

# ASTON UNIVERSITY PROGRAMME SPECIFICATION

<b>Programme Title</b>	Business and Mathematics
<b>UCAS/JACS Code</b>	GN11 JU
<b>School/Subject Area</b>	School of Engineering and Applied Science Mathematics ABS
<b>Final Award</b>	BSc
<b>Interim Awards</b>	Certificate of Higher Education/Diploma of Higher Education
<b>Mode(s) of Study</b>	Sandwich
<b>Normal Length of Programme</b>	4 years
<b>Total Credits</b>	480
<b>Programme Accredited By</b>	N/A
<b>Dates Programme Specification Written and Revised</b>	July 2012; last revised October 2014

<b>Education Aims of the Programme</b>	<ul style="list-style-type: none"> <li>• To provide a learning experience that is intellectually challenging, relevant, stimulating and enjoyable.</li> <li>• To provide a broad overview of three main strands of mathematics: pure, applied and applicable.</li> <li>• To provide an introduction to appropriate, advanced and rigorous mathematics at the undergraduate level.</li> <li>• To prepare students for higher study or a career in a cross-disciplinary area.</li> <li>• To make students aware of the need for independent learning with an appreciation that their skills will need updating continuously through their professional life.</li> <li>• To produce high-quality graduates who are highly motivated, confident, mature and keenly sought by potential employers in a modern technological and commercial society.</li> <li>• To offer students the opportunity to obtain relevant industrial experience by providing the option of a placement year.</li> <li>• To provide a course which creates an awareness of how businesses operate.</li> <li>• To develop the ability to recognise and analyse the economic, technical, financial, social and organisational parameters within which modern managers make decisions.</li> <li>• To ensure relevance by maintaining and enhancing the links with business, professional and public sector organisations.</li> </ul>
<b>Relevant Subject Benchmark Statements and other External and Internal Reference Points used to inform programme outcomes</b>	<ul style="list-style-type: none"> <li>• Framework for Higher Education Qualifications UK Quality Code Part A.1 (2011)</li> <li>• QAA benchmark standard for Mathematics, Statistics and Operational Research</li> <li>• Expertise of members of staff</li> <li>• Past external examiners for Mathematics</li> <li>• Industry</li> </ul>

<b>Programme Structures and Requirements: Levels, Modules and Credits</b>						
<b>Stage 1</b>						
<b>Module Title</b>	<b>Credits</b>	<b>Level</b>	<b>Module Code</b>	<b>Core/Option</b>	<b>Condonable</b>	<b>Prerequisites</b>
Calculus and Ordinary Differential Equations	20	4	AM10CO	Core		
Transition Mathematics	20	4	AM10TM	Core		
Vector Algebra and Geometry	20	4	AM10VG	Core		
Principles of Financial Accounting	10	4	BF1101	Core		
Introduction to Organisational Behaviour	10	4	BH1107	Core		
Introduction to Marketing Management	10	4	BM1134	Core		
Introduction to Business Analytics	10	4	BN1116	Core		
IT for Business	10	4	BN1160	Core		
Economic Environment of Business	10	4	BS1102	Core		
<b>TOTAL</b>	120					

<b>Programme Structures and Requirements: Levels, Modules and Credits</b>						
<b>Stage 2</b>						
<b>Module Title</b>	<b>Credits</b>	<b>Level</b>	<b>Module Code</b>	<b>Core/Option</b>	<b>Condonable</b>	<b>Prerequisites</b>
Introduction to Analysis	10	4	AM10IA	Core		
Statistics and Probability	10	4	AM10SP	Core		
Numerical Methods I	10	5	AM20IM	Core		
Linear Mathematics	10	5	AM20LM	Core		
Multivariate Calculus	10	5	AM20MC	Core		
Mathematical Methods	10	5	AM20MM	Core		
Management Accounting	10	5	BF2262	Core		
Operations Management	10	5	BN2216	Core		
Business Game	10	5	BN2225	Core		
Business Policy	10	5	BS2232	Core		
Business Economics	10	5	BS2240	Core		
Business, Government	10	5	BS2246	Core		
<b>TOTAL</b>	120					

<b>Programme Structures and Requirements: Levels, Modules and Credits Stage 3 P</b>						
<b>Module Title</b>	<b>Credits</b>	<b>Level</b>	<b>Module Code</b>	<b>Core/Option</b>	<b>Condonable</b>	<b>Prerequisites</b>
ABS Placement Module	120	P	BUP100	Core		
EAS Study Placement Year	120	P	SEP001	Core		
EAS Industrial Placement Year	120	P	SEP002	Core		
<b>TOTAL</b>	120					

<b>Programme Structures and Requirements: Levels, Modules and Credits Stage F</b>						
<b>Module Title</b>	<b>Credits</b>	<b>Level</b>	<b>Module Code</b>	<b>Core/Option</b>	<b>Condonable</b>	<b>Prerequisites</b>
Finance	10	6	BF3351	Core	Y	Y
Leadership	20	6	BH3319	Core	Y	Y
International Business Economics	10	6	BS3337	Core	Y	Y
<b>Choose 80 credits from the following options</b>						
Statistical Pattern Analysis	10	5	AM20PA	Option		
Probability Distributions	10	5	AM20PD	Option		
Real Analysis	10	5	AM20RA	Option		
Stochastic Processes	10	5	AM20SR	Option		
Approximation Theory and Methods	10	6	AM30AT	Option		
Chaos and Dynamical Systems	10	6	AM30CD	Option		
Financial Mathematics	10	6	AM30FT	Option		
Game Theory	10	6	AM30GT	Option		
Classical Mechanics	10	6	AM30ME	Option		
Mathematics Report	10	6	AM30MR	Option		
Option Theory	10	6	AM30OT	Option		
Partial Differential Equations	20	6	AM30PD	Option		
Probabilistic Modelling	10	6	AM30PM	Option		
Portfolio Analysis	10	6	AM30PT	Option		
Modern Time Series	10	6	AM30TS	Option		
Psychology	20	6	BH3328	Option	N	Y
International Marketing	20	6	BM3309	Option		
Effective Management Consultancy	20	6	BN3370	Option		
Entrepreneurial Strategy	20	6	BS3357	Option		
<b>TOTAL</b>	120					

