Programme Specification

1 Awarding body | University of London
2 Teaching Institution | Birkbeck College
3 Programme Title(s) | Diploma of Higher Education in Mathematics
4 Programme Code(s) | UDHMT
5 UCAS code (if applicable) | N/A
6 Home Department | Economics, Mathematics and Statistics
7 Exit Award(s) | Certificate HE Mathematics
8 Duration of Study (number of years) | 3
9 Mode of Study | FT PT ✓ DL
10 Level of Award (FHEQ) | 6
11 Other teaching depts or institution (or not applicable) | N/A
12 Professional, Statutory Regulatory Body(PSRB) details (or not applicable) (include URL to PSRB) | N/A
13 QAA Benchmark Group (or not applicable) | Mathematics, Statistics and Operational Research

14 Programme Rationale & Aims

The Diploma of Higher Education in Mathematics (Dip HE) is aimed at students with an A-level or equivalent in mathematics who wish to acquire some university level mathematics but are not willing or able to commit to a full four year BSc programme. This award has the advantage that its first year can be completed by studying for 2 evenings a week rather than the 3 evenings usually required on BSc programmes, so it is a less fast-paced introduction to higher education. (Alternatively you may continue studying for 2 evenings a week to complete the Diploma in 4 years.)

A main aim of introducing this programme is to provide more flexible provision at undergraduate level.

Distinctive features: Part-time, evening, face to face study. Regular coursework forms a part of all modules, to further develop independent learning. Completion would allow a flexible entry route into year 3 of an appropriate BSc programme at Birkbeck.

15 Entry Criteria

Students under 21 require a minimum of two A-levels, or the equivalent. All other students may be admitted under the mature student regulations. A-level mathematics, or the equivalent, is desirable, but not essential. Applicants without such a qualification are required to pass an entrance test.
Prospectus Entry

This flexible programme is ideal if you want to study mathematics at university level but do not wish to commit to a full four-year BSc programme. Expand your knowledge of mathematics and find out more about the areas that interest you. Upon successful completion, progress directly into Year 2 or 3 of our BSc Mathematics or BSc Mathematics and Statistics.

Learning Outcomes

On completion of the full DIP HE MATHEMATICS a student will ADDITIONALLY be expected to be able to:

Subject Specific

LO11 Appreciation of the need for proof in mathematics, and the ability to follow and construct mathematical arguments.

LO12 Awareness of the use of mathematics and/or statistics to model problems in the natural and social sciences, and the ability to formulate such problems using appropriate notation.

LO13 Understand the importance of assumptions and an awareness of where they are used and the possible consequences of their violation.

LO14 Ability to present, analyse and interpret data.

LO15 Knowledge and understanding of the processes and limitations of mathematical approximation and computational mathematics.

LO16 Knowledge and understanding of a range of modelling techniques, their conditions and limitations, and the need to validate and revise models.

LO17 A deeper knowledge of some particular areas of mathematics.

LO18 Ability to use a modern mathematical and/or statistical computer package.

Intellectual

LO19 Ability to comprehend conceptual and abstract material.

Practical

LO20 Ability to transfer knowledge and expertise from one context to another.

LO21 Ability to use a range of software packages including word processing and spreadsheets.

Learning, teaching and assessment methods

Most teaching sessions are either lectures or computing sessions. Lectures present both theory and worked examples. Computing sessions use either spreadsheets or a modern statistical or mathematical software package, and enable students to learn about these packages and allow them to develop a greater understanding of the course material. The computing sessions are usually self-paced and informal.
Detailed course notes, problems and worked solutions are provided to accompany lectures on each course. This facilitates the independent study necessary to understand and assimilate the material. Regular coursework (four assignments per module is the norm for level 4 and 5 modules in mathematics) and a variety of assessment methods are also designed to be formative and promote learning.

Individual tutorials are provided as required and are an integral part of the teaching provision. Students may also consult staff by telephone and email.

The methods of assessment used are:

   Unseen 3 hour examinations in June.
   Assessed assignments.
   Essays (for some level 6 modules only)

For most modules 80% of the assessment comes from unseen examinations in June. This allows time for students to assimilate the material and develop a thorough understanding of the course curriculum. The 20% contribution from coursework enables students to get practice in tackling and solving problems independently, without the time pressure of examinations, and gives staff an opportunity to give relevant feedback. It is the norm for level 4 and 5 modules to have four pieces of assessed coursework, whereas level 6 modules have either 2 or 4 pieces of work, or sometimes essays. This allows more frequent feedback to students at the start of their university careers and is particularly appropriate for Cert HE and Dip HE students.

The range of assessments, and the type of questions and problems set within examinations and assignments are structured to balance theory and practice, to address the individual learning outcomes and to discriminate between different levels of achievement. However the assessment strategy recognizes that students may exhibit very different aptitudes and abilities in different aspects of the course and in different forms of assessment. This is particularly relevant to Birkbeck students who vary considerably in terms of academic background, prior work experience, current career and future career plans. The assessment strategy is therefore designed to: (i) ensure a good coverage of the curriculum and address the range of learning outcomes, (ii) perform an on-going formative function via the theoretical and practical assignments associated with all course modules; (iii) give all students the opportunity to demonstrate their strengths and show what they can do well.

