PROGRAMME SPECIFICATION

KEY FACTS

<table>
<thead>
<tr>
<th>Programme name</th>
<th>Mathematical Trading and Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Award</td>
<td>MSc</td>
</tr>
<tr>
<td>School</td>
<td>Cass Business School</td>
</tr>
<tr>
<td>Department or equivalent</td>
<td>MSc Programme (Cass Business School)</td>
</tr>
<tr>
<td>Programme code</td>
<td>PSMTFN</td>
</tr>
<tr>
<td>Type of study</td>
<td>Full Time</td>
</tr>
<tr>
<td>Total UK credits</td>
<td>185</td>
</tr>
<tr>
<td>Total ECTS</td>
<td>92.5</td>
</tr>
<tr>
<td>Partner (partnership programmes only)</td>
<td>KAIST</td>
</tr>
<tr>
<td>Type of partnership</td>
<td>Articulation</td>
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PROGRAMME SUMMARY

You are required to take 9 core modules in term 1 and term 2 as outlined in the module list. In term 3, you have three options to complete the MSc:

**Option 1** Elective study only by taking 5 x 18 hours specialist electives of 10 credits each

**Option 2** – study through a combination of taught courses and applied research;
- Three elective units of 10 credits each
- One Applied Research Project of 20 credits and a maximum of 5000 words - taken following completion of your elective programme.

**Option 3**
A Business Research Project with a credit value of 40 and a maximum of 10,000 words, taken in tandem with one specialist elective.

Term three elective modules are chosen from a list of modules hosted by your degree. A number of elective modules hosted by other degrees are also available by approval of the course director. The list and content of available term three elective modules may be subject to change from year to year.

Aims

The aim of the programme is to produce an informed, knowledgeable, confident, networking executive who can perform in an international business environment. This contributes to City's strategic aim of providing high quality education which makes a significant contribution to the success of London as a world city and enhances its
international scope and reputation.

Throughout the course, where possible, lecturers will emphasise the many ethical issues that arise in the context of mathematical trading and finance. In so doing you will be encouraged to share your views with your lecturers and with your class mates, where a diversity of opinion is to be expected and encouraged.

The programme aims to develop:
- Your intellectual, social and practical skills.
- A strong academic and vocational background.
- Your ability to analyse, interpret and understand issues related to derivatives, financial engineering and financial risk management.

The programme will make it possible for you to:
- Acquire a solid theoretical background in the areas of mathematical finance, derivatives and financial engineering - Acquire up-to-date knowledge based both on academic theory and on practical applications
- Acquire IT, presentation, team working and critical thinking skills
- Work under pressure in a very competitive environment
- Effectively assist and contribute to the asset management and risk management problems within modern financial markets or institutions.
- Be able to seek positions in the derivatives, financial engineering, asset management and financial risk management arena or proceed for further postgraduate studies.

WHAT WILL I BE EXPECTED TO ACHIEVE?

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

Knowledge and understanding:
- show mastery of fundamental knowledge in the area of mathematical finance
- demonstrate advanced knowledge in the areas of derivatives and financial engineering, as well as other areas associated with quantitative finance such as asset pricing and asset management, and their related numerical methods
- show mastery of specialist areas of exotic derivatives, structuring and quantitative risk management
- demonstrate advanced knowledge of the organisation, function, mechanics and theory underlying world financial markets and institutions
- show understanding of the importance of hedging and the role of derivatives trading
- demonstrate understanding of the approaches to advanced credit risk management
Skills:
- analyse intrinsic and external factors affecting business situations, especially those related to mathematical finance, derivatives and financial engineering
- make appropriate decisions in the area of quantitative finance and derivatives, based on advanced understanding of issues involved and to employ good quantitative skills as part of the decision making process
- make informed decisions within practical financial contexts, having an advanced understanding of all issues in the broader area of finance, including financial markets and a wide array of financial instruments
- show good computing skills
- synthesise all factors affecting business situations and propose solutions to business problems which effectively match these factors
- carry out independent research work leading to the write up and submission of a business research proposal (part of the Research Project Management Skills module) and potentially a Business Research Project (depending on the exit route chosen).

