 credits in one academic year. With the special permission of the Board of the Faculty, candidates may exceed the annual study load of 72 credits in a given academic year provided that the total number of credits taken does not exceed the maximum curriculum study load of 288 credits for the normative period of study specified in the curriculum regulations, save as provided for under AS5(e).

(e) Where candidates are required to make up for failed credits, the Board of the Faculty may give permission for candidates to exceed the annual study load of 72 credits provided that the total number of credits taken does not exceed the maximum curriculum study load of 432 credits for the maximum period of registration specified in the curriculum regulations.

(f) Candidates may, with the approval of the Board of the Faculty, transfer credits for courses completed at other institutions at any time during their candidature. The number of transferred credits will be recorded on the transcript of the candidate, but the results of courses completed at other institutions shall not be included in the calculation of the GPA. The number of credits to be transferred shall not exceed half of the total credits normally required under the degree curricula of the candidates during their candidature at the University.

(g) Candidates shall be recommended for discontinuation of their studies if they have:

(i) failed to complete successfully 36 or more credits in two consecutive semesters (not including the summer semester), except where they are not required to take such a number of credits in the two given semesters, or

(ii) failed to achieve an average Semester GPA of 1.0 or higher for two consecutive semesters (not including the summer semester), or

(iii) exceeded the maximum period of registration specified in AS3,

unless otherwise permitted by the Board of the Faculty.

Advanced standing

AS6 Advanced standing may be granted to candidates in recognition of studies completed successfully in an approved institution of higher education elsewhere in accordance with UG2 of the Regulations for First Degree Curricula. Credits granted for advanced standing will be recorded on the transcript of the candidate but shall not be included in the calculation of the GPA.
Assessment

AS7

(a) Candidates shall be assessed for each of the courses for which they have registered, and assessment may be conducted in any combination of continuous assessment of coursework, written examinations and/or any other assessable activities. Only passed courses will earn credits.

(b) Candidates who are unable, because of illness, to be present at the written examination of any course may apply for permission to present themselves at a supplementary examination of the same course to be held before the beginning of the First Semester of the following academic year. Any such application shall be made on the form prescribed within two weeks of the first day of the candidate’s absence from any examination. Any supplementary examination shall be part of that academic year’s examinations, and the provisions made in the regulations for failure at the first attempt shall apply accordingly.

(c) Candidates shall not be permitted to repeat a course for which they have received a D grade or above for the purpose of upgrading.

(d) Candidates are required to make up for failed courses in the following manner: repeating the failed course by undergoing instruction and satisfying the assessment, or for elective courses, taking another course in lieu and satisfying the assessment requirements.

(e) There shall be no appeal against the results of examinations and other forms of assessment.

Award of BSc in Actuarial Science Degree

AS8 To be eligible for the award of the BSc in Actuarial Science degree, candidates shall have:

(a) satisfied the requirements in UG5 of the Regulations for First Degree Curricula;

(b) passed not fewer than 240 credits, comprising 144 credits of the required courses as prescribed in the professional core of the BSc(ActuarSc) degree curriculum.

Honours classification

AS9

(a) Honours classifications shall be awarded in five divisions: First Class Honours, Second Class Honours Division One, Second Class Honours Division Two, Third Class Honours, and Pass. The classification of honours shall be determined by the Board of Examiners for the Degree of BSc(ActuarSc) in accordance with the following Cumulative GPA scores, with all courses taken (including failed courses, but not including courses approved by the Senate graded as ‘Pass’, ‘Fail’ or ‘Distinction’) carrying equal weighting:

<table>
<thead>
<tr>
<th>Class of honours</th>
<th>CGPA range</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Class Honours</td>
<td>3.60 – 4.30</td>
</tr>
<tr>
<td>Second Class Honours</td>
<td>(2.40 – 3.59)</td>
</tr>
<tr>
<td>Division One</td>
<td>3.00 – 3.59</td>
</tr>
<tr>
<td>Division Two</td>
<td>2.40 – 2.99</td>
</tr>
<tr>
<td>Third Class Honours</td>
<td>1.70 – 2.39</td>
</tr>
<tr>
<td>Pass</td>
<td>1.00 – 1.69</td>
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</tbody>
</table>
(b) Honours classification may not be determined solely on the basis of a candidate’s Cumulative GPA and the Board of Examiners for the Degree of BSc(ActuarSc) may, at its absolute discretion and with justification, award a higher class of honours to a candidate deemed to have demonstrated meritorious academic achievement but whose Cumulative GPA falls below the range stipulated in UG9(a) of the higher classification by not more than 0.05 Grade Point.

