

## Table of Contents

- [Regulations \(/fac/sci/math/currentstudents/ughandbook/course\)](#)
  - [Module Options \(/fac/sci/math/currentstudents/ughandbook/course/options\)](#)
    - [Unusual Options \(/fac/sci/math/currentstudents/ughandbook/course/options/unusual\)](#)
  - [Regulations \(/fac/sci/math/currentstudents/ughandbook/course/regulations\)](#)
    - [Year 1 \(/fac/sci/math/currentstudents/ughandbook/course/regulations/year1\)](#)
    - [Year 2 \(/fac/sci/math/currentstudents/ughandbook/course/regulations/year2\)](#)
    - [Year 3 \(/fac/sci/math/currentstudents/ughandbook/course/regulations/year3\)](#)
    - [Year 4 \(/fac/sci/math/currentstudents/ughandbook/course/regulations/year4\)](#)
    - [Year 1 additional \(/fac/sci/math/currentstudents/ughandbook/course/regulations/year1additional\)](#)
  - [Joint Degrees \(/fac/sci/math/currentstudents/ughandbook/course/joint\)](#)
  - [Exams and Assessment \(/fac/sci/math/currentstudents/ughandbook/course/assessment\)](#)
    - [Mitigating Circumstances \(/fac/sci/math/currentstudents/ughandbook/course/assessment/mitigating\)](#)
    - [First Year Results \(/fac/sci/math/currentstudents/ughandbook/course/assessment/1styearresults\)](#)
    - [Second Year Results \(/fac/sci/math/currentstudents/ughandbook/course/assessment/2ndyearresults\)](#)
      - [MMath Continuation Rate \(/fac/sci/math/currentstudents/ughandbook/course/assessment/2ndyearresults/mmathcontinuationrate\)](#)
      - [MMath end of year calculations \(/fac/sci/math/currentstudents/ughandbook/course/assessment/averages\)](#)
  - [Expectations \(/fac/sci/math/currentstudents/ughandbook/course/crime\)](#)
  - [Appeals \(/fac/sci/math/currentstudents/ughandbook/course/appeals\)](#)
- 

## Course Regulations

(<https://warwick.ac.uk/fac/sci/math/currentstudents/ughandbook/course/>)

We make every effort to ensure that the information here is accurate. However, the final arbiter of university policy in case of disagreement is the official university regulations, as laid down in the [Calendar](#).

Module Options

Course Regulations

Joint Degrees

Exams and Assessment

Expected Behaviour

Complaints & Appeals

Year 1 regs and modules  
G100 G103 GL11 G1NC

Year 2 regs and modules  
G100 G103 GL11 G1NC

---

Year 3 regs and modules  
G100 G103

Year 4 regs and modules  
G103

Exam information  
Core module averages

## Module Options

(<https://warwick.ac.uk/fac/sci/maths/currentstudents/ughandbook/course/options/>)

Any module that does not appear in your option lists on the online module registration system for the year you are currently in is an *unusual option*.

Guidance on whether such an option would be allowed can be found on the [Unusual Options page](#).

**Choosing Options** There are two points to bear in mind. First, you should choose modules you are really interested in; finding optional modules you are well motivated to work on is an excellent path to success at university. Second, you have to figure out how to divide your time and, later in the year, count CATS and think about exam strategy. Do not take extra optional modules if you are unable to devote the necessary time to them. Following a university lecture course is really not like following a soap opera on TV. It requires from the student a substantial input of effort and thought for each lecture, in addition to revision work in the vacation and before the exams.

Before reaching a final decision on which modules to take, you should consult your personal tutor.

**Look ahead!** A module you want to take next year may have a prerequisite module, which you therefore should take *this* year. There is often no rigid requirement that you have taken the earlier module for exam (although if you don't know the material or the points of view of the earlier module, you may have some reading up or some figuring out to do later) but note that some departments *will* require you to have taken the prerequisites for examination such as WBS and Economics.

For instance, MA3D1 Fluid Dynamics requires MA250 Introduction to PDEs. A second year Computer Science option may need knowledge of MA117 Programming for Scientists or CS118 Programming for Computer Scientists.

To find what you need to know in advance for a given module, look it up in the module section for its year: prerequisites are stated there. (Some also indicate which more advanced topics the module leads on to.)

For students on a joint degree, or hoping to change to one, the stated prerequisites are usually compulsory.

**Pure or Applied?** Rather than deciding straight away that you don't like pure maths or applied maths, give both a try. You'll probably find that neither is quite what you expect it to be. For maximum flexibility, first year mathematics students should take as many of the List A modules as possible.

**Two strings to your bow** By choosing options systematically from a second subject, you can develop a sideline, say, in Statistics, Business Studies, Economics, Computing, or Engineering. By doing this, you can come very close to following a joint degree, and, indeed, keep that option open. The following First Year modules are those recommended by the departments concerned.

**Statistics:** we have a [dedicated page](#) to outline progression through Statistics modules to keep your options as wide as possible,

**Computer Science:** MA117 Programming for Scientists.

**Economics:** EC106 Introduction to Quantitative Economics.

**Industrial and Business Studies:** IB104 Mathematical Programming I.

**Philosophy:** PH142 Central Themes in Philosophy

**Physics:** PX148 Classical Mechanics and Special Relativity, PX120 Electricity and Magnetism, PX121 Thermal Physics I, PX101 Quantum Phenomena.

**Second Years: improving on a disappointing first year.** Care in choosing modules may help to turn a third class first year performance into a second class degree result. (Of course, allocating more time to your studies and thinking how to make that time more productive will help even more!) Consider restricting your Maths to the Core modules (66 CATS) and taking more outside options. Modules from Social Studies and Humanities usually produce marks that cluster more in the second class, so you are more likely to get a respectable (but not outstanding) mark from such options. Business Studies, Education, Law and Politics offer usual options in the second year without prerequisites.

The Language Centre runs academic modules (as distinct from a leisure class in the evening at a fee) in, for example, Arabic, Chinese, French, German, Japanese, Russian, Spanish, for which you must register during Week 1. See also their [web pages](#).

Information on language modules can be found at

<http://www2.warwick.ac.uk/fac/arts/languagecentre/academic/>

Note that you may only take one language module (coded LL, FR, GE or IT, etc, as an Unusual Option) for credit in each year. Language modules are available as whole year modules, or smaller term long modules; both options are available to maths students. These modules may carry 24 (12) or 30 (15) CATS and that is the credit you get. We used to restrict maths students to 24 (12) if there was a choice, but we no longer do this.