Values and attitudes:
- demonstrate understanding of ethics (especially the concept of “fair play”) in the practice of business and finance. In all the areas included in their programme, but also in business at large, particularly in terms of team working and decision making.

This programme has been developed in accordance with the QAA Subject Benchmark for Business and Management.

HOW WILL I LEARN?

Teaching and learning methods include the opportunity for you to apply your knowledge and expertise to problems beyond those generally encountered. A range of teaching and learning strategies are used to help you meet the different learning outcomes and to cater for the varied backgrounds and experiences of you and your fellow students.

- Lectures and directed reading are used to help to help you achieve an understanding of the current level of knowledge in the relevant areas.
- Case studies, the use of specialist software package and real life exercises as well as contributions from outside speakers are used to achieve integration between theory and practice.
- Substantial pieces of individual work such as a Business Research Project will provide you with the opportunity to acquire research and report writing skills on an individual basis and you will also work in small groups with your fellow students in order to benefit from peer interaction.
Classes are supported by e-learning material which is available on the Moodle Virtual Learning Network.

The assessment of the course will also support your learning:
- Coursework provides ongoing feedback on your programme.
- Tests will assess the knowledge gained.
- Examinations provide a more in-depth assessment of knowledge gained and also assess your problem solving abilities.

The MSc in Mathematical Trading and Finance is designed and structured to allow for intellectual progression through core modules taught in terms 1 and 2. Modules taught in term 2 normally build on the knowledge and skill acquired in term 1. Term three allows for further progression by choosing specialist elective modules or a dissertation/project, where students can apply knowledge and skills acquired earlier in the programme.

Students who fail to meet the requirements for the award of MSc Programme may be awarded a postgraduate diploma provided they have successfully completed all core content.

A minimum of 10 teaching and learning hours (both contact and non-contact) are required for each credit awarded. The precise weighting of different types of teaching and learning depends on the modules you take and the breakdown is therefore provided within the appropriate module specifications.

Non-contact hours are for self-directed study and account for the minimum amount of time you should spend studying independently, including subject research, reading, working in groups and completing assignments and other homework.

**Overall teaching and learning hours: approx 1850 hours**

**Contact hours: approx 348 hours**

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

**Assessment and Assessment Criteria**

This course is assessed by coursework and examinations and applies standard MSc grade related criteria.

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 in line with our Assessment and Feedback Policy and will be provided in a variety of ways throughout your course, both formally and informally, in order to support your learning.

You will normally be provided with coursework feedback within three weeks of the submission deadline or assessment date. This would normally include a provisional grade or mark. The timescale for feedback on final projects or dissertations may be longer. Examination grades will be provided once they have been agreed by an Assessment Board.

More details about the feedback you can expect from individual modules and assessments will be provided by your lecturers.

The full policy can be found at: https://www.city.ac.uk/__data/assets/pdf_file/0008/68921/assessment_and_feedback_policy.pdf

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. The programme is weighted according to the number of credits awarded for each module. Pass / Fail modules are excluded from this calculation.

The pass mark for each module is 50% and there are no minimum qualifying marks for individual components.

If you fail an assessment component or a module, the following will apply:

Re-Sit: you will normally be offered one re-sit attempt.

If you are successful in the re-sit, you will be awarded the credit for that module. The mark for each assessment component that is subject to a re-sit 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 component(s) that you passed at first attempt.

If you do not meet the pass requirements for a module and do not complete your re-sit by the date specified you will not progress and the Assessment Board will require that you be withdrawn from the programme.
If you fail to meet the requirements for 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?

**Master’s Degree:**

<table>
<thead>
<tr>
<th>HE Level</th>
<th>Credits</th>
<th>Weighting (%)</th>
<th>Class</th>
<th>% required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree</td>
<td>7</td>
<td>185</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**Postgraduate Diploma:**

A student who has not accumulated enough credits to be awarded a masters degree may be awarded a postgraduate diploma provided that:

- All core / core elective modules (excluding the Business Research Project modules) are included in the calculation.
- That the overall aggregate grade for all modules to be counted is at least 50%.
- Not more than 20 core / core elective credits are between 40% - 49.9%.