(c) A list of candidates who have successfully completed all degree requirements shall be posted on Faculty noticeboards.
REGULATIONS FOR FIRST DEGREE CURRICULA

These regulations are applicable to candidates admitted under the 4-year ‘2012 curriculum’ to the first year of first degree curricula in 2012-13 and thereafter.

(See also General Regulations)

UG 1 Definitions:

For the purpose of regulations and syllabuses for all first degree curricula unless otherwise defined —

An ‘academic year’ comprises two semesters, the first semester to commence in September and end in December, and the second semester to commence in January and end in May/June, on dates as prescribed by the Senate. It includes, normally at the end of each semester, a period during which candidates are assessed. For some curricula, a ‘summer semester’ may be organized in addition to the normal two semesters. Clinical curricula have extended semesters.

A ‘summer semester’ normally comprises seven to eight weeks of intensive timetabled teaching and assessment to commence four weeks after the end of the second semester assessment period, and to conclude about one week before the start of the next academic year.

The ‘maximum period of registration’ is equivalent to a period which is 150% of the curriculum’s normative period of study as specified in the degree regulations, provided that where this results in a residual fraction of an academic year, the fractional period shall be extended to one full academic year.

‘Degree curriculum’ means the entire study requirements for the award of an undergraduate degree.

‘Major programme’ means the study requirements, including a capstone experience, for a single major area of disciplinary, interdisciplinary or multidisciplinary study, accumulating not fewer than 72 credits nor more than 96 credits, as prescribed in the syllabuses for a degree curriculum.

‘Minor programme’ means the study requirements for a single minor area of disciplinary, interdisciplinary or multidisciplinary study, accumulating not fewer than 36 credits nor more than 48 credits, as prescribed in the syllabuses for a degree curriculum.

‘Professional core’ refers to the study requirements, including a capstone experience, prescribed in the regulations and syllabuses for disciplinary studies in degree curricula which are not structured as major/minor programmes for reasons relating to professional qualification and/or accreditation.

‘Course’ means a course of study, with a credit value expressed as a number of credit-units as specified in the syllabuses for a degree curriculum.

1 These regulations are applicable to candidates admitted under the 4-year ‘2012 curriculum’ (the 2-year curriculum in respect of the BSc(IM), the 5-year curriculum in respect of the BA&BE(LangEd), BE&BS, BE&BSocSc, BSc(Sp&HearSc), and BNurs, and the 6-year curriculum in respect of the BChinMed, BDS and MBBS) to the first year of first degree curricula in 2012-13 and thereafter. Reference in these regulations to the powers of the Boards of Faculties shall be applicable to Senate Boards of Studies which administer first degree curricula.

(Please refer to the Calendar for 2011-12 for the Regulations for First Degree Curricula applicable to cohorts admitted in 2010-11 and 2011-12 under the 3-year ‘2010 curriculum’.)
‘Disciplinary elective course’ or ‘Disciplinary Elective’ means any course offered in the same major or minor programme or the professional core which can be taken by candidates to fulfill the curriculum requirements as specified in the syllabuses of the degree curriculum. ‘Elective course’ or ‘Elective’ means any course offered within the same or another curriculum, other than compulsory courses in the candidate’s degree curriculum, that can be taken by the candidate in order to complete the credit requirements of the degree curriculum. ‘Capstone experience’ refers to one or more courses within the major programme or professional core which are approved by the Board of the Faculty for the purpose of integrating knowledge and skills acquired, and which are prescribed in the syllabuses of the degree curriculum. ‘Syllabus’ means courses taught by departments, centres, and schools, offered under a degree curriculum. ‘Prerequisite’ means a course or a group of courses which candidates must have completed successfully or a requirement which candidates must have fulfilled before being permitted to take the course in question. ‘Corequisite’ means a course which candidates must take in conjunction with the course in question. ‘Credits’ or ‘credit-units’ means the value assigned to each course to indicate its study load relative to the total study load under a degree curriculum. The study load refers to the hours of student learning activities and experiences, both within and outside the classroom, and includes contact hours and time spent on assessment tasks and examinations. Candidates who satisfactorily complete courses with a credit value earn the credits assigned to these courses. ‘Grade Points’ are standardized measurements of candidates’ academic achievement in courses taken to satisfy the requirements of the degree curriculum and are expressed as a scale prescribed in these regulations. ‘Grade Point Average’ is a numerical measure of a candidate’s academic achievement over a specified period of time. Each course attempted (including each failed course) is assigned a numerical value, with all courses carrying equal weighting. This numerical value is the product of grade points earned for the course and the credit value of that course. The ‘Grade Point Average’ is the sum of these numerical values divided by the total number of credits attempted:

\[
GPA = \frac{\sum_i \text{Course Grade Point} \times \text{Course Credit Value}}{\sum_i \text{Course Credit Value}}
\]

