Programme Regulations: 2022/23

Programme Titles:
Degree of Bachelor of Science with Honours in Mathematics and Economics - UCAS Code: GL11

Degree of Bachelor of Science with Honours in Mathematics and Economics with Placement Year - Code: 1138U

Degree of Bachelor of Science with Honours in Mathematics and Accounting - UCAS Code: NG41

Degree of Bachelor of Science with Honours in Mathematics and Accounting with Placement Year - Code: 1139U

Notes
(i) These programme regulations should be read in conjunction with the University’s Undergraduate Progress Regulations and Examination Conventions.
(ii) All optional modules are offered subject to the constraints of the timetable and to any restrictions on the number of students who may be taught on a particular module. Not all modules may be offered in all years and they are listed subject to availability.
(iii) Unless otherwise stated under ‘Type’, modules are not core.
(iv) A compulsory module is a module which a student is required to study.
(v) A core module is a module which a student must pass, and in which a fail mark may not be compensated; such modules are designated by the board of studies as essential for progression to a further stage of the programme or for study in a further module.
(vi) All modules are delivered in Linear mode unless stated otherwise as Block, eLearning or distance learning.
(vii) Students are not recruited to 1138/1139U. Rather a GL11/NG41 candidate may transfer to 1138/1139U by the end of week 5 of Semester 2 of Stage 2, subject to the agreement of the Degree Programme Director.
(viii) Programme transfers for Tier 4 students may be restricted by current Tier 4 rules. Please refer to the Visa Team for advice.

1. Stage 1

(a) All candidates shall take the following compulsory modules:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS1605</td>
<td>Introduction to Calculus</td>
<td>20</td>
<td>20</td>
<td>0</td>
<td>4</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>MAS1606</td>
<td>Introductory Algebra</td>
<td>20</td>
<td>20</td>
<td>0</td>
<td>4</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>MAS1607</td>
<td>Multivariable Calculus &amp; Differential Equations</td>
<td>20</td>
<td>0</td>
<td>20</td>
<td>4</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>MAS1608</td>
<td>Introduction to Probability &amp; R</td>
<td>20</td>
<td>0</td>
<td>20</td>
<td>4</td>
<td>Core</td>
<td></td>
</tr>
</tbody>
</table>

(b) GL11 candidates shall take the following compulsory modules:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO1100</td>
<td>Economic Analysis</td>
<td>30</td>
<td>15</td>
<td>15</td>
<td>4</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>ECO1118</td>
<td>Economic Applications</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td></td>
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</tr>
</tbody>
</table>
(c) NG41 candidates shall take the following compulsory modules:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC1010</td>
<td>Introduction to Financial Accounting</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>4</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>ACC1011</td>
<td>Introduction to Management Accounting &amp; Finance</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>4</td>
<td>Core</td>
<td></td>
</tr>
</tbody>
</table>

2. Stage 2

(a) All candidates shall select optional modules to a total credit value of 60. This must include all 40 credits from either block (i) (the Pure Mathematics Pathway), block (ii) (the Applied Mathematics Pathway) or block (iii) (the Statistics Pathway).

(i) Candidates may select 0, 20 or 40 credits from the following list. If only 20 credits are chosen, it must be MAS2707.

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS2702</td>
<td>Complex Analysis</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS2703</td>
<td>Algebra</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS2707</td>
<td>Vector Spaces, Groups &amp; Algorithms</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(ii) Candidates may select 0, 20 or 40 credits from the following list. If only 20 credits are chosen, it must be MAS2804.

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS2803</td>
<td>Fluid Dynamics</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS2804</td>
<td>Vector Calculus, Differential Equations &amp; Transforms</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS2806</td>
<td>Scientific Computation with Python</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(iii) Candidates may select 0, 20 or 40 credits from the following list. If only 20 credits are chosen, it must be MAS2904.

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS2903</td>
<td>Introduction to Bayesian Methods</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS2904</td>
<td>Statistical Inference &amp; Stochastic Modelling</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS2906</td>
<td>Computational Probability &amp; Statistics with R</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(b) GL11 candidates shall take the following compulsory modules:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO2101</td>
<td>Microeconomic Analysis</td>
<td>30</td>
<td>15</td>
<td>15</td>
<td>5</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>ECO2102</td>
<td>Macroeconomic Analysis</td>
<td>30</td>
<td>15</td>
<td>15</td>
<td>5</td>
<td>Core</td>
<td></td>
</tr>
</tbody>
</table>

(c) NG41 candidates shall take the following compulsory modules:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC2003</td>
<td>Financial Control</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>ACC2005</td>
<td>Intermediate Financial Accounting</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td>Core</td>
<td></td>
</tr>
</tbody>
</table>

(d) NG41 candidates shall take one further module (20 credits) from the following list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC2000</td>
<td>Interpreting Company Accounts</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>ACC2007</td>
<td>Corporate Finance</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td>Core</td>
<td></td>
</tr>
</tbody>
</table>

Note: ACC2007 is a pre-requisite for ACC3006 in Stage 3.

