PROGRAMME SPECIFICATION – UNDERGRADUATE PROGRAMMES

KEY FACTS

<table>
<thead>
<tr>
<th>Programme name</th>
<th>Actuarial Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Award</td>
<td>BSc (Hons)</td>
</tr>
<tr>
<td>School</td>
<td>Cass Business School</td>
</tr>
<tr>
<td>Department or equivalent</td>
<td>UG Programme (Cass Business School)</td>
</tr>
<tr>
<td>UCAS Code</td>
<td>G322</td>
</tr>
<tr>
<td>Programme code</td>
<td>USACTS</td>
</tr>
<tr>
<td>Type of study</td>
<td>Full Time</td>
</tr>
<tr>
<td>Total UK credits</td>
<td>440</td>
</tr>
<tr>
<td>Total ECTS</td>
<td>220</td>
</tr>
</tbody>
</table>

PROGRAMME SUMMARY

The BSc (Hons) Actuarial Science degree gives a sound education in mathematics, statistics and actuarial science. You will also gain skills and knowledge in the key areas of probability theory, economics, accounting and computing. The majority of the modules in the first two years are compulsory, while in the final year there are a number of optional modules to choose from, allowing you to tailor your degree to your strengths and future job requirements.

The programme consists of 3 Programme Stages, or 4 Programme Stages if a sandwich year is taken.

Cass is one of the only business schools in the City of London. Our close links with international corporations is reflected in all our degree programmes which are constantly evolving to meet the needs of an ever-changing business world.

Many of our lecturers have worked in industry and continue to consult for corporate organisations, so you will benefit from their first-hand knowledge and business experience. As we place a high value on teaching both theory and application, you will emerge from your degree with a good understanding of how to use your newly acquired knowledge in the workplace.

Aims

1. To develop a good knowledge and understanding of actuarial science, statistics, mathematics, finance and related disciplines.

2. To develop the ability to communicate your knowledge and understanding effectively.

3. To develop an understanding of the respective roles of mathematical and statistical calculation, analysis and judgement in actuarial science.

4. To develop the ability to make reasoned judgements, frame appropriate questions and draw independent conclusions.
5. To equip you with the skills required to work professionally as an actuary or in alternative fields related to statistics, finance and in business more generally.

6. To prepare you to enter postgraduate study in actuarial science or related disciplines.

7. To develop responsible and socially aware actuaries, as many of the decisions that you will make in your career will affect numerous stakeholders all of whose views and situations must be taken into account.

On successful completion of Programme Stage 1 of the Programme you will have acquired a foundation knowledge and understanding of the key concepts and principles underlying your area of study, the ability to recognize and explain these, and to identify and apply appropriate solutions when presented with a problem. On successful completion of Programme Stage 1 you will be eligible for the award of Certificate of Higher Education should you choose to leave the Programme.

On successful completion of Programme Stage 2 of the Programme you will have built on the knowledge and understanding gained at Programme Stage 1 and demonstrated an ability to analyse and apply these concepts and principles to complex problems and scenarios. You will have also have broadened their field of study through the completion of elective modules. On successful completion of Programme Stage 2 you will be eligible for the award of Diploma of Higher Education should you choose to leave the Programme.

WHAT WILL I BE EXPECTED TO ACHIEVE?

On successful completion of this programme, you will be expected to be able to:

Knowledge and understanding:

• Demonstrate a reasonable knowledge of the core mathematical, statistical and actuarial subjects, including calculus, linear algebra, differential equations and computing

• Demonstrate a reasonable understanding of the role of an actuary in a commercial or regulatory organisation

• Demonstrate a deeper knowledge of selected areas of study in actuarial science, statistics, finance or business

• Demonstrate a reasonable knowledge and understanding of the importance of assumptions, awareness where used, and consequences of their violation

• Demonstrate a reasonable knowledge and understanding of modelling, as well as modelling techniques, and their conditions and limitations

Skills:

