

## Course Information Document: Undergraduate

### For students starting in Academic Year 2017/2018

#### 1. Course Summary

<b>Names of programme(s) and award title(s)</b>	BSc (Hons) Mathematics BSc (Hons) Mathematics with International Year (see Annex A for details)
<b>Award type</b>	Dual Honours/Major/Minor  <i>NB: all students who study a science Principal subject are candidates for the degree of Bachelor of Science (with Honours) (BSc Hons) irrespective of their second Principal subject.</i>
<b>Mode of study</b>	Full time
<b>Framework of Higher Education Qualification (FHEQ) level of final award</b>	Level 6
<b>Duration</b>	3 years 4 years with International Year
<b>Location of study</b>	Keele University – main campus
<b>Accreditation (if applicable)</b>	Not applicable
<b>Regulator</b>	Higher Education Funding Council for England (HEFCE)
<b>Tuition Fees</b>	<b>UK/EU students:</b> Fee for 2017/18 is £9,250*  <b>International students:</b> Fee for 2017/18 is £13,000** or £14,150** <i>(if combined with a laboratory-based Principal Subject)</i>  The fee for the international year abroad is calculated at 15% of the standard year fee
<b>Additional Costs</b>	Refer to section 16

**How this information might change:** Please read the important information at <http://www.keele.ac.uk/student-agreement/>. This explains how and why we may need to make changes to the information provided in this document and to help you understand how we will communicate with you if this happens.

\* These fees are regulated by Government. We reserve the right to increase fees in subsequent years of study in response to changes in government policy and/or changes to the law. If permitted by such change in policy or law, we may increase your fees by an inflationary amount or such other measure as required by government policy or the law. Please refer to the accompanying Student Terms & Conditions. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

\*\* We reserve the right to increase fees in subsequent years of study by an inflationary amount. Please refer to the accompanying Student Terms & Conditions for full details. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

## 2. What is a Dual Honours programme?

Dual Honours degrees are degrees that are taken in two different subjects, resulting in an *X and Y* degree title, for example *Mathematics and Economics*. If you are taking a Dual Honours programme, these will be the two subjects you applied for. These are referred to as your Principal Subjects.

In a Dual Honours degree you must take at least 120 credits in each Principal Subject, accrued over all three levels of study, with at least 30 credits in Year 1 (Level 4) and at least 45 credits in each of Years 2 and 3 (Levels 5 and 6) in each of two Principal Subjects. The remaining available credits can be filled with modules from these subjects or other subjects entirely.

## What is a Major/Minor programme?

Major/Minor degrees are degrees that are taken in two different subjects, much like a Dual Honours degree, except that you will specialise in the Major subject. In a Major/Minor degree you will need at least 225 credits in your Major subject over your three years of study with at least two modules (30 credits) taken each year in your Major Subject, although some Principal Subjects will require you to take more than this and this will be stated in the relevant programme specification. You will also need 90 credits in your Minor subject with a minimum of 30 credits (two modules) taken in Year 1 (Level 4) and 45 credits (three modules) taken in Year 2 (Level 5).

Students taking the Minor Route in Mathematics might not necessarily be able to demonstrate that they have achieved all of the Programme's learning outcomes.

## 3. Overview of the Programme

Mathematics is a traditional discipline with a very long history. The Programme provides a broad coverage of two of the main discipline areas of pure and applied mathematics. Pure mathematics is concerned with mathematical proof (the derivation of results), logical argument and abstraction. Applied mathematics is concerned with methods and their application to modelling real-world problems. The Programme also provides a limited coverage of the other main discipline area of Statistics. Statistics concerns mathematical modelling of uncertainty and the analysis of data. The Programme has been designed to give maximum flexibility with many options in the final year, which allows students to pick options within their broad field of interest. In addition to subject-specific skills, the Programme also provides students with generic and employability skills.