<table>
<thead>
<tr>
<th>HE Level</th>
<th>Credits</th>
<th>Weighting (%)</th>
<th>Class</th>
<th>% required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree</td>
<td>7</td>
<td>135</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

If you are a student joining the programme mid-cycle as part of a dual degree programme, where modules are exempted from term one, credit for the exempted modules will be added to your student record (further details on assessment rules and regulations and calculations of awards will be available in the course / student handbook).
WHAT WILL I STUDY?

<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>Research Methods for Quantitative Professionals</td>
<td>SMM549</td>
<td>10</td>
<td>C</td>
<td>N</td>
<td>7</td>
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<tr>
<td>Advanced Financial Econometrics</td>
<td>SMM601</td>
<td>15</td>
<td>C</td>
<td>N</td>
<td>7</td>
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<tr>
<td>Derivatives 1</td>
<td>SMM603</td>
<td>15</td>
<td>C</td>
<td>N</td>
<td>7</td>
</tr>
<tr>
<td>Mathematical Finance</td>
<td>SMM604</td>
<td>20</td>
<td>C</td>
<td>N</td>
<td>7</td>
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<tr>
<td>Quantitative Asset Pricing</td>
<td>SMM607</td>
<td>15</td>
<td>C</td>
<td>N</td>
<td>7</td>
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<tr>
<td>Numerical Methods</td>
<td>SMM608</td>
<td>15</td>
<td>C</td>
<td>N</td>
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<tr>
<td>Risk Analysis and Modelling</td>
<td>SMM609</td>
<td>15</td>
<td>C</td>
<td>N</td>
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<tr>
<td>Structured Equity and Energy Derivatives</td>
<td>SMM610</td>
<td>15</td>
<td>C</td>
<td>N</td>
<td>7</td>
</tr>
<tr>
<td>Derivatives 2</td>
<td>SMM615</td>
<td>15</td>
<td>C</td>
<td>N</td>
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<td>Business Research Project</td>
<td>SMM527</td>
<td>40</td>
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<td>7</td>
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<tr>
<td>Technical Analysis and Trading Systems</td>
<td>SMM529</td>
<td>10</td>
<td>E</td>
<td>N</td>
<td>7</td>
</tr>
<tr>
<td>Advanced Financial Modelling and Forecasting</td>
<td>SMM602</td>
<td>10</td>
<td>E</td>
<td>N</td>
<td>7</td>
</tr>
<tr>
<td>Advanced Financial Engineering and Credit Derivatives</td>
<td>SMM617</td>
<td>10</td>
<td>E</td>
<td>N</td>
<td>7</td>
</tr>
<tr>
<td>Advanced Options Trading</td>
<td>SMM618</td>
<td>10</td>
<td>E</td>
<td>N</td>
<td>7</td>
</tr>
<tr>
<td>Fixed Income Arbitrage and Trading</td>
<td>SMM619</td>
<td>10</td>
<td>E</td>
<td>N</td>
<td>7</td>
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<tr>
<td>Trading and Hedging in the Foreign Exchange Market</td>
<td>SMM620</td>
<td>10</td>
<td>E</td>
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<td>Applied Research Project</td>
<td>SMM799</td>
<td>20</td>
<td>E</td>
<td>N</td>
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</tbody>
</table>

TO WHAT KIND OF CAREER MIGHT I GO ON?

http://www.cass.city.ac.uk/more-about-cass/careers-services - Careers Service

http://www.cass.city.ac.uk/more-about-cass/alumni-services - Alumni Service

WHAT PLACEMENT OPPORTUNITIES ARE AVAILABLE?

Placements are not part of the programme.

HOW DO I ENTER THE PROGRAMME?

To be accepted on to a Cass MSc degree you will need a good Bachelors degree. This
usually means a UK 2.1 or above, or the equivalent from an overseas institution. Some level of previous study in the specific subject area may be required.

Applicants will need to submit two references, one of which must be an academic reference if the candidate does not have previous work experience. Previous work experience is not a requirement of our full time MSc courses.

We require all students who have not previously studied at in English to take an IELTS exam. The IELTS requirement is 7.0 with a minimum of 6.5 in writing.