(where ‘i’ stands for all passed and failed courses taken by the student over a specified period)

‘Semester Grade Point Average’ or ‘Semester GPA’ is the GPA in respect of courses attempted by a candidate (including failed courses) during a given semester. ‘Year Grade Point Average’ or ‘Year GPA’ is the GPA in respect of courses attempted by a candidate (including failed courses) during a given academic year. ‘Cumulative Grade Point Average’ or ‘Cumulative GPA’ is the GPA in respect of courses attempted by a candidate (including failed courses) at the time of calculation. ‘Assessment’ refers to judgment about the quality and extent to which a student has achieved the stated learning objectives or learning outcomes. It includes all types of assessment activities which allow for such a judgment to be made. For the purpose of interpreting the relevant provisions of the Ordinance and the Statutes and where appropriate, reference to ‘examination’ or ‘examinations’ in the Ordinance and the Statutes shall include and cover all forms of ‘assessment’ and its related processes.
A ‘transcript’ refers to a transcript of the record of study of a candidate, issued by the Registry of the University.

**UG 2 Advanced standing:**

Advanced standing may be granted to candidates in recognition of studies completed successfully elsewhere before admission to the University. Candidates who are awarded Advanced Standing will not be granted any further credit transfer for those studies for which Advanced Standing has been granted. The amount of credits to be granted for advanced standing shall be determined by the Board of the Faculty, in accordance with the following principles:

(a) at least half the number of credits of the degree curriculum normally required for award of the degree shall be accumulated through study at this University or from transfer of credits for courses completed at other institutions in accordance with Regulation UG 4(d); and

(b) in accordance with Statute III.5 and notwithstanding the granting of advanced and/or transfer credits, a minimum of two semesters of study at this University shall be required before a candidate is considered for the award of a first degree, other than a degree in medicine or surgery, and a minimum of four semesters of study at this University shall be required before a candidate is considered for a first degree in medicine or surgery.

Credits granted for advanced standing shall not normally be included in the calculation of the GPA unless permitted by the Board of the Faculty but will be recorded on the transcript of the candidate.

**UG 3 Period of study:**

The period of study of the curriculum shall be specified in the regulations governing the degree. To be eligible for award of the degree, a candidate shall fulfill all curriculum requirements within the maximum period of registration, unless otherwise permitted or required by the Board of the Faculty.

**UG 4 Progression in curriculum:**

(a) Candidates shall normally be required to take not fewer than 24 credits nor more than 30 credits in any one semester (except the summer semester) unless otherwise permitted or required by the Board of the Faculty, or except in the last semester of study when the number of outstanding credits required to complete the curriculum requirements is fewer than 24 credits.

(b) Candidates may, of their own volition, take additional credits not exceeding 6 credits in each semester, and/or further credits during the summer semester, accumulating up to a maximum of 72 credits in one academic year. With the special permission of the Board of the Faculty, candidates may exceed the annual study load of 72 credits in a given academic year provided that the total number of credits taken does not exceed the maximum curriculum study load for the normative period of study specified in the curriculum regulations, save as provided for under UG4(c).

(c) Where candidates are required to make up for failed credits, the Board of the Faculty may give permission for candidates to exceed the annual study load of 72 credits provided that the total number of credits taken does not exceed the maximum curriculum study load for the maximum period of registration specified in the curriculum regulations.

(d) Candidates may, with the approval of the Board of the Faculty, transfer credits for courses completed at other institutions at any time during their candidature. The number of transferred credits may be recorded in the transcript of the candidate, but the
results of courses completed at other institutions shall not be included in the calculation of the GPA. The number of credits to be transferred shall not exceed half of the total credits normally required under the degree curricula of the candidates during their candidature at the University.

(e) Unless otherwise permitted by the Board of the Faculty, candidates shall be recommended for discontinuation of their studies if they have:

(i) failed to complete successfully 36 or more credits in two consecutive semesters (not including the summer semester), except where they are not required to take such a number of credits in the two given semesters, or
(ii) failed to achieve an average Semester GPA of 1.0 or higher for two consecutive semesters (not including the summer semester), or
(iii) exceeded the maximum period of registration specified in the regulations of the degree.