3. Year 3 (Placement Year)

On completion of Stage 2 and before entering Stage 3, candidates may as part of their studies for the degree spend a year in a placement with an approved organisation. Permission to undertake a placement is subject to the approval of the Degree Programme Director. Students who are required to re-sit their Stage 2 assessment must delay the start of their placement year until they have done so. Students who fail Stage 2 may not complete a placement year.

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCL3000</td>
<td>Careers Service Placement Year Module</td>
<td>120</td>
<td>60</td>
<td>60</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Stage 3

(a) (i) Candidate studying the Pure Mathematics Pathway shall take the following compulsory module:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS3707</td>
<td>Number Theory and Cryptography</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) (ii) Candidates studying the Pure Mathematics Pathway shall select 40 additional credits from the following list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS3701</td>
<td>Foundations of Group Theory</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Note: With the permission of the Degree Programme Director, candidates may replace up to 20 credits of the optional modules above with alternative optional Stage 3 MAS modules in September, if the timetable allows (and if they have taken the relevant pre-requisites).

(b) (i) Candidates studying the Applied Mathematics Pathway shall take the following compulsory module:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS3810</td>
<td>Methods for Differential Equations &amp; Partial Differential Equations</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) (ii) Candidates studying the Applied Mathematics Pathway shall select 40 additional credits from the following list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS3802</td>
<td>Quantum Mechanics</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS3803</td>
<td>Advanced Fluid Dynamics</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
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<tr>
<td>MAS3804</td>
<td>Relativity</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS3808</td>
<td>Instabilities</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS3809</td>
<td>Variational Methods &amp; Lagrangian Dynamics</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>6</td>
<td></td>
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</tr>
<tr>
<td>MAS3815</td>
<td>Mathematical Biology</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>6</td>
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</tr>
</tbody>
</table>

Note: With the permission of the Degree Programme Director, candidates may replace up to 20 credits of the optional modules above with alternative optional Stage 3 MAS modules in September, if the timetable allows (and if they have taken the relevant pre-requisites).

(c) (i) Candidates studying the Statistics Pathway shall take the following compulsory module:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS3913</td>
<td>Linear &amp; Generalised Linear Models</td>
<td>20</td>
<td>10</td>
<td>10</td>
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</tr>
</tbody>
</table>

(c) (ii) Candidates studying the Statistics Pathway shall select 40 additional credits from the following list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits Sem 1</th>
<th>Credits Sem 2</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS3902</td>
<td>Bayesian Inference</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS3904</td>
<td>Stochastic Financial Modelling</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS3905</td>
<td>Statistical Inference</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAS3907</td>
<td>Big Data Analytics</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MAS3910 Discrete Stochastic Modelling 10 10 0 6
MAS3912 Survival Analysis 10 0 10 6

Note: With the permission of the Degree Programme Director, candidates may replace up to 20 credits of the optional modules above with alternative optional Stage 3 MAS modules in September, if the timetable allows (and if they have taken the relevant pre-requisites).

(c) (i) GL11 candidates shall take the following compulsory module:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits</th>
<th>Credits</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO3001</td>
<td>Advanced Microeconomics</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>6</td>
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</tr>
</tbody>
</table>

(c) (ii) GL11 candidates shall select 40 credits of optional modules from the following list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits</th>
<th>Credits</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO3002</td>
<td>Advanced Macroeconomics</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>6</td>
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<tr>
<td>ECO3004</td>
<td>Labour Economics</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td></td>
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</tr>
<tr>
<td>ECO3010</td>
<td>Monetary Economics</td>
<td>10</td>
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<td>0</td>
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<td></td>
</tr>
<tr>
<td>ECO3018</td>
<td>Financial Economics</td>
<td>10</td>
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<td>10</td>
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<tr>
<td>ECO3032</td>
<td>Game Theory</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>6</td>
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</tr>
</tbody>
</table>

(d) (i) NG41 candidates shall take the following compulsory modules:

<table>
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<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits</th>
<th>Credits</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC3001</td>
<td>Financial Accounting</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC3002</td>
<td>Management Accounting</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td></td>
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</tr>
</tbody>
</table>

(d) (ii) NG41 candidates shall take one further module (20 credits) from the following list:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptive Title</th>
<th>Total Credits</th>
<th>Credits</th>
<th>Credits</th>
<th>Level</th>
<th>Type</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC3000</td>
<td>Case Studies in Accounting, Finance &amp; Business</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC3006</td>
<td>International Financial Management</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Assessment methods
Details of the assessment pattern for each module are explained in the module outline.

6. Degree classification
Candidates will be assessed for degree classification on the basis of all the modules taken at Stages 2 and 3 with the weighting of the Stages being 1:2 for Stage 2 and Stage 3 respectively. The Placement Year will not be used in the classification of 1138/1139U candidates.