• Argue rationally and understand logical arguments of others
• Demonstrate a reasonable level of skill in calculation and manipulation in the core mathematical, statistical and actuarial subjects
• Apply core concepts and principles in well-defined contexts, showing judgement in the selection and application of tools and techniques
• Find reading materials appropriate to a given task and combine information from a number of sources
• Perform statistical tasks on a computer
• Work under guidance on an extended task
• Understand logical arguments, identifying the assumptions and conclusions made
  • Demonstrate a reasonable level of skill in comprehending problems, formulating them mathematically and obtaining solutions by appropriate methods
• Work as part of a group
• Make use of IT as appropriate to perform tasks
• Manage your time effectively
• Make a short presentation and answer questions on it

Values and attitudes:
• Demonstrate an ethical approach to work, and understand the importance of this to a professional actuary
• Have an attitude of careful documentation of your computations, to allow for verification by your peers
  • Be an effective team player who is tolerant of disagreement, and open and sensitive to diversity in cultures and people

This programme has been developed in accordance with the QAA Subject Benchmark for both finance and mathematics, statistics and operational research.

HOW WILL I LEARN?

Teaching and Learning methods are designed to foster your knowledge of and enthusiasm for the subject and stimulate engagement and participation in the learning process. They encourage learning in depth and encourage you to reflect on and take responsibility for your own learning and to develop your academic self-confidence.
- Lectures provide knowledge and should stimulate enthusiasm. Most contact hours during the degree programme take the form of lectures.

- Tutorials, exercise classes and surgery hours are opportunities to apply the knowledge and to participate in the discussion of the subject area. A number of tutorials, exercise classes and surgery hours are scheduled during the first year, the number decreasing as you progress and you become more able to direct your own learning.

- In several modules, the face-to-face teaching is complemented by online lectures and an active use of the Virtual Learning Environment.

**WHAT TYPES OF ASSESSMENT AND FEEDBACK CAN I EXPECT?**

**Assessment and Assessment Criteria**

Assessment is carried out according to context and purpose and recognises that you may exhibit different aptitudes in different forms of assessment:

- Some assessment is by coursework which you take home and complete with the aid of your notes.
- There are formal unseen written examinations every year. They take place at the end of each term (or at the end of a year, if a module is taught over two terms).
- Some assessment takes the form of class tests.
- Some assessment takes the form of online quizzes and tests, using the Virtual Learning Environment.
- A small number of modules require you to give a presentation.
- A group project forms the basis of assessment in one compulsory module and some electives.
- An individual project forms an integral part of the Programme Stage 3 assessment.

Assessment takes an overall view of your achievements. A level of success in each individual module that is commensurate with the overall performance is not necessarily required.

Assessment Criteria are descriptions, based on the intended learning outcomes, of the skills, knowledge or attitudes that you need to demonstrate in order to complete an assessment successfully, providing a mechanism by which the quality of an assessment can be measured. Grade-Related Criteria are descriptions of the level of skills, knowledge or attributes that you need to demonstrate in order achieve a certain grade or mark in an assessment, providing a mechanism by which the quality of an assessment can be measured and placed within the overall set of marks. Assessment Criteria and Grade-Related Criteria will be made available to you to support you in completing assessments. These may be provided in programme handbooks, module specifications, on the virtual learning environment or attached to a specific assessment task.

**Feedback on assessment**
Feedback will be provided on all assessed work (either formative or summative) and on other relevant aspects of your performance and progress in a module. You will normally be provided with feedback within three weeks of the submission deadline or assessment date. This would normally include a provisional grade or mark. For end of module examinations, or an equivalent significant task (e.g. an end of module project), feedback will normally be provided when results are released following the Assessment Board.

Assessment Regulations

In order to pass your Programme, you should complete successfully or be exempted from the relevant modules and assessments and will therefore acquire the required number of credits. You also need to pass each Programme Stage of your Programme in order to progress to the following Programme Stage.

To qualify for the Honours Degree, you must acquire the total credits indicated in the Student Handbook. Calculation of results and classification of the final award is based on a weighted average of module marks. The contribution of each module is proportional to its credit value.