## 4. Aims of the Programme

The broad aims of the programme are to:

- provide students with knowledge, understanding and skills relevant to discrete and continuous mathematics, including logical argument, rigorous mathematical proof, problem solving and mathematical modelling
- further develop students' interest in mathematics within a caring and intellectually stimulating environment
- cultivate students' appreciation of the beauty, elegance and practicality of mathematics
- produce skilled and motivated graduates who are suitably prepared for further study or for employment within or outside their field
- equip students with a range of generic and employability skills particularly in any area where precise, logical thought and problem-solving skills are valued
- provide a foundation for life-long learning, study and enquiry in mathematics
- foster the intellectual breadth of students who choose to study Mathematics as one of two Principal components of a Dual Honours degree

## 5. What you will learn

The intended learning outcomes of the programme (what students should know, understand and be able to do at the end of the programme), can be described under the following headings:

- Subject knowledge and understanding
- Subject specific skills
- Intellectual skills
- Key or transferable skills (including employability skills)

### **Subject knowledge and understanding**

Successful students will be able to demonstrate knowledge and understanding of:

- U1 mathematical methods and techniques in calculus and algebra, ordinary differential equations, vector calculus and complex variable;
- U2 the use of mathematical notation;
- U3 the role of logical mathematical argument and deductive reasoning, including the formal process of mathematical proof, through the study of algebra, real analysis, complex variable and optional modules;
- U4 using a structured mathematical or analytical approach to problem solving;
- U5 the science of data investigation and data visualisation;
- U6 probability-based models, hypothesis testing, statistical inference and likelihood;
- U7 the application of statistics;
- U8 the power of generalisation and abstraction through the study of abstract algebra and optional modules;
- U9 mathematical modelling by dedicated modules and through the study of optional modules in dynamics, stochastic processes, fluid mechanics, waves and mathematical biology;
- U10 mathematical word processing packages and the symbolic manipulation package Mathematica;
- U11 the use of a specialist statistical computing package in optional modules;
- U12 more specialised areas of mathematics and statistics in optional modules at Level 6.

### **Subject specific skills**

Successful students will be able to:

- S1 demonstrate knowledge of key mathematical and statistical concepts, both explicitly and by applying them to the solution of problems;
- S2 comprehend problems, abstract their essentials and formulate them in symbolic form so as to facilitate their analysis and solution, and understand how mathematical and statistical processes may be applied to them;
- S3 select and apply appropriate mathematical and statistical techniques;
- S4 use models to analyse an underlying problem and to interpret the results of this analysis;

- S5 understand the importance of assumptions made in mathematical and statistical models, be aware of when and where they are used and possible consequences of their violation;
- S6 construct and develop logical mathematical arguments with clear identification of assumptions and conclusions;
- S7 reason critically, carefully and logically and derive (prove) mathematical results;
- S8 demonstrate facility with mathematical abstraction;
- S9 demonstrate skills relating particularly to the design and conduct of experimental and observational studies and the analysis of data resulting from them;
- S10 formulate and test hypotheses;
- S11 use an advanced symbolic manipulation package such as Mathematica;
- S12 use an advanced statistical package in optional modules;
- S13 use mathematics typesetting software such as *LaTeX* or *Word*.

### **Intellectual skills**

Successful students will be able to:

- I1 analyse and solve problems;
- I2 make reasoned decisions;
- I3 think carefully and logically;
- I4 persist with a problem until its successful conclusion;
- I5 make critical interpretations of data and text;
- I6 abstract and synthesise information;
- I7 develop a reasoned argument;
- I8 take responsibility for their own learning and reflect upon that learning.

### **Key or transferable skills (including employability skills)**

Successful students will be able to:

- E1 develop and sustain effective approaches to learning and study, including time management, organisational skills, flexibility, creativity and intellectual integrity;
- E2 acquire, analyse, synthesise, summarise and present information and ideas from a range of sources;
- E3 be adaptable, in particular display a readiness to address new problems from new areas;
- E4 work effectively with information technology;
- E5 communicate effectively and coherently by written and spoken means using appropriate techniques;

- E6 transfer knowledge from one context to another, and to approach problems analytically and to assess them logically;
- E7 work comfortably with numerate concepts and arguments in all stages of work;
- E8 work independently or with others to achieve an objective;
- E9 motivate themselves and sustain that motivation over an extended period of time.