UG 5 Requirements for graduation:

To be eligible for admission to the degree, candidates shall fulfill the following requirements in addition to the requirements prescribed in the regulations and syllabuses governing the degree curriculum within the maximum period of registration:

(a) successful completion of 12 credits in English language enhancement, including 6 credits in Core University English\(^2\) and 6 credits in an English in the Discipline course\(^3\);
(b) successful completion of 6 credits in Chinese language enhancement\(^4\);
(c) successful completion of 36 credits of courses in the Common Core Curriculum, selecting not more than one course from the same Area of Inquiry within one academic year and at least one and not more than two courses from each Area of Inquiry\(^5\) during the whole period of study; and
(d) successful completion of a capstone experience as specified in the syllabuses of the degree curriculum.

UG 6 Exemption:

Candidates may be exempted, with or without special conditions attached, from any of the requirements in UG 5 by the Senate in exceptional circumstances. Candidates who are so exempted shall fulfill the requirements in UG 5 by the Senate in exceptional circumstances. Candidates who are so exempted shall fulfill the requirements in UG 5 by the Senate in exceptional circumstances.

\(^{2}\) Candidates who have achieved Level 5** in English Language in the Hong Kong Diploma of Secondary Education Examination, or equivalent, may at the discretion of the Faculty be exempted from this requirement and should take an elective course in lieu, see Regulation UG6.

\(^{3}\) (a) To satisfy the English in the Discipline (ED) requirement, candidates who have passed the ED course for a Major but subsequently change to another Major are required to pass the ED course for the new Major, or either of the double Majors finally declared upon graduation irrespective of whether the second Major is offered within or outside of the candidates’ home Faculty.

(b) Candidates declaring double Majors can, if they fail in the ED course for one of the Majors, either (i) re-take and successfully complete that failed ED course, or (ii) successfully complete the ED course for the other Major, irrespective of whether the Major is offered within or outside of the candidates’ home Faculty.

(c) Candidates who undertake studies in double Majors or double degrees are not required to take a second ED course but may be advised by the Faculty to do so.

\(^{4}\) Candidates who have not studied Chinese language during their secondary education may be exempted from this requirement and should take an elective course in lieu, see Regulation UG6.

\(^{5}\) Candidates registered for double degree studies are required to successfully complete 24 credits of courses in the Common Core Curriculum, selecting one course from each Area of Inquiry, within the curriculum of the first degree, as appropriate.
exempted must replace the number of exempted credits with courses of the same credit value.

**UG 7 Assessment:**

(a) Candidates shall be assessed for each of the courses for which they have registered, and assessment may be conducted in any combination of continuous assessment of coursework, written examinations and/or any other assessable activities. Only passed courses will earn credits.

(b) Candidates who are unable, because of illness, to be present at the written examination of any course may apply for permission to present themselves at a supplementary examination of the same course to be held before the beginning of the First Semester of the following academic year. Any such application shall be made on the form prescribed within two weeks of the first day of the candidate’s absence from any examination. Any supplementary examination shall be part of that academic year’s examinations, and the provisions made in the regulations for failure at the first attempt shall apply accordingly.

(c) Candidates shall not be permitted to repeat a course for which they have received a D grade or above for the purpose of upgrading.

(d) Candidates are required to make up for failed courses in the following manner as prescribed in the curriculum regulations:

(i) undergoing re-assessment/re-examination in the failed course to be held no later than the end of the following semester (not including the summer semester); or

(ii) re-submitting failed coursework, without having to repeat the same course of instruction; or

(iii) repeating the failed course by undergoing instruction and satisfying the assessments; or

(iv) for elective courses, taking another course *in lieu* and satisfying the assessment requirements.

(e) There shall be no appeal against the results of examinations and all other forms of assessment.

**UG 8 Grading system:**

(a) The grades, their standards and the grade points for assessment shall be as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Standard</th>
<th>Grade Point</th>
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<tbody>
<tr>
<td>A+</td>
<td>Excellent</td>
<td>4.3</td>
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<tr>
<td>A</td>
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<td>4.0</td>
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<tr>
<td>A-</td>
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<td>3.7</td>
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<tr>
<td>B+</td>
<td>Good</td>
<td>3.3</td>
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<tr>
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<td>B-</td>
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<tr>
<td>C+</td>
<td>Satisfactory</td>
<td>2.3</td>
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<tr>
<td>C</td>
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<td>C-</td>
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<tr>
<td>D+</td>
<td>Pass</td>
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<td>D</td>
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<td>F</td>
<td>Fail</td>
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(b) Special permission may be given by Senate for courses in individual curricula to be graded as ‘Pass’, ‘Fail’ or ‘Distinction’. Such courses will not be included in the calculation of the GPA.