All languages are considered to be "Unusual Options". However, we do not require you to obtain a completed Unusual Option form for these modules. It will be checked automatically that you are not registered for more than one, and if the Language Centre (or department running the module) have not agreed for you to take it you will receive a mark of zero at the end of the year.

**NOTE: Final year students, and final and penultimate integrated masters students (MMath) are not permitted to take beginner level language modules (this does not include accelerated beginner level).**

**To change course, or to take options?** A small number of students take advantage of the Mathematics Department's flexible options policy by remaining on the mathematics degree course, while taking up to 50% of their course credit from another department. If you wish to do this as an alternative to transferring to another department or changing to a joint degree, it's fine by us. The only essential point is that in order to remain on the maths degree, you must satisfy our requirements (notably in the 3rd year of the BSc. taking at least 57 CATS credits from List A, including at least 45 CATS of modules with codes beginning MA3 or ST318). If you transfer to another department or a joint degree, you will of course have a different set of requirements, possibly more substantial and less flexible.

#### **Where am I going? Which modules lead to which?**

At every stage it is important to look ahead. Otherwise you might one term run out of modules you want to take, or find that you have not taken modules one year that are prerequisites for modules you want to take in a later year.

Most modules and descriptions list some prerequisite courses. These are advice rather than compulsion unless explicitly stated, but the advice should be taken seriously. If you know which modules you want to take in future, you should also ask advice from your tutor about the optional modules to select now.

Within the Mathematics Department you can usually still take a module even if you have not done all the previous modules you are supposed to need. In that case you might find it very difficult, but if you are resourceful and determined there is usually a way round (ask the lecturer for advice). If you are taking modules in other Departments and particularly if you are on a joint degree, it may sometimes be compulsory to have taken prerequisite modules; you should read other Department's course descriptions very carefully.

It is possible to take second year optional maths modules in the third year. You may wish to consider delaying optional modules in this way if you are finding the mathematics very challenging, or if you are just too busy with other choices.

**NOTE: fourth year MMath students will only be able to take second year modules as unusual options, and will need to provide a compelling reason for doing so.** Module choices should take this into account.

**Options and careers** It's a good idea to consider your future career when you choose options or think about transferring to a joint degree.

Year 1 regs and modules  
G100 G103 GL11 G1NC

Year 2 regs and modules  
G100 G103 GL11 G1NC

Year 3 regs and modules  
G100 G103

Year 4 regs and modules  
G103

Exam information  
Core module averages

---

## Unusual Options

(<https://warwick.ac.uk/fac/sci/maths/currentstudents/ughandbook/course/options/unusual/>)

Despite the adjective, "unusual" options are entirely usual: they are merely modules not in your Option Lists in the University Course Regulations and the lists of usual options.

Unusual options taken by maths students in the past include History of Brazil, Shapes of Molecules, European Revolutions, Electroacoustic Music, Common Law, Contemporary France, Psychopathology, German Language, in addition to many others. You may wish to take as an unusual option a module normally available only to students in another year. This is permitted if there are good educational grounds for it. With the natural restrictions below, and subject to timetabling (see point 11 below), maths students should be able to take practically any module offered by the University as an unusual option. But note that many departments (e.g. most Arts and Humanities) require you to obtain their permission rather before the time of preregistration.

Fourth years should also note that there are some suitable modules in the Statistics Department beginning with module codes ST9xx, in particular ST952 Introduction to Statistical Practice (prerequisite of ST217 Mathematical Statistics A and B or ST220 Introduction to Mathematical Statistics) or ST903 Statistical Methods (only available to students who have not already taken ST217 Mathematical Statistics A and B or ST220 Introduction to Mathematical Statistics).

All modules being taught this year are listed in the University's Module Directory, with their credit in CATS.

You have to obtain the agreement of (1) *the module organiser*, (2) *your personal tutor*, and (3) *the Director of Undergraduate Studies*. Agreement is usually automatic (an exception would be if the module has a significant overlap with mathematics modules, for example mathematical methods courses taken by science students). The form is now online and [can be found here](#). You must get the permission from the department offering the module, and discuss with your Personal Tutor first, and on the form confirm that you have done this. We will then check with the that department and your Personal Tutor that this was done. You do not need to get permission from the DUGS beforehand, that will be done from your submission at a later date.

The form should be submitted as soon as you are sure that you want to take the module, and *in any case by the end of Week 2 of the term the module is taught in, to enable registration to proceed smoothly*. You will be e-mailed and mailed if there is a problem with permission to take an unusual option. If you do not hear then the option is approved and this will become clear on the online registration.

**Please note, you should not assume you will be allowed to take an unusual option, and so do not make your module choices dependent on them until you have been granted permission.**

There are some general rules and conventions to be observed regarding unusual options. These may be summarised as follows:

1. Unusual Options and overcutting are allowed only at the discretion of the Director of Undergraduate Studies.
  2. A third year student may not take first year List A or List B modules or any other first year module offered by a department in the Science Faculty.
  3. Language modules are classed as unusual, but an Unusual Option form for LL module codes is not required (acceptance by the Language Centre is sufficient). Language modules from other departments (e.g. Italian or Classics do need a form completed).
  4. Final year (and 3rd year MMath) students are not permitted to take beginners Language modules for credit.
  5. Once a student has progressed from the first year, they may not take more than 30 CATS of level 1 modules, in total, during their remaining years (including beginner's language modules).
  6. First year Science modules taken in Year 2 and first year non-Science modules taken in Year 3 will only be allowed at the discretion of the Director of Undergraduate Studies.
  7. List C and List D modules (module codes beginning MA4xx or MA5xx) are unusual for third year BSc. students. To be allowed to take such modules, students must have reached the required standard at the end of their second year to have continued on the four year MMath if they had so wished.
  8. A student may not study for credit more than 30 CATS of unusual options from any one department in any one year.
  9. A student may not offer for exam a module in which he or she has been examined in a previous year.
  10. A student is entitled to study unusual options for credit only on the agreement of the module organiser, the personal tutor and the Director of Undergraduate Studies.
  11. No guarantee can be given on avoidance of clashes with other modules in timetabling for unusual options. We advise you not to take unusual options which clash with core maths modules: you might lose credit, since some modules have assessed tests during the lecture period.
  12. In the event of unusual options causing unavoidable clashes in the timetabling of exams, special exam arrangements may be arranged, including an exam in the evening.
  13. Students following the same course but on different years of study may have different examination papers, where it involves a combination of finalists and second years (including third year of four) on a Summer paper in which the overall number of candidates is greater than twelve and the number of nonfinalists is greater than six; any other combination is granted exemption.
-