## 6. How is the Programme taught?

Learning and teaching methods used on the programme vary according to the subject matter and level of the module. They include the following:

- **Traditional lectures** where the lecturer provides students with detailed notes, very often backed up by pre-prepared notes, in electronic or printed form, together with references to text books, as is the norm in the discipline
- **Examples Classes** are more informal than the lectures and provide the Example Class Tutor with the opportunity to revise and enforce core ideas and to provide students with more worked examples. It is also often the opportunity for students to try problems themselves and to discuss solutions with their peers, under the supervision of the tutor, who provides immediate feedback
- **Practical sessions** in the computer laboratories, in which students use the PCs interactively and are provided with feedback by the computer and the tutor
- **Independent study** based on processing lecture notes and reading text books, together with attempting regular coursework assignments
- **Web-based learning** using the University's virtual learning environment (KLE). The KLE is used to give students easy access to a wide range of resources, and as a platform for online discussions
- For those students who take the **project module** in their final year, the opportunity to undertake a piece of independent study supervised and supported by a member of staff

Apart from these formal activities, students are also provided with regular opportunities to talk through particular areas of difficulty, and any special learning needs they may have, with their Personal Tutors or module lecturers on a one-to-one basis.

These learning and teaching methods enable students to achieve the learning outcomes of the programme in a variety of ways. For example:

- Lectures and independent study allow students to gain knowledge and understanding of the three broad areas of mathematics
- Examples Classes and tutorials provide opportunities for students to ask questions about, and suggest answers to mathematical problems, and to present their own ideas to members of staff and other students using an appropriate medium of communication
- Independent study, in particular, the regular coursework assignments, encourages students to reflect on their own learning and take responsibility for its development by addressing areas of difficulty, perhaps by discussing them with their fellow students or by getting additional help from a member of staff
- Undertaking a project with the support of an experienced researcher allows students to formulate relevant research questions and devise a feasible strategy to answer them

## 7. Teaching Staff

The Mathematics academic staff comprises of a number of Professors, Senior Lecturers, Lecturers and Teaching Fellows. Most members of staff are active in research. A number of members of the Mathematics Division hold teaching qualifications and, currently, one is a fellow of the Higher Education Academy.

The University will attempt to minimise changes to our core teaching teams, however, delivery of the programme depends on having a sufficient number of staff with the relevant expertise to ensure that the programme is taught to the appropriate academic standard.

Staff turnover, for example where key members of staff leave, fall ill or go on research leave, may result in changes to the programme's content. The University will endeavour to ensure that any impact on students is limited if such changes occur.

## 8. What is the Structure of the Programme?

The academic year runs from September to June and is divided into two semesters. The number of weeks of teaching will vary from course to course, but you can generally expect to attend scheduled teaching sessions between the end of September and mid-December, and from mid-January to the end of April.

Our degree courses are organised into modules. Each module is usually a self-contained unit of study and each is usually assessed separately with the award of credits on the basis of 1 credit = 10 hours of student effort. An outline of the structure of the programme is provided in the tables below.

There are four types of module delivered as part of this programme. They are:

- Compulsory core module – a module that you are required to study on this course;
- Optional core module – these allow you some limited choice of what to study from a list of modules;
- Programme approved elective module – subject-related modules that count towards the number of subject credits required by your degree;
- Free-standing elective module – a free choice of modules that count towards the overall credit requirement but not the number of subject-related credits.

All students must take four Mathematics modules in Year 1, two from each semester. In Year 2, students normally take four Mathematics modules, two from each semester, which includes two optional core modules.