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6 UG 8 is not applicable to the BDS and MBBS curricula.
UG 9 Honours classifications:

(a) Honours classifications shall be awarded in five divisions: First Class Honours, Second Class Honours Division One, Second Class Honours Division Two, Third Class Honours, and Pass. The classification of honours shall be determined by the Board of Examiners for the degree in accordance with the following Cumulative GPA scores, with all courses taken (including failed courses) carrying equal weighting:

<table>
<thead>
<tr>
<th>Class of honours</th>
<th>CGPA range</th>
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<tbody>
<tr>
<td>First Class Honours</td>
<td>3.60 – 4.30</td>
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<tr>
<td>Second Class Honours</td>
<td>(2.40 – 3.59)</td>
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<tr>
<td>Division One</td>
<td>3.00 – 3.59</td>
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<tr>
<td>Division Two</td>
<td>2.40 – 2.99</td>
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<tr>
<td>Third Class Honours</td>
<td>1.70 – 2.39</td>
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<tr>
<td>Pass</td>
<td>1.00 – 1.69</td>
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</tbody>
</table>

(b) Honours classification may not be determined solely on the basis of a candidate’s Cumulative GPA and the Board of Examiners for the degree may, at its absolute discretion and with justification, award a higher class of honours to a candidate deemed to have demonstrated meritorious academic achievement but whose Cumulative GPA falls below the range stipulated in UG9(a) of the higher classification by not more than 0.05 Grade Point.

(c) A list of candidates who have successfully completed all degree requirements shall be posted on Faculty noticeboards.

7 UG 9 is not applicable to the BChinMed, BDS and MBBS.
### Teaching Weeks 2012-2013 for Undergraduate and Taught Postgraduate Students

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[ ] General Holiday  
( ) University Holiday (Full Day)  
<> University Holiday (afternoon only)  
Class Suspension Period for the Lunar New Year  
[] Assessment Period  
[ ] Assessment Period (if necessary)

**Notes:**
- First Semester: 10 Mondays, 9 Tuesdays, 11 Wednesdays, Thursdays, Fridays and Saturday
- Second Semester: 12 Mondays, 13 Tuesdays, 12 Wednesdays, Thursdays, Fridays and Saturday
- * Depending on the papers to be examined, if possible, assessment period will end on Dec 22, but if necessary, it will extend beyond the Christmas and the New Year Holidays, up to Jan 5
Useful contacts and websites

Faculty of Science
Office Location: G12, Ground Floor, Chong Yuet Ming Physics Building
Tel: 2859 2683
Fax: 2858 4620
Email: science@hku.hk
Website: http://www.scifac.hku.hk/

(Please visit http://www.scifac.hku.hk/ for the latest updates of BSc courses, timetables, notices and forms)

Departments/School
- Biochemistry Website: http://www.biochem.hku.hk/
- Biological Sciences Website: http://www.biosch.hku.hk/
- Chemistry Website: http://chem.hku.hk/
- Earth Sciences Website: http://www.earthsciences.hku.hk/
- Mathematics Website: http://www.math.hku.hk/
- Physics Website: http://www.physics.hku.hk/
- Statistics and Actuarial Science Website: http://www.saasweb.hku.hk/

Academic Advising Office
Tel: 2219 4686
Website: http://aoa.hku.hk

Academic Services Office
Office Location: G4, Run Run Shaw Building
Tel: 2859 2433
Fax: 2540 1405
Email: asoffice@hku.hk
Website: http://www.asa.hku.hk/

Common Core courses Website: http://commoncore.hku.hk

HKU Worldwide Undergraduate Exchange Programme Website: http://www.als.hku.hk/admission/exchange/

Centre of Development and Resources for Students (CEDARS)
Tel: 2859 2305
Website: http://cedars.hku.hk

University Health Service
Tel: 2859 2501 (General enquiries)
2549 4686 (Medical appointments only)
Website: http://www.uhs.hku.hk/

Plagiarism Website: http://www.hku.hk/plagiarism