Year 1 regs and modules  
G100 G103 GL11 G1NC

Year 2 regs and modules  
G100 G103 GL11 G1NC

Year 3 regs and modules  
G100 G103

Year 4 regs and modules  
G103

Exam information  
Core module averages

---

## Course Regulations

(<https://warwick.ac.uk/fac/sci/maths/currentstudents/ughandbook/course/regulations/>)

### How many modules do I take?

Your work load is calculated in terms of CATS (Credit Accumulation Transfer Scheme). The normal (i.e. minimum) load in each year is 120 CATS. A module of 30 lectures is normally worth

- 12 CATS in the first or second year,
- 15 CATS in the third year,
- 15 CATS for MMath modules with a MA4xx code (taken in year 3 or year 4).

Anything you offer for exam credit is measured in CATS, and you should use CATS as a guide in planning your options.

Each CATS point nominally corresponds to 10 hours of a student's work (including lectures, supervisions, private study and discussions). For example, a 12 CATS 30 lecture module needs 3 hours of lectures and 6 further hours' study per week plus 30 hours' exam preparation. The Normal Load of 120 CATS corresponds to 40 hours' work per week for 30 weeks. Do not take more than 120 CATS unless you devote the additional time to your studies.

Conversely, you cannot take less than 120 CATS. Additionally University regulations require at least 360 CATS to be completed over three years for the award of a BSc. degree, and 480 CATS over four years for an MMath.

Please note that available modules are subject to some small amount of change each year; the modules published in this handbook will be correct for the year of publication.

### Which modules are compulsory?

You must take

- the **core** modules for the year you are in;
- if you are in year 2 or 3, an appropriate number of optional modules (see links below);
- in addition any others you like (not exceeding 150 CATS in total, and noting 2nd year regulations for BSc students). Your end of year mark will be calculated on the straight average on the subset of modules fulfilling regulations that gives the highest mark (or straight average on all modules taken if that is higher).

Overcattling is officially at the discretion of the Director of Undergraduate Studies, but in practice, for most students, we apply a light touch to module choices in this respect.

### Over-Catting

Students who take over 120 CATS have their end of year average calculated according to University regulations:

"With the normal load for a year's study being 120 CATS (or such larger figure as is specified by course regulations) and the maximum permitted load being 150 CATS then, for each year of study, a candidate's mean mark is the arithmetic mean of the subset of whole modules, weighted according to their credit weighting, which satisfies the course regulations and results in the highest mark."

Mathematically, we take the power set of your module selection, and calculate the averages on each selection of modules that would be allowed under course regulations (i.e. as a minimum at least 120 CATS and contains all core modules) and take the highest average.

This essentially means that if you overcat and do not perform well (compared to your others) in those modules then they will not be included in the end of year average calculation. The best calculation is not always the most obvious one!

**Note: even if not included in the end of year average, ALL modules still appear on your transcript ([HEAR](#)).**

## Are there any other restrictions?

Please check the detailed Course Regulations, and note, in particular, the special requirements for the for the MMath.

Not all the 2nd and 3rd year List A options are available every year.

Other options may be taken from *List B modules* or [unusual options](#).

There is also the opportunity to [Study Abroad](#), either for credit towards your degree, or as an "intercalated year".

## Degree Courses and Year Weightings

We offer several degrees and intercalated variants:

- **G100 Mathematics** years 1, 2 and 3 weighted 10:30:60 (for 2019 entry only 0:30:70);
- **G103 Mathematics (MMath)** weighted 10:20:30:40 (for 2019 entry only 0:20:35:45);
- **GL11 Mathematics and Economics** weighted 10:40:50 (transfer to Economics Department at end of year 2, for 2019 entry only 0:40:60);
- **G1NC Mathematics and Business Studies** weighted 10:40:50 (transfer to Warwick Business School at end of Year 2, for 2019 entry only 0:50:50);

Intercalated variants as follows (G106 the 3rd year abroad counts for credit, all the others it does not):

- **G101 Mathematics with Intercalated Year** weighted 10:30:0:60 (year 3 abroad, for 2019 entry only 0:40:0:70);
- **G105 Mathematics (MMath) with Intercalated Year** weighted 10:20:0:30:40 (year 3 abroad, for 2019 entry only 0:20:0:35:45);
- **G106 Mathematics (MMath) with Study in Europe** weighted 10:20:20:50 (year 3 abroad, 2019 entry 0:20:25:55);
- **GL12 Mathematics and Economics (with Intercalated Year)** 10:40:0:50 (year 3 abroad, for 2019 entry only 0:40:0:60);

## Regulations by Year

Detailed course regulations by year are outlined at the top of each year's module pages, or historical (pre-1015) can be found on the University's central course regulation pages. Note in particular the section here on [Examinations and Assessment](#) on specific rules for progression, and decisions of the various Exam Boards. It is usually necessary to pass a specific number of CATS in order to progress, as well as to be awarded a degree.

- [Year 1](#)
- [Year 2](#)
- [Year 3](#)
- [Year 4](#)

For regulations for Joint Degrees for years once transfer to the other department has taken place please consult that Department's Course Handbook:

- [Department of Economics](#)
- [Department of Philosophy](#)
- [Warwick Business School](#)

## Other Resources

For more information about the University regulations for your degree see the following:

- [Detailed University Regulations governing all degrees \(the "Calendar"\)](#)
    - [Regulation section of the Calendar](#)
  - [Teaching Quality](#)
    - including the [Credit and Module Framework](#)
    - [Senate Examination and Degree Conventions](#)
-

Year 1 regs and modules  
G100 G103 GL11 G1NC

Year 2 regs and modules  
G100 G103 GL11 G1NC

Year 3 regs and modules  
G100 G103

Year 4 regs and modules  
G103

Exam information  
Core module averages

## Course Regulations for Year 1

(<https://warwick.ac.uk/fac/sci/math/currentstudents/ughandbook/course/regulations/year1/>)

To create a printable version of this section of the Handbook click on the "pages to go" link at the bottom right.