BSc degrees are awarded with First Class Honours, Second Class Honours (Upper and Lower) or Third Class Honours.

The overall class of honours awarded is based on the overall weighted average mark achieved throughout the three Programme Stages of your degree. The weights given to each Programme Stage are shown below:

<table>
<thead>
<tr>
<th>Programme Stage</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>10%</td>
</tr>
<tr>
<td>Two</td>
<td>30%</td>
</tr>
<tr>
<td>Three</td>
<td>60%</td>
</tr>
</tbody>
</table>

The Pass mark for each module is 40%.

**Progression from Programme Stage 1 to Programme Stage 2**

To be admitted to Programme Stage 2 it is necessary to achieve:

- An average coursework mark of at least 40% for each module, and
- At least 40% in each examination, and
- A module mark of at least 40% in each module, and
- 150 credits at Programme Stage 1.

**Progression from Programme Stage 2 to Programme Stage 3**

To be admitted to Programme Stage 3 it is necessary to achieve:

- An average coursework mark of at least 40% for each module, and
- At least 40% in each examination, and
- A module mark of at least 40% in each module, and
- 140 credits at Programme Stage 2.
If you fail an assessment component or a module, the following will apply:

1. Compensation

Compensation at Programme Stages 1 & 2

Where you fail up to a total of one sixth of the total credits of Programme Stages 1 or 2 at first or resit attempt, you may be allowed compensation if:

- Compensation is permitted for the module involved (see the What will I Study section of the programme specification), and
- It can be demonstrated that you have satisfied all the Learning Outcomes of the modules in the Programme Stage, and
- A minimum overall mark of 30% has been achieved in the module to be compensated, including a minimum of 30% in the exam and 30% in the coursework, and
- An aggregate mark of 40% has been achieved for the Programme Stage.

Compensation at Programme Stage 3

Once 90 credits have been earned, the remaining credits for Programme Stage 3 can be earned either by passing modules or through compensation provided that:

- Compensation is permitted for the module involved (see the What will I Study section of the programme specification), and
- It can be demonstrated that you have satisfied all the Learning Outcomes of the modules in the Programme Stage, and
- A minimum overall mark of 30% has been achieved in each module to be compensated, and
- An aggregate mark of 40% has been achieved for Programme Stage 3.

Where you are eligible for compensation at the first attempt, this will be applied in the first instance rather than offering a resit opportunity.

If you receive a compensated pass in a module you will be awarded the credit for that module. The original component marks will be retained in the record of marks and your original module mark will be used for the purpose of your Award calculation.

2. Resit

Resits at Programme Stages 1 & 2

Where you are not eligible for compensation at the first attempt, you will be offered one resit attempt

If you are successful in the resit, you will be awarded the credit for that module. The mark for each assessment component that is subject to a resit will be capped at the pass mark for the module. This capped mark will be used in the calculation of the final module mark together with the original marks for the components that you passed at first attempt.
If you do not meet the pass requirements for a module and do not complete your resit by the date specified you will not progress to the next Programme Stage and the Assessment Board will require you to be withdrawn from the Programme.

**Resits at Programme Stage 3**

There are **NO** resits in exams or coursework at Programme Stage 3. Under the Assessment Regulations, if you who fail to achieve 150 credits at Programme Stage 3 (after compensation, if applicable) you will be recommended for an Ordinary Degree, or the lower award of a Diploma or Certificate in Higher Education, provided that you meet the requirements for any of these awards.

If you have Extenuating Circumstances which have been agreed and accepted as valid you will be given the option of resitting any missed examinations at the next available opportunity. For Programme Stage 3 students, this will be the following academic year in January/May, as there are no Programme Stage 3 resit papers set for the resit session.

If you fail to meet the requirements for a particular Programme Stage or the Programme, the Assessment Board will consider whether you are eligible for an Exit Award as per the table below.