Mathematics minor students must take a minimum of three modules in Year 2. In Year 3, students have a range of choices. All students may continue to study modules from both their Principal Programmes, in which case they would study at least four modules in Mathematics (two from each semester) and at least two in their other Principal subject. Students also have the option of a major route, in which case they study at least seven modules in Mathematics (at least three from each semester). If the other Principal Programme offers a major route, students also have the option of taking at least seven modules in the other subject. This option is a minor route in Mathematics. At Level 6, students may elect to undertake a substantial project, of one semester's duration, in either semester, in place of one taught module. Only one project module may be taken.

### Year 1 (Level 4)

Compulsory Core modules	Credits	Elective modules	Credits
Algebra	30	None	
Calculus	30		

### Year 2 (Level 5)

Compulsory Core modules	Credits	Optional Core / Programme Approved Elective modules	Credits
Differential Equations	15	Numerical Methods	15
		Probability	15
		Analysis I	15
		Computational Mathematics	15

		Complex Variable I and Vector Calculus	15
		Dynamics	15
		Stochastic Processes	15
		Mathematical Modelling	15
		Abstract Algebra	15
		Analysis II	15
		Introduction to Mathematics Education	15
		<b>Optional Modules:</b> in each semester students take two 15-credit modules	

### Year 3 (Level 6)

Optional Core modules	Credits	Optional Core modules	Credits
Nonlinear Differential Equations	15	Logic	15
Partial Differential Equations	15	Complex Variable II	15
Relativity	15	Waves	15
Group Theory	15	Medical Statistics	15
Number Theory	15	Numerical Analysis	15
Professional Mathematics	15	Mathematical Biology	15
Applied Time Series	15	Ring and Field Theory	15
Linear Statistical Models	15	Codes and Cryptography	15
Metric Spaces and Topology	15	Introduction to Mathematics Teaching	15
Graph Theory	15	Project	15
Fluid Mechanics	15	Medical Statistics Project	30
Linear Algebra	15		

**Optional Modules:** students normally choose two 15-credit modules in each semester. The choice will depend on any timetabling restrictions and will be subject to the student having met the necessary prerequisites. Some modules may not be available every year.

For further information on the content of modules currently offered please visit:

[www.keele.ac.uk/recordsandexams/az](http://www.keele.ac.uk/recordsandexams/az)

## 9. Final and intermediate awards

<b>Honours Degree</b>	360 credits	<p>You will require at least 120 credits at levels 4, 5 and 6.</p> <p>The number of Mathematics credits you require depends on whether Mathematics is taken as a Dual or Minor subject.</p> <p><b>Dual Honours:</b> You will require at least 60 credits in Mathematics in each year of study and at least 30 credits in Year 1 (Level 4) and at least 45 credits in each of Years 2 and 3 (Levels 5 and 6) in your other Principal Subject.</p> <p><b>Major route:</b> You will require at least 225 credits in Mathematics and at least 90 credits in your other Minor subject over the course of the degree. Students taking Mathematics as a Major subject must obtain at least 30 credits in Mathematics in each level of study.</p> <p><b>Minor route:</b> You will require at least 90 credits in Mathematics and at least 225 credits in your other Major subject over the course of the degree. Students taking Mathematics as a Minor subject must obtain at least 30</p>
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		credits in Mathematics in Year 1 (level 4) and 45 credits in Mathematics in Year 2 (level 5).
<b>Diploma in Higher Education</b>	240 credits	You will require at least 120 credits at level 4 or higher and at least 120 credits at level 5 or higher
<b>Certificate in Higher Education</b>	120 credits	You will require at least 120 credits at level 4 or higher

**Mathematics with International Year:** in addition to the above students must pass a module covering the international year in order to graduate with a named degree in Mathematics with International Year. Students who do not complete, or fail the international year, will be transferred to the three-year Mathematics programme.