## MATHEMATICS BSC. G100, MASTER OF MATHEMATICS MMATH G103, MATHEMATICS WITH BUSINESS STUDIES G1NC.

Normal Load = 120 CATS. Maximum Load = 150 CATS.

Students must take the 8 core modules (total 90 CATS), plus options. List A modules have a high mathematical content. The Core modules are: MA106 Linear Algebra, MA131 Analysis, MA132 Foundations, MA133 Differential Equations, MA134 Geometry and Motion, MA136 Introduction to Abstract Algebra, MA124 Maths by Computer, ST111 Probability A.

## MATHEMATICS AND ECONOMICS GL11

The first year is in common with the BSc Mathematics degree course G100, with the addition of EC107 Economics I and ST112 Probability B as additional core modules (total core of 126 CATS).

**Note.** The Mathematics Department does not make first year List A modules compulsory, in order to give students (including those on joint degree courses) freedom of choice in building their options. However, the List A modules are important for many subsequent pure and applied maths modules, and we recommend that first year students take as many as possible to maintain flexibility for future maths modules. [Choosing options is discussed here](#), and the first year List A options are discussed below.

Of the core, the modules MA131 Analysis, MA133 Differential Equations, MA106 Linear Algebra and MA134 Geometry and Motion are designated as being "required cores". This means that all first years **must** pass these modules (at 40%) either in the Summer exams or the resit exams the following September, in order to progress in to the second year, alongside getting an overall 40% for the year and passing at least 90 CATS of modules.

GL11 students must in addition pass EC107.

### Additional advice to first year students

#### Maths Modules

Term	Code	Module	CATS	List
Pre-Term	MA1K2	<a href="#">Refresher Mathematics</a>	0	Core

Term 1	MA132	<a href="#">Foundations</a>	12	Core
	MA133	<a href="#">Differential Equations</a>	12	Core
	MA136	<a href="#">Introduction to Abstract Algebra</a>	6	Core
Term 1 & 2	MA131	<a href="#">Analysis I and II</a>	24	Core
Term 2	MA106	<a href="#">Linear Algebra</a>	12	Core
	MA124	<a href="#">Maths by Computer</a>	6	Core
	MA134	<a href="#">Geometry and Motion</a>	12	Core
	MA117	<a href="#">Programming for Scientists</a>	12	List B

## Maths Modules for External Students

These modules are not available to Maths students.

Term	Code	Module	CATS
Term 1	MA138	<a href="#">Sets and Numbers</a>	12
Term 1 & 2	MA137	<a href="#">Mathematical Analysis I and II</a>	24
Term 2	MA113	<a href="#">Differential Equations A</a>	6

## Statistics Modules

First year mathematics students interested in transferring to MORSE (Mathematics, Operational Research, Statistics and Economics) should include the following modules among their options

EC106 Introduction to Quantitative Economics(24 CATS, Terms 1-2);

IB104 Mathematical Programming I (12 CATS version, Term 3);

ST112 Probability B (6 CATS, Term 2)

ST104 Statistical Laboratory I (12 CATS, Terms 2-3)

This would allow transfer into the second year of MORSE, which consists of roughly equal proportions from the four participating departments (Statistics, Economics, Business Studies and Mathematics). Further details of MORSE can be obtained from the Statistics Department.

For transfer into Mathematics and Statistics students should take

ST112 Probability B (6 CATS, Term 2)

ST104 Statistical Laboratory I (12 CATS, Terms 2-3)

Transfer into any Statistics course will depend on available capacity and is likely to be restricted to only the strongest students.

Both Probability A (core) and Probability B are also essential for any further Statistics options in later years.

Term	Code	Module	CATS	List
Terms 2 and 3	ST104	<a href="#">ST104 Statistical Laboratory I</a>	12	List B
Term 2	ST111	<a href="#">Probability A</a>	6	Core
	ST112	<a href="#">Probability B</a>	6	List A Core (GL11)

## Economics Modules

Mathematics & Economics (GL11) students should refer to the [Economics Undergraduate handbook](#) and to the section on [joint degree courses](#) in this handbook.

Other mathematics students (G100 or G103, BSc or MMath) may take EC106 Introduction to Qualitative Economics as an option. [Note: Maths & Economics students do NOT take EC106.] It is designed to be suitable for Mathematics students, and a good performance in this module >55% is a prerequisite for some optional second and third year Economics modules. See the Economics Department Undergraduate handbook, which also contains details of other more specialized first year economics options. **If you wish to take second year Economics modules next year then you MUST take EC106 or EC107 this year,**

Term	Code	Module	CATS	List
Terms 1 & 2	EC106	<a href="#">Introduction to Quantitative Economics</a>	24	List B (not GL11)
	EC107	<a href="#">Economics I</a>	30	Core (GL11 only)

## Computer Science

Mathematics students should note that *at least one 1st year programming module*, or the ability to program in a high level language, is a *prerequisite* for most Computer Science modules in Years 2 and 3. There are two roughly equivalent high level programming modules. CS118 Programming for Computer Scientists which is taken by Computer Science students, and [MA117 Programming for Scientists](#) which is available to all Mathematics students as an option. MA117 satisfies the programming prerequisite for Computer Science options.

Students considering transferring to the Discrete Mathematics G4G1 degree should take the modules Discrete Mathematics & its Applications 2 as well as MA117 Programming for Scientists.

Term	Code	Module	CATS	List
Term 2	CS137	<a href="#">Discrete Mathematics &amp; its Applications 2</a>	12	List B

## Physics

**Physics options for Mathematics students:** Weekly problem sheets are issued for all the first year Physics modules. Any combination of Physics options may be taken. However, the Physics Department recommends the following modules and combinations, especially for students who may wish to transfer to the Maths and Physics degree at the end of the first year.

- PX101 Quantum Phenomena. This module deals from first principles with one of the major components of modern Physics. It leads on to several options in 2nd year Physics (see the second year options for details).
- PX148 Classical Mechanics and Special Relativity
- PX120 Electricity and Magnetism. These lectures treat the classical description of the behaviour of particles, waves and matter.

Term	Code	Module	CATS	List
Term 1	PX148	<a href="#">Classical Mechanics and Special Relativity</a>	12	List B
Term 2	PX120	<a href="#">Electricity and Magnetism</a>	12	List B
	PX144	<a href="#">Introduction to Astronomy</a>	6	List B
	PX147	<a href="#">Introduction to Particle Physics</a>	6	List B
Term 3	PX101	<a href="#">Quantum Phenomena</a>	6	List B

## Philosophy Modules

Students wishing to follow modules in Philosophy should register for these modules at the start of Term 1, using the online registration system.

In order to follow 2nd or 3rd year Philosophy honours modules students must normally first have completed a total of 30 CATS of Philosophy modules at the first year level. Those in doubt should consult the module tutor of the relevant module.

Students on the Mathematics and Philosophy joint degree take the following two modules in their first year: PH142 Central Themes in Philosophy (term 2); PH136 Logic I: Introduction to Symbolic Logic (term 2). Mathematics students are also eligible for a transfer to Mathematics and Philosophy if they take the same module combination in their first year. See the [Philosophy Department's website](#)

Term	Code	Module	CATS	List
Term 1	PH144	<a href="#">Mind and Reality</a>	15	List B
	PH146	<a href="#">Reason, Argument and Analysis</a>	15	List B
Term 2	PH136	<a href="#">Logic I: Introduction to Symbolic Logic</a>	15	List B

## Warwick Business School

[See Information for all WBS modules.](#)

Note that for any WBS module you MUST register on both the University registration system (eVision) and the WBS system (MyWBS), **with the same CATS weighting**. Failure to do this may mean that you will not be permitted to continue on the module and be removed from it.

Term	Code	Module	CATS	List
Term 3	IB104	Mathematical Programming I	12	List B

## Languages

The Language Centre offers academic modules in Arabic, Chinese, French, German, Japanese, Russian and Spanish at a wide range of levels. These modules are available for exam credit as unusual options to mathematicians in all years. Pick up a leaflet listing the modules from the Language Centre, on the ground floor of the Humanities Building by the Central Library. Full descriptions are available on request. Note that you may only take one language module (as an Unusual Option) for credit in each year. Language modules are available as whole year modules, or smaller term long modules; both options are available to maths students. These modules may carry 24 (12) or 30 (15) CATS and that is the credit you get. We used to restrict maths students to 24 (12) if there was a choice, but we no longer do this.

**Plan ahead! Note that 3rd and 4th year students cannot take beginners level (level 1) Language modules.**

There is also an extensive and very popular programme of lifelong learning language classes provided by the centre to the local community, with discounted fees for Warwick students. Enrolment is from 9am on Wednesday of week 1. These classes do not count as credit towards your degree.

The Language Centre also offers audiovisual and computer self-access facilities, with appropriate material for individual study at various levels in Arabic, Chinese, Dutch, English, French, German, Greek, Italian, Portuguese, Russian and Spanish. (This kind of study may improve your mind, but it does not count for exam credit.)

### Important note for students who pre-register for Language Centre modules

It is essential that you confirm your module pre-registration by coming to the Language Centre as soon as you can during week one of the new academic year. If you do not confirm your registration, your place on the module cannot be guaranteed. If you decide, during the summer, NOT to study a language module and to change your registration details, please have the courtesy to inform the Language Centre of the amendment.

Information on modules can be found at

<http://www2.warwick.ac.uk/fac/arts/languagecentre/academic/>

## Engineering

Mathematics students interested in taking Engineering modules in later years should see the page for year 2 and 3 modules for any prerequisites. Details of all engineering modules can be found on the Engineering web pages.

## Objectives

After completing the first year students will have

- made the transition in learning style and pace from school to university mathematics;
- been introduced to the basic concepts in university mathematics, in particular proof, rigour and calculations;
- begun the study of the foundational core;
- acquired knowledge, understanding and techniques necessary to proceed to the second year.

---

## Course Regulations for Year 2

(<https://warwick.ac.uk/fac/sci/maths/currentstudents/ug handbook/course/regulations/year2/>)

**To create a printable version of this section of the Handbook click on the "pages to go" link at the bottom right.**

## MATHEMATICS BSC. G100

Normal Load = 120 CATS. Maximum Load = 150 CATS.

Students must take the 6 core modules (total 66 CATS), plus options. List A modules have a high mathematical content. The Core modules are: MA259 Multivariable Calculus, MA244 Analysis III, MA251 Algebra I, MA249 Algebra II, MA260 Norms, Metrics and Topologies, MA213 Second Year Essay.

Please note that if you wish to transfer to the G103 degree either in your second year, or later in your third year, you must have fulfilled the conditions for that degree this year (see below).

## MASTER OF MATHEMATICS MMATH G103

Normal Load = 120 CATS. Maximum Load = 150 CATS.

The first two years are in common with the BSc Mathematics degree course G100 except that in Year 2 students must take at least 90 CATS credits from the core and List A combined.

To remain on the G103 course at the second year exam board students must have achieved a weighted average on their best 90 CATS of maths modules (Core and List A modules starting with an MA2 code) of a good 2.1 standard, or if fewer than 90 CATS of MA2 modules are taken (due to List A Stats modules) we calculate the average over all registered MA2 modules. The department strictly interprets this to mean 65.0% or above. Experience has shown that students who do not achieve this threshold struggle with the four year degree, and by being transferred to the BSc. have a better chance of achieving a good 2.1 or first class degree and can plan their future better. For students who take 90 CATS of Core and List A, but fewer than 90 CATS of MA2 modules, we would take the average over the MA2 modules that have been taken, and then look at the overall mark profile, including the other List A modules taken, to make a progression decision on a case by case basis.

**Please note:** 4th year MMath students are not be able to take second year modules except as unusual options. It is highly unlikely that MA2 modules would be allowed as unusual so choose your modules this year to take this into account.

## MATHEMATICS WITH BUSINESS STUDIES G1NC

Normal Load = 120 CATS. Maximum Load = 150 CATS.

Students must take the 6 core modules for G100 students (total 66 CATS), plus one of the List B Warwick Business School modules below (coded IBxxx). To transfer to the Business School at the end of the second year students must get at least 50% in one of these modules, gain an overall honours mark (40% end of year) and be successfully interviewed by WBS.

## MATHEMATICS AND ECONOMICS GL11

Normal Load = 120 CATS. Maximum Load = 150 CATS.