The regulations governing awards follow the CAS regulations. Namely for the Dip HE, all modules at level 4 are weighted 0, all modules at level 5 or 6 are weighted 1. A student must pass 240 credits (all of which are level 4 or above) with at least 90 credits at level 5 or above.

Both the external and the second internal examiner normally scrutinize all examination papers before they are finalized. Exams and Essays are all double marked. Coursework is marked by the first examiner and moderated by the second internal examiner. All marks are moderated by the External Examiner, who is invited to comment on the suitability of the assessment methods, criteria and procedures. These comments influence any changes that are recommended at the programme review meeting.
Programme Description

This programme is designed for students with an A-level or equivalent in mathematics. The first year is devoted to algebra and calculus, to give you a thorough grounding in these two essential parts of the mathematical toolkit. You will complete two 30-credit modules. In your second year you will move up to studying three 30-credit modules, covering more calculus, probability and statistics and pure mathematics (such as methods of proof and abstract algebra). However the third year has more flexibility. You will have a choice of modules taken from the BSc Mathematics programme. You will meet with the programme director before the start of the academic year and decide on a suitable programme of study based on your interests and experience.

Each module runs through the year, with eight evenings of lectures (6-9pm) per module in each of the Autumn and Spring Terms, and two revision evenings per module in the Summer Term.

Programme Structure

Year 1

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Credits</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>EMMS096S4</td>
<td>Calculus 1: Single Variable</td>
<td>30</td>
<td>Core</td>
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<tr>
<td>4</td>
<td>EMMS097S4</td>
<td>Algebra 1: Techniques &amp; Applications</td>
<td>30</td>
<td>Core</td>
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Year 2

<table>
<thead>
<tr>
<th>Level</th>
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<th>Module Title</th>
<th>Credits</th>
<th>Status</th>
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<tbody>
<tr>
<td>5</td>
<td>EMMS095S5</td>
<td>Proof &amp; Structure in Mathematics</td>
<td>30</td>
<td>Comp</td>
</tr>
<tr>
<td>5</td>
<td>EMMS098S5</td>
<td>Probability &amp; Statistics</td>
<td>30</td>
<td>Comp</td>
</tr>
<tr>
<td>5</td>
<td>BUEM001S5</td>
<td>Calculus 2: Multivariable &amp; Differential Equations</td>
<td>30</td>
<td>Comp</td>
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</table>

Year 3

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<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Credits</th>
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<td>BUEM002S5</td>
<td>Discrete Mathematics</td>
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<tr>
<td>6</td>
<td>Option</td>
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<td>Option</td>
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Indicative list of options

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<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Credits</th>
<th>Status</th>
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<tbody>
<tr>
<td>6</td>
<td>EMMS094S6</td>
<td>Algebra 2: Theory &amp; Structure</td>
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<tr>
<td>6</td>
<td>BUEM009S6</td>
<td>Real &amp; Complex Variable</td>
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<td>6</td>
<td>BUEM008S6</td>
<td>Problems in Mathematics</td>
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<tr>
<td>6</td>
<td>BUEM021S6</td>
<td>Calculus 3: Transforms &amp; Models</td>
<td>30</td>
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<td>6</td>
<td>BUEM010S6</td>
<td>Computational Mathematics</td>
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<tr>
<td>6</td>
<td>BUEM022S6</td>
<td>Games, Choice &amp; Optimization</td>
<td>30</td>
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<tr>
<td>6</td>
<td>EMMS093S6</td>
<td>Number Theory &amp; Geometry</td>
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<td>6</td>
<td>BUEM003S6</td>
<td>Statistics: Theory &amp; Practice</td>
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Regulations

- Admissions

This programme adheres to the College Admissions Policy:
http://www.bbk.ac.uk/mybirkbeck/services/rules/AdmissionsPolicy.pdf
The Admissions Statement covering this programme is available to download from the admissions page on the website for the Department of Economics, Mathematics and Statistics.

http://www.ems.bbk.ac.uk/courses/admissions_index_html

- **Credit Transfer**

Accredited Prior Learning will be considered in line with the College Policy on Accredited Prior Learning http://www.bbk.ac.uk/mybirkbeck/services/rules/AccreditedPriorLearning.pdf

- **Programme Regulations**

This programme adheres to the College Common Awards Scheme http://www.bbk.ac.uk/mybirkbeck/services/rules/casregs.pdf

- **Programme Specific Regulations**

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**Student Support and Guidance**

All Birkbeck students have access to a range of student support services, details can be found on our website here: http://www.bbk.ac.uk/mybirkbeck/services/facilities

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**Methods of Enhancing Quality and Standards**

The College has rigorous procedures in place for the monitoring and enhancing its educational provision. This includes regular monitoring of programmes drawing on feedback from various sources including external examiner’s reports, student feedback, student achievement and progression data. In addition, departments are reviewed every four to five years through the internal review process that includes external input.

For more information please see the Quality Enhancement and Validation website www.bbk.ac.uk/qev

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<table>
<thead>
<tr>
<th>Programme Director</th>
<th>Andrew Bowler</th>
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<tr>
<td>Start Date (term/year)</td>
<td>Autumn 2010</td>
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<tr>
<td>Date approved by TQEC</td>
<td>Spring 2010</td>
</tr>
<tr>
<td>Date approved by Academic Board</td>
<td>Summer 2010</td>
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<tr>
<td>Date(s) updated/amended</td>
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