## 10. How is the Programme assessed?

The wide variety of assessment methods used within Mathematics at Keele reflects the broad range of knowledge and skills that are developed as you progress through the degree programme. Teaching staff pay particular attention to specifying clear assessment criteria and providing timely, regular and constructive feedback that helps to clarify things you did not understand and helps you to improve your performance. The following list is representative of the variety of assessment methods used within Mathematics:

- **Unseen examinations:** test a student's knowledge and understanding of mathematics. They are the usual, primary mode of assessment in mathematics programmes across the HE sector. Such examinations are of two hours in length and all questions are compulsory. Virtually all taught modules in Levels 4 to 6 have unseen examinations as part of the assessment profile
- **Class tests:** these are taken during the course of a module, usually in a lecture slot. They are intended to assess a student's current understanding and subject knowledge in that module in a structured and focused manner. Virtually all taught modules in Levels 4 to 6 have class tests as part of the assessment profile
- **Coursework:** normally consists of regular short assignments designed to assess, in more depth than class tests, a student's knowledge and understanding of the course material. Some of these assignments may be computer-based and some may take the form of short reports
- **Short reports:** for which students are required to write up their own account of small group studies and discussions on particular topics
- **Project Reports:** are formal summaries of the work done by a student undertaking a project. Where the project is the review of an area of mathematics the report tests the student's ability to evaluate the material and identify and summarise the key points. Statistics projects often involve the analysis of real-world data and the report will test the student's ability to make critical judgements concerning the appropriateness of different strategies for the collection and analysis of such data. For projects involving mathematical modelling the report tests the student's ability to construct appropriate models, make realistic simplifying assumptions, and use the model effectively to analyse the problem
- **Video presentations:** where students produce an informative video presentation suitable for a general audience which explains their project, its purpose and the outcomes. These videos are presented to the class and can be live, animated, or a combination of both
- **Oral presentations:** assess a student's ability to communicate their knowledge and understanding, both visually and orally, to both general and academic audiences

Marks are awarded for summative assessments designed to assess your achievement of learning outcomes. You will also be assessed formatively to enable you to monitor your own progress and to assist staff in identifying and addressing any specific learning needs. Feedback, including guidance on how you can improve the quality



of your work, is also provided on all summative assessments within three working weeks of submission, unless there are compelling circumstances that make this impossible, and more informally in the course of tutorial and seminar discussions.

## 11. Contact Time and Expected Workload

This contact time measure is intended to provide you with an indication of the type of activity you are likely to undertake during this programme. The data is compiled based on module choices and learning patterns of students on similar programmes in previous years. Every effort is made to ensure this data is a realistic representation of what you are likely to experience, but changes to programmes, teaching methods and assessment methods mean this data is representative and not specific.

Undergraduate courses at Keele contain an element of module choice; therefore, individual students will experience a different mix of contact time and assessment types dependent upon their own individual choice of modules. The figures below are an example of activities that a student may expect on your chosen course by year/stage of study. Contact time includes scheduled activities such as: lecture, seminar, tutorial, project supervision, demonstration, practical classes and labs, supervised time in labs/workshop, fieldwork and external visits. The figures are based on 1,200 hours of student effort each year for full-time students.

Activity	Year 1 (Level 4)	Year 2 (Level 5)	Year 3 (Level 6)
Scheduled learning and teaching activities	32%	32%	25%
Guided independent Study	68%	68%	75%
Placements	0%	0%	0%

## 12. Accreditation

This programme does not have accreditation from an external body.

## 13. Regulations

The University Regulations form the framework for learning, teaching and assessment and other aspects of the student experience. Further information about the University Regulations can be found at: <http://www.keele.ac.uk/student-agreement/>

A student who has completed a semester abroad will not normally be eligible to transfer onto the International Year option.

### Mathematics Regulations

#### i. Transfer onto the Single Honours BSc Mathematics Programme

- Regulation 1A, paragraph 6.2 states the times when a course change is permitted.
- Dual Honours BSc Mathematics students will normally be permitted to transfer onto the Single Honours BSc Mathematics programme provided they do so within three weeks of the commencement of a semester in Level 4, subject to having met any relevant progression criteria. Transfer to Single Honours BSc Mathematics will not normally be permitted after the second week of the autumn semester in Level 5. Transfer onto the Single Honours BSc Mathematics programme must be approved by the Programme Director.