Year 2 core consists of 60 CATS of Mathematics and 60 CATS of Economics. The Economics modules are EC204 Economics 2 (30 CATS), plus either EC226 Econometrics 1 (30 CATS) or EC220/221 Mathematical Economics 1a and 1b (30 CATS). The Mathematics modules are MA251 Algebra I, MA244 Analysis III, MA259 Multivariable Calculus, MA260 Norms, Metrics and Topologies, plus 12 CATS from option list A/Core for the second year of the Mathematics BSc (G100). Students taking EC226 as a core module should consider, as recommended options, ST202 Stochastic Processes and/or ST213 Mathematics of Random Events. Students taking EC220/1 as a core module should consider MA209 Variational Principles.

Note, in year 3 GL11 students transfer to the Economics department where overcutting is not permitted and level 1 modules are also not allowed as options.

For a full list of available modules see the relevant course regulation page.

### Maths Modules

**Note:** The Term 1 modules MA259 Multivariable Calculus, MA241 Combinatorics, MA243 Geometry, MA244 Analysis III and MA251 Algebra I are all examined in the April exam period directly after the Easter vacation.

For students who commenced studies **before the 2021/22 academic year**, in order to progress to the 3rd year you must pass at least 60 CATS of modules in your second year and have an end of year average over 40%. You can still proceed whilst failing (some) core modules.

For students commencing studies as first years **in the academic year 2021/22 or later**, in order to progress to the 3rd year you must pass at least 90 CATS of modules in your second year and have an end of year average over 40%.

Term	Code	Module	CATS	List GL11	List Others
Term 1	MA241	<a href="#">Combinatorics</a>	12	List A	List A

	MA243	<a href="#">Geometry</a>	12	List A	List A
	MA244	<a href="#">Analysis III</a>	12	Core	Core
	MA251	<a href="#">Algebra I: Advanced Linear Algebra</a>	12	Core	Core
	MA259	<a href="#">Multivariable Calculus</a>	12	Core	Core
	MA2K3	Consolidation (by invitation)	6	Unusual	Unusual
Terms 1 & 2	MA213	<a href="#">Second Year Essay</a>	6	List A	Core
Term 2	MA117	<a href="#">Programming for Scientists</a>	12	List B	List B
	MA249	<a href="#">Algebra II: Groups and Rings</a>	12	List A	Core
	MA250	<a href="#">Introduction to Partial Differential Equations</a>	12	List A	List A
	MA252	<a href="#">Combinatorial Optimization</a>	12	List A	List A
	MA254	<a href="#">Theory of ODEs</a>	12	List A	List A
	MA257	<a href="#">Introduction to Number Theory</a>	12	List A	List A
	MA260	<a href="#">Norms, Metrics and Topologies</a>	12	Core	Core
	MA261	<a href="#">Differential Equations: Modelling and Numerics</a>	12	List A	List A
	MA269	<a href="#">Asymptotics and Integral Transforms</a>	12	List A	List A
Term 3	MA209	<a href="#">Variational Principles</a>	6	List A	List A
	MA256	<a href="#">Introduction to Mathematical Biology</a>	6	List A	List A

## Maths Modules for External Students

These modules are not available to Maths students.

Term	Code	Module	CATS
Term 1	MA258	<a href="#">Mathematical Analysis III</a>	12
Term 2	MA222	<a href="#">Metric Spaces</a>	12

## Interdisciplinary Modules (IATL and GSD)

Second, third and fourth-year undergraduates from across the University faculties are now able to work together on one of IATL's 12-15 CAT interdisciplinary modules. These modules are designed to help students grasp abstract and complex ideas from a range of subjects, to synthesise these into a rounded intellectual and creative response, to understand the symbiotic potential of traditionally distinct disciplines, and to stimulate collaboration through group work and embodied learning.

Maths students can enrol on these modules as an Unusual Option, you can register for a maximum of TWO IATL modules but also be aware that on many numbers are limited and you need to register an interest before the end of the previous academic year. Contrary to this is GD305 Challenges of Climate Change which replaces a module that used to be PX272 Global Warming and is recommended by the department, form filling is not required for this option, register in the regular way on MRM (this module is run by Global Sustainable Development from 2018 on).

Please see the [IATL page](#) for the full list of modules that you can choose from, for more information and how to be accepted onto them, but some suggestions are in the table below:

Term	Code	Module	CATS	List
Term 1	IL005	<a href="#">Applied Imagination</a>	12/15	Unusual
	GD305	<a href="#">Challenges of Climate Change</a>	15	Unusual
Term 2	IL008	<a href="#">Reinventing Education</a>	12/15	Unusual
	IL031	<a href="#">Serious Tabletop Game Design and Development</a>	12/15	Unusual
	IL016	<a href="#">The Science of Music</a>	7.5/15	Unusual
	IL023	<a href="#">Genetics: Science and Society</a>	12/15	Unusual

## Statistics Modules

Students who have successfully completed the first year in Maths and have taken statistics options in their first year may apply to the Department of Statistics for transfer to the joint degree. Alternatively, transfer may be made at the beginning of the third year if the appropriate second year modules have been taken. Further information may be obtained from the Department of Statistics.

Term	Code	Module	CATS	List
Term 1	ST222	<a href="#">Games, Decisions and Behaviour</a>	12	List B
	ST220	<a href="#">Introduction to Mathematical Statistics</a>	12	List A
Term 2	ST202	<a href="#">Stochastic Processes</a>	12	List A

## Economics Modules

The Economics 2nd and 3rd Year Handbook is available on request from the Economics Department and contains details of their modules and prerequisites, including information on which will actually run during the year. This information is also available from the [Economics web pages](#).

See the Economics Handbooks for information on the Joint degree in Mathematics and Economics.

Once you have consulted the Economics handbook, the Economics department should be consulted if you have questions about the joint degree, or about economics options for the maths degrees.