If you would like to know more about the way in which assessment works at City, please see the full version of the Assessment Regulations at: [http://www.city.ac.uk/__data/assets/word_doc/0003/69249/s19.doc](http://www.city.ac.uk/__data/assets/word_doc/0003/69249/s19.doc)

### WHAT AWARD CAN I GET?

**Bachelor's Degree with Honours:**

<table>
<thead>
<tr>
<th>Programme Stage</th>
<th>HE Level</th>
<th>Credits</th>
<th>Weighting (%)</th>
<th>Class</th>
<th>% required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>150</td>
<td>10</td>
<td>I</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>140</td>
<td>30</td>
<td>II upper division</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>150</td>
<td>60</td>
<td>II lower division</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>III</td>
<td>40</td>
</tr>
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</table>

**Ordinary Degree:**

<table>
<thead>
<tr>
<th>Programme Stage</th>
<th>HE Level</th>
<th>Credits</th>
<th>Weighting (%)</th>
<th>Class</th>
<th>% required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>150</td>
<td>10</td>
<td>With Distinction</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>140</td>
<td>30</td>
<td>With Merit</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>60</td>
<td>60</td>
<td>Without classification</td>
<td>40</td>
</tr>
</tbody>
</table>

**Diploma of Higher Education:**

<table>
<thead>
<tr>
<th>Programme Stage</th>
<th>HE Level</th>
<th>Credits</th>
<th>Weighting (%)</th>
<th>Class</th>
<th>% required</th>
</tr>
</thead>
</table>
With Distinction 70
With Merit 60
Without classification 40

Certificate of Higher Education:

<table>
<thead>
<tr>
<th>Programme Stage</th>
<th>HE Level</th>
<th>Credits</th>
<th>Weighting (%)</th>
<th>Class</th>
<th>% required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>150</td>
<td>100</td>
<td>With Distinction</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>With Merit</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Without classification</td>
<td>40</td>
</tr>
</tbody>
</table>

WHAT WILL I STUDY?

Programme Stage 1

Programme Stage 1, which is worth 150 credits, provides a grounding in mathematics, statistics, computing, financial mathematics and economics. All modules are compulsory.

<table>
<thead>
<tr>
<th>Module Title</th>
<th>SITS Code</th>
<th>Module Credits</th>
<th>Core/Elective</th>
<th>Can be compensated?</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Actuarial Methods</td>
<td>AS1001</td>
<td>10</td>
<td>C</td>
<td>N</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics for Actuarial Science</td>
<td>AS1051</td>
<td>35</td>
<td>C</td>
<td>N</td>
<td>4</td>
</tr>
<tr>
<td>Applications of Information Technology</td>
<td>AS1055</td>
<td>25</td>
<td>C</td>
<td>Y</td>
<td>4</td>
</tr>
<tr>
<td>Introduction to Economics (Actuarial Science)</td>
<td>AS1071</td>
<td>25</td>
<td>C</td>
<td>Y</td>
<td>4</td>
</tr>
<tr>
<td>Probability and Statistics I</td>
<td>AS1101</td>
<td>25</td>
<td>C</td>
<td>N</td>
<td>4</td>
</tr>
<tr>
<td>Financial and Investment Mathematics</td>
<td>AS1201</td>
<td>30</td>
<td>C</td>
<td>N</td>
<td>4</td>
</tr>
</tbody>
</table>

Programme Stage 2

At Programme Stage 2, which is worth 140 credits, the statistical and actuarial subjects are further developed along with the mathematical skills required to master the applications-oriented material at Programme Stages 2 & 3. Students seeking exemption from the maximum number of professional examinations with take Financial Economics and one other elective.