#### ii. Transfer onto the MMath Programme

- Regulation 1F, paragraph 2.1 states that the rules governing eligibility for transfer onto an Integrated Masters programme shall be governed by the relevant Course Regulations.
- Dual Honours BSc Mathematics students will normally be permitted to transfer onto the four-year MMath Programme provided they do so within two weeks of the commencement of Level 5, subject to having met any relevant progression criteria. Transfer onto the MMath programme must be approved by the Programme Director.

iii. **Degree Award**

- a) The algorithm for the award of a given degree classification can be found at the following web address:  
<http://www.keele.ac.uk/paa/academicadministration/degreeclassification/dualhonourssinglehonoursbachelordegrees/dualhonourssinglehonoursbachelordegreesregulation1afromseptember2013/>
- b) The rules governing module condonement are the subject of Section 11.5a(i) of Regulation 1A and can also be found at the above web address.
- c) In addition to module condonement, Mathematics also applies module compensation at Levels 5 and 6. This allows for, in exceptional circumstance, the granting by the Mathematics Examination Board of full credits for a module in which the student has scored less than 29%.
- d) Section 11.5a specifies the number of credits that may be condoned at each level of study. If compensation is applied to a module then, for the purposes of Section 11.5a, that compensation shall be treated as an alternative to condonement. Thus the total number of credits awarded by compensation and condonement together, or by compensation alone, shall not exceed the number of credits that may be condoned under Section 11.5a.

#### 14. What are the typical admission requirements for the programme?

Subject	A-level	Subjects not included	International Baccalaureate	BTEC	Access to Higher Education Diploma	GCSE requirements
Mathematics (Dual Honours)	BBC Maths at grade B or above	General Studies and Critical Thinking	30 points to include Higher Level Mathematics at 5 or above	DDM - DMM You must have taken sufficient Mathematics units, please contact us for advice.	Obtain Access to Higher Education Diploma with 30 Level 3 credits at Distinction. You must also have taken sufficient Mathematics credits, please contact us for advice.	Maths @ C (or 4) English Language @ C (or 4)

Applicants who are not currently undertaking any formal study or who have been out of formal education for more than 3 years and are not qualified to A-level or BTEC standard may be offered entry to the University's Foundation Year Programme.

Applicants for whom English is not a first language must provide evidence of a recognised qualification in English language. The minimum score for entry to the Programme is Academic IELTS 6.0 or equivalent.

Please note: All non-native English speaking students are required to undertake a diagnostic English language assessment on arrival at Keele, to determine whether English language support may help them succeed with their studies. An English language module may be compulsory for some students during their first year at Keele.

Accreditation of Prior Learning (APL) is considered on a case-by-case basis and those interested should contact the Programme Director. The University's guidelines on this can be found here:  
<http://www.keele.ac.uk/qa/accreditationofpriorlearning/>

#### 15. Other learning opportunities

##### Study abroad (semester)

Students on the Mathematics programme have the potential opportunity to spend a semester abroad in their second year studying at one of Keele's international partner universities.

Exactly which countries are available depends on the student's choice of degree subjects. An indicative list of countries is on the website (<http://www.keele.ac.uk/studyabroad/partneruniversities/>); however this does not

guarantee the availability of study in a specific country as this is subject to the University's application process for studying abroad.

No additional tuition fees are payable for a single semester studying abroad but students do have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad to be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination

Whilst students are studying abroad any Student Finance eligibility will continue, where applicable students may be eligible for specific travel or disability grants. Students studying in Erasmus+ destinations may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible for income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

### **Study Abroad (International Year)**

A summary of the International Year, which is a potential option for students after completion of Year 2 (Level 5), is provided at Annex A.