Term	Code	Module	CATS	List GL11	List Others
Term 1	EC220	<a href="#">Mathematical Economics 1A</a>	15	Op Core	List B but must have taken EC106 or EC107
Term 2	EC221	<a href="#">Mathematical Economics 1B</a>	15	Op Core	List B but must have taken EC106 or EC107
Terms 1,2,3	EC204	<a href="#">Economics 2</a>	30	Core	N/A
	EC226	<a href="#">Econometrics 1</a>	30	Op Core	N/A

## Computer Science

Term	Code	Module	CATS	List
Term 1	CS260	<a href="#">Algorithms</a>	15	List B
Term 2	CS262	<a href="#">Logic and Verification</a>	15	List B
	CS254	<a href="#">Algorithmic Graph Theory</a>	15	List B

## Physics

Students from the Department of Mathematics may take any combination of the modules listed below. All exams are one hour per 6 CATS. Please contact the Physics department to answer any queries concerning their second year modules.

**Module Seminars for Physics Options:** Certain physics modules are supported by module seminars which start one week after the start of the module. These are timetabled locally and details will be announced at the start of each module.

Term	Code	Module	CATS	List
Term 1	PX267	<a href="#">Hamiltonian Mechanics</a>	7.5	List B
	PX281	<a href="#">Computational Physics</a>	15	List B
Terms 1 & 2	PX262	<a href="#">Quantum mechanics and its Applications</a>	15	List B
	PX280	<a href="#">Environmental Physics</a>	15	List B

	PX276	<a href="#">Methods of Mathematical Physics</a>	7.5	List B
	PX282	<a href="#">Stars and the Solar System</a>	15	List B
Term 2	PX264	<a href="#">Physics of Fluids</a>	7.5	List B
Terms 2 & 3	PX263	<a href="#">Electromagnetic Theory and Optics</a>	7.5	List B

## Philosophy Modules

Students following modules in Philosophy should register for them as normal on the module registration system, but are also encouraged to check with the Philosophy department to ensure that the module still has places available in case it is oversubscribed.

Term	Code	Module	CATS	List
Term 1	PH210	<a href="#">Logic II: Metatheory</a>	15	List B
	PH373	<a href="#">The Philosophy of Time</a>	15	List B
Terms 1 & 2	PH201	<a href="#">History of Modern Philosophy</a>	30	List B
Term 2	PH251	<a href="#">Metaphysics</a>	15	List B
	PH340	<a href="#">Logic III: Incompleteness and Undecidability</a>	15	List B

## Warwick Business School

Students intending to transfer at the end of the second year to the joint degree *Mathematics and Business Studies* run by the Warwick Business School should note at the end of the second year students must get at least 50% in any IB coded module, gain an overall honours mark (40% Seymour) and be interviewed by WBS. [See the information for all WBS modules.](#)

Note that for any WBS module you MUST register on both the University registration system (eVision) and the WBS system (MyWBS), **with the same CATS weighting**. Failure to do this may mean that you will not be permitted to continue on the module and be removed from it.

You will need to register on myWBS in the Spring of the previous academic year to ensure you have secured your place on the modules. NOTE that from next year IB132 and IB133 will be available to maths students, **but will have different module codes** for second year students (which have not been finalised yet).

**PLEASE NOTE 2: From 2020/21 all 2nd year WBS modules will only be available at 15 CATS not 12.**

Term	Code	Module	CATS	List
Term 1	IB133	Foundations of Accounting	15	List B
	IB207	Mathematical Programming II	12	List B
Term 2	IB132	Foundations of Finance	15	List B
	IB320	Simulation	15	List B
	IB2C9	Principles of Entrepreneurship	15	List B

## Centre for Education Studies

Note: we advise students to take this module in their second year rather than third since it involves teaching practice over the Easter vacation which may interfere with revision for final year modules examined immediately after that vacation.

Term	Code	Module	CATS	List
Term 2	EP304	<a href="#">Introduction to Secondary Maths Teaching</a>	15	List B
	EP304	<a href="#">Introduction to Secondary Maths Education</a>	30	List B

## Languages

The Language Centre offers academic modules in Arabic, Chinese, French, German, Japanese, Russian and Spanish at a wide range of levels. These modules are available for exam credit as unusual options to mathematicians in all years. Pick up a leaflet listing the modules from the Language Centre, on the ground floor of the Humanities Building by the Central Library. Full descriptions are available on request. Note that you may only take one language module (as an Unusual Option) for credit in each year. Language modules are available as whole year modules, or smaller term long modules; both options are available to maths students. These modules may carry 24 (12) or 30 (15) CATS and that is the credit you get. We used to restrict maths students to 24 (12) if there was a choice, but we no longer do this.

**Plan ahead! Note 3rd and 4th year students cannot take beginners level (level 1) Language modules.**

There is also an extensive and very popular programme of lifelong learning language classes provided by the centre to the local community, with discounted fees for Warwick students. Enrolment is from 9am on Wednesday of week 1. These classes do not count as credit towards your degree.

The Language Centre also offers audiovisual and computer self-access facilities, with appropriate material for individual study at various levels in Arabic, Chinese, Dutch, English, French, German, Greek, Italian, Portuguese, Russian and Spanish. (This kind of study may improve your mind, but it does not count for exam credit.)

A full module listing with descriptions is available on the Language Centre web pages.

#### **Important note for students who pre-register for Language Centre modules**

It is essential that you confirm your module pre-registration by coming to the Language Centre as soon as you can during week one of the new academic year. If you do not confirm your registration, your place on the module cannot be guaranteed. If you decide, during the summer, NOT to study a language module and to change your registration details, please have the courtesy to inform the Language Centre of the amendment.

Information on modules can be found at

<http://www2.warwick.ac.uk/fac/arts/languagecentre/academic/>

## Objectives

After completing the second year the students will have

- covered the foundational core;
- had the opportunity to follow options which build on their core knowledge;
- acquired sufficient knowledge and understanding to be in a position to make an informed choice of options in their final years;
- (joint degrees) acquired their core mathematical knowledge and been prepared, through their choice of options, for their final year in the department of their second specialism.

---

## Course Regulations for Year 3

(<https://warwick.ac.uk/fac/sci/maths/currentstudents/ughandbook/course/regulations/year3/>)

### **MATHEMATICS BSC. G100**

Normal Load = 120 CATS. Maximum Load = 150 CATS.

Candidates for Honours are required to take: Modules totalling at least 57 CATS credits from List A (including at least 45 CATS of modules with codes beginning MA3 or ST318), and an appropriate number of modules selected from List B, such that the total number of credits from List B and Unusual Options combined shall not exceed 66 CATS (not including Level 7 MA and ST coded modules where Level 7 are 4th year and MSc. level modules).