<table>
<thead>
<tr>
<th>Module Title</th>
<th>SITS Code</th>
<th>Module Credits</th>
<th>Core/Elective</th>
<th>Can be compensated?</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>C</td>
<td>N</td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>
The core actuarial and statistical subjects are compulsory, as is the Final Year Project. Students also choose four from a wide range of electives to make up the remainder of Programme Stage 3. At least two of the four electives must have an AS prefix.
The list of elective modules provides an indication of the options available at the time of publication. The actual electives available each year can be subject to change due to student demand and availability of teaching staff. Certain electives may be pre-requisites for other electives you may wish to take later in the programme. Full details can be found in the individual Module Specifications and will be updated annually in your Course Handbook.

In view of the importance of foreign language skills and employability, you also have the opportunity to study extra-curricular (non-credit bearing) language courses in Arabic, French, German, Mandarin, Russian and Spanish.

**TO WHAT KIND OF CAREER MIGHT I GO ON?**

The majority of graduates become actuarial trainees and study for the Institute of Actuaries' examinations. Others embark on careers in investment banking and investment management, or in accountancy, commercial banking, insurance and financial analysis. Some enter careers in management, computing and teaching, whilst others progress to postgraduate study, often on our MSc in Actuarial Management.

If you would like more information on the Careers support available at City, please go to: [http://www.city.ac.uk/careers/for-students-and-recent-graduates](http://www.city.ac.uk/careers/for-students-and-recent-graduates).

**WHAT STUDY ABROAD OPTIONS ARE AVAILABLE?**

If you opt to apply for a sandwich year abroad and are accepted you will study at one of our overseas partner universities in between Years 2 & 3. You will be required to pass all Programme Stage 2 assessments at the first attempt.

Studying abroad enables you to improve your language skills, develop future business contacts and provides you with an international outlook on business.

**WHAT PLACEMENT OPPORTUNITIES ARE AVAILABLE?**

If you opt to apply for a placement sandwich year between Years 2 & 3 and are accepted, you will be required to pass all Programme Stage 2 assessments at the first attempt. However, if you are referred in a module, then this will be considered on a case-by-case basis. This option enables you to gain the professional skills valued by graduate employers, apply the theory you have studied and to develop a network of contacts.
WILL I GET ANY PROFESSIONAL RECOGNITION?

Accrediting Body: Institute and Faculty of Actuaries

Nature of Accreditation

Specific modules in all 3 years earn exemptions from 8 of the 15 of the Profession's exams.

Performance in particular modules, or pairs of modules, qualifies Honours graduates for exemption from the Profession’s examinations.

Subject CT1: Financial & Investment Mathematics
Subject CT2: Finance & Financial Reporting
Subject CT3: Probability & Statistics 1 & 2
Subject CT4: Stochastic Models and Survival Models
Subject CT5: Contingencies and Advanced Contingencies
Subject CT6: Statistics and Probabilistic Modelling for Insurance
Subject CT7: Introduction to Economics
Subject CT8: Financial Economics & Advanced Financial Economics

Accrediting Body: Chartered Insurance Institute (CII)

Nature of Accreditation

Upon completion of the degree students will receive a significant number of credits towards the Advanced Diploma in Insurance (290 required for completion) and up to 30 credits to be used towards the Diploma/Advanced Diploma in Financial Planning (credits awarded are dependent on modules chosen).

Please note that recognition of prior learning awards can change at any time in response to qualification framework changes. Any changes will be communicated to you as soon as they are confirmed.

HOW DO I ENTER THE PROGRAMME?

For A-level students our standard offer is A* (Maths) AA.

For International Baccalaureate students our standard offer is 35 points overall, including 7 in HL Maths, 6 in all other HL subjects and 5 in all SL subjects. Consideration will be given to 1 bonus point.

We also make offers on other international qualifications that are recognised by British Universities.

For students whose first language is not English, evidence of English language proficiency is required.

IELTS: 6.5 with a minimum of 6 in any unit.
Pearson Academic English: 58 overall with a minimum of 50 in any component

City, University of London offers The Lord Major of London Scholarships for Academic Excellence. Further details can be found on the University's website at http://www.city.ac.uk/study-at-city/undergraduate/funding-and-financial-support/bursaries-and-scholarships/the-lord-mayor-of-london-scholarships.

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