## Programme Outcomes, Learning and Teaching and Assessment Strategies

### Knowledge and Understanding

On successful completion of their programme students, are expected to have knowledge and understanding of:		Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	The skills and attitudes on which pure mathematics is based through a solid foundation in algebra and analysis.	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Tutorials</li> <li>• Reading</li> <li>• Independent Study</li> </ul>	<ul style="list-style-type: none"> <li>• Examinations</li> <li>• Coursework</li> <li>• Presentations</li> </ul>
2	The need for rigour and proof in mathematics and be able to draw on this both in the modules studied and more widely.		
3	The principles and methods of mathematics to a range of physical and data based models.		
4	A range of numerical\computational methods, balancing the practical applications with appropriate underpinning.		
5	A range of mathematical skills and techniques for problem formulation and solution.		
6	The main functions of management and specifically business administration		
7	The theories, principles and underlying concepts of subjects relevant to the main functions of management (e.g. economics, marketing, finance, accounting, law, operations, organisational behaviour and information management) and an understanding of business models and processes		
8	How strategic decision-making within organisations as a whole takes place		

<b>Intellectual Skills</b>		
<b>On successful completion of their programme students, are expected to have knowledge and understanding of:</b>	<b>Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated</b>	
	<b>Learning and Teaching Methods</b>	<b>Assessment Methods</b>
1 Apply important concepts in mathematics.	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Tutorials</li> </ul>	<ul style="list-style-type: none"> <li>• Examinations</li> <li>• Coursework</li> <li>• Presentations</li> </ul>
2 Apply the principles and methods of mathematics.		
3 Critically appraise different methods and techniques of problem-solving, assessing their effectiveness and applicability.		
4 Work independently by taking responsibility for the management of their own study and learning.		
5 Critically reflect on management problems and how to solve them		

<b>Professional Skills</b>		
<b>On successful completion of their programme students, are expected to have knowledge and understanding of:</b>	<b>Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated</b>	
	<b>Learning and Teaching Methods</b>	<b>Assessment Methods</b>
1 Fulfil the requirements of Associate membership of the Institute of Mathematics and its Applications by holding a combined honours degree in mathematics.	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Tutorials</li> <li>• Placement (if undertaken)</li> </ul>	<ul style="list-style-type: none"> <li>• Examinations</li> <li>• Coursework</li> <li>• Presentation</li> <li>• Placement Reports</li> </ul>
2 Demonstrate comprehension of the relevant modern industrial environment (if a Placement is undertaken).		
3 Solve problems using mathematical software		
4 Implement, test and evaluate a given technique on real data, using a computer if necessary		
5 Apply numerical algorithms to real-world applications		

<b>Transferable Skills</b>			
	<b>On successful completion of their programme students, are expected to have knowledge and understanding of:</b>	<b>Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated</b>	
		<b>Learning and Teaching Methods</b>	<b>Assessment Methods</b>
1	Communication skills (oral and written)	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Tutorials</li> <li>• Computer laboratory sessions</li> <li>• Industrial work experience</li> </ul>	<ul style="list-style-type: none"> <li>• Examinations</li> <li>• Coursework</li> <li>• Presentation</li> <li>• Placement Reports</li> </ul>
2	Presentational skills		
3	Analytical skills		
4	Ability to use appropriate mathematical software		
5	Competency in understanding relevant statistical analyses and financial reports		

<b>Entry Requirements</b>	<p><b>Typical A Level Offers:</b> BBC-BBB at GCE A level/AVCE  Combination of 2 A level and 2 AS level subjects accepted  Additional AS levels are taken into account when confirming places  <b>SPECIFIC SUBJECT REQUIREMENTS:</b> GCE A level: Mathematics grade A/B  <b>GENERAL STUDIES ACCEPTED?</b> Yes  <b>IB:</b> 31-33 points  <b>BTEC, IB, ACCESS, SCOTTISH/IRISH QUALIFICATIONS:</b> accepted</p>
<b>Programme Regulations</b>	<p>□</p> <p><b>Attendance requirements:</b>  Students are normally required to attend the University for nine terms over a period of four consecutive academic years. An integrated programme of professional training of at least 40 weeks duration, not including any periods of vacation, shall be undertaken at times approved by the Associate Dean Undergraduate Programmes.  You are normally expected to attend all sessions of all modules.  However, for some modules there may be compulsory elements with marks contingent on your attendance.</p> <p><b>Coursework submission:</b>  Coursework should be submitted to the the Coursework office of the School to whom the <b>module</b> belongs.</p>

General Regulations (<http://www1.aston.ac.uk/registry/for-staff/regsandpolicies/general-regulations/>) and the Regulations for the programme (above) take precedence over other information sources such as student handbooks if there is a conflict. If there is a conflict between General Regulations and Programme Regulations then General Regulations take precedence unless an exemption has been approved.

This specification provides a concise summary of the main features of the programme and the threshold learning outcomes that a student might normally be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. **The individual modules included in the programme may differ from those included in this programme specification as our programmes are subject to continuous review.** Information on admissions requirements and career opportunities is available in the relevant prospectus. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the appropriate module guides and programme handbook(s) which are available to students on enrolment.