Certain students who scored a low maths average at the end of the second year will not be permitted to take more than 132 CATS, but will also offered the opportunity to take MA397 Consolidation to improve their chances of securing an honours degree at the end of the 3rd year. This is a decision of the Second Year Exam Board.

---

### **MASTER OF MATHEMATICS MMATH G103**

Normal Load = 120 CATS. Maximum Load = 150 CATS.

Students are required to take at least 90 CATS from Lists A and C. Although it is not a requirement to take any List C modules in the 3rd year, note that G103 students must take, in their third and fourth years combined, at least 105 CATS from the Core (MA4K8/MA4K9 Project) plus Lists C and D.

Third year students obtaining an end of year average (with adjustment where there is overcattling) of less than 55% in their best 90 CATS of List A and List C modules, will normally be considered for the award of a BSc. and not permitted to continue into the 4th year.

## Comments

The second year modules below are available as third year List A options worth 6 or 12 CATS if not taken in Year 2. However, not all these modules are guaranteed to take place every year.

Most List A Year 3 Mathematics modules should have a Support Class timetabled in weeks 2 to 10 of the same Term. This is your opportunity to bring the examples you have been working on, to compare progress with fellow students and, where several people are stuck or confused by the same thing, to get guidance from the graduate student in charge. When more than 30 people want to come a second weekly session can be arranged.

It is advisable to check the timetable as soon as possible for two reasons. Firstly, the timing of a module may be unavoidably changed and this page not updated to reflect that yet. Secondly, to guard against clashes. Some will be inevitable, but others may be avoided if they are noticed sufficiently well in advance. This is particularly important if you are doing a slightly unusual combination of options, and if you intend to take options outside the Science Faculty. Pay particular attention to the possibility that modules advertised here as in Term 2 may have been switched to Term 1. Check the Timetable at the start of term.

## Maths Modules

**Note:** Term 1 modules are generally examined in the April exam period directly after the Easter vacation and Term 2 modules in the Summer exam period.

Term	Code	Module	CATS	List
Term 1	MA241	<a href="#">Combinatorics</a>	12	List A
	MA243	<a href="#">Geometry</a>	12	List A
	MA359	<a href="#">Measure Theory</a>	15	List A
	MA390	<a href="#">Topics in Mathematical Biology</a>	15	List A
	MA397	<a href="#">Consolidation (by invitation only)</a>	7.5	Unusual
	MA398	<a href="#">Matrix Analysis and Algorithms</a>	15	List A
	MA3A6	<a href="#">Algebraic Number Theory</a>	15	List A
	MA3B8	<a href="#">Complex Analysis</a>	15	List A
	MA3E1	<a href="#">Groups and Representations</a>	15	List A
	MA3F1	<a href="#">Introduction to Topology</a>	15	List A
	MA3G1	<a href="#">Theory of PDEs</a>	15	List A
	MA3G6	<a href="#">Commutative Algebra</a>	15	List A
	MA3G7	<a href="#">Functional Analysis I</a>	15	List A
	MA3H3	<a href="#">Set Theory</a>	15	List A
	MA3J2	<a href="#">Combinatorics II</a>	15	List A
	MA3J4	<a href="#">Mathematical Modelling and PDEs</a>	15	List A
	MA3K0	<a href="#">High-dimensional Probability</a>	15	List A
	MA3K4	<a href="#">Introduction to Group Theory</a>	15	List A
Terms 1 & 2	MA372	<a href="#">Reading Module</a>	15	List A
	MA395	<a href="#">Essay</a>	15	List A
Term 2	MA250	<a href="#">Introduction to Partial Differential Equations</a>	12	List A
	MA252	<a href="#">Combinatorial Optimization</a>	12	List A

	MA254	<a href="#">Theory of ODEs</a>	12	List A
	MA257	<a href="#">Introduction to Number Theory</a>	12	List A
	MA261	<a href="#">Differential Equations: Modelling and Numerics</a>	12	List A
	MA269	<a href="#">Asymptotics and Integral Transforms</a>	12	List A
	MA377	<a href="#">Rings and Modules</a>	15	List A
	MA3D1	<a href="#">Fluid Dynamics</a>	15	List A
	MA3D4	<a href="#">Fractal Geometry</a>	15	List A
	MA3D5	<a href="#">Galois Theory</a>	15	List A
	MA3D9	<a href="#">Geometry of Curves and Surfaces</a>	15	List A
	MA3E7	<a href="#">Problem Solving</a>	15	List A (G100), List B (G103)
	MA3G8	<a href="#">Functional Analysis II</a>	15	List A
	MA3H0	<a href="#">Numerical Analysis and PDEs</a>	15	List A
	MA3H2	<a href="#">Markov Processes and Percolation Theory</a>	15	List A
	MA3H5	<a href="#">Manifolds</a>	15	List A
	MA3H6	<a href="#">Algebraic Topology</a>	15	List A
	MA3H7	<a href="#">Control Theory</a>	15	List A
	MA3J3	<a href="#">Bifurcations, Catastrophes and Symmetry</a>	15	List A
	MA3J9	<a href="#">Historical Challenges in Mathematics</a>	15	List A
	MA3K1	<a href="#">Mathematics of Machine Learning</a>	15	List A
Term 3	MA209	<a href="#">Variational Principles</a>	6	List A

## Interdisciplinary Modules (IATL and GSD)

Second, third and fourth-year undergraduates from across the University faculties are now able to work together on one of IATL's 12-15 CAT interdisciplinary modules. These modules are designed to help students grasp abstract and complex ideas from a range of subjects, to synthesise these into a rounded intellectual and creative response, to understand the symbiotic potential of traditionally distinct disciplines, and to stimulate collaboration through group work and embodied learning.

Maths students can enrol on these modules as an Unusual Option, you can register for a maximum of TWO IATL modules but also be aware that on many numbers are limited and you need to register an interest before the end of the previous academic year. Contrary to this is GD305 Challenges of Climate Change, form filling is not required for this option, register in the regular way on MRM (this module is run by Global Sustainable Development from 2018 on).

Please see the [IATL page](#) for the full list of modules that you can choose from, for more information and how to be accepted onto them, but some suggestions are in the table below:

Term	Code	Module	CATS	List
Term 1	IL105	<a href="#">Applied Imagination</a>	12/15	Unusual
	GD305	<a href="#">Challenges of Climate