### **16. Additional costs**

As to be expected there will be additional costs for inter-library loans and potential overdue library fines, print and graduation.

We do not anticipate any further additional costs for this undergraduate programme.

### **17. Document Version History**

<b>Version history</b>	<b>Date</b>	<b>Notes</b>
Date first created	October 2016	
Revision history	V2.0: March 2017	Changes to Level 4 core modules (Algebra and Calculus) with 2x15-credit modules replaced with 30-credit versions in order to provide students with a more cohesive introduction to the core algebra and calculus topics. [Major change: reissued]
Date approved	17/03/2017	

## Annex A for Dual Honours Programmes

Please note: in order to be eligible to take the International Year option your other subject must also offer this option. Please refer to the information published in the course document for your other subject.

### International Year Programme

Students registered for Dual Honours **Mathematics** may either be admitted for or apply to transfer during their period of study at Level 5 to the Dual Honours programme in both their principal subjects, providing that they meet the progression criteria outlined in this document. Students accepted onto the International Year programme will have an extra year of study at an international partner institution after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the International Year will be permitted to progress to Level 6. Students who fail to satisfy the examiners in respect of the International Year will normally revert to the Dual Honours programme without the International Year and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for 'Dual Honours BSc **Mathematics** with International Year'.

### International Year Programme Aims

In addition to the programme aims specified in the main body of this document, the international year programme of study aims to provide students with:

1. Personal development as a student and a researcher with an appreciation of the international dimension of their subject
2. Experience of a different culture, academically, professionally and socially

### Entry Requirements for the International Year

Students may apply to the 4-year programme during Level 5. Admission to the International Year is subject to successful application, interview and references from appropriate staff.

The criteria to be applied are:

- Academic Performance (an average of 60% across all modules at Level 5 is normally required)
- General Aptitude (to be demonstrated by application for study abroad, interview during the 2<sup>nd</sup> semester of year 2 (Level 5), and by recommendation of the student's personal tutor, 1<sup>st</sup> and 2<sup>nd</sup> year tutors and programme director)

### Student Support

Students will be supported whilst on the International Year via the following methods:

- Phone or Skype conversations with Study Abroad tutors, in line with recommended Personal Tutoring meeting points.
- Support from the University's Global Education Team

### Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete a Keele undergraduate programme with International Year will be able to:

- a. Describe, discuss and reflect upon the cultural and international differences and similarities of different learning environments
- b. Discuss the benefits and challenges of global citizenship and internationalisation
- c. Explain how their perspective on their academic discipline has been influenced by locating it within an international setting.

In addition, students who complete 'Dual Honours BSc Mathematics with International Year' will be able to:

- i. communicate effectively in an international setting;
- ii. reflect on previous learning within an international context.

Please note that students on Dual Honours programmes with International Year must meet the subject-specific learning outcomes for BOTH their principal subjects.

These learning outcomes will all be assessed by the submission of a satisfactory individual learning agreement, the successful completion of assessments at the partner institution and the submission of the reflective portfolio element of the international year module.

### **Course Regulations**

Students registered for the 'Mathematics with International Year' are subject to the course specific regulations (if any) and the University regulations. In addition, during the International Year, the following regulations will apply:

Students undertaking the International Year must complete 120 credits, which must comprise *at least 40%* in the student's discipline areas.

This may impact on your choice of modules to study, for example you will have to choose certain modules to ensure you have the discipline specific credits required.

Students are barred from studying any Mathematics module with significant overlap to Level 6 modules to be studied on their return. Significant overlap with Level 5 modules previously studied should also be avoided.

### **Additional costs for the International Year**

Tuition fees for students on the International Year will be charged at 15% of the annual tuition fees for that year of study, as set out in Section 1. The International Year can be included in your Student Finance allocation, to find out more about your personal eligibility see: [www.gov.uk](http://www.gov.uk)

Students will have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Students studying in Erasmus+ destinations may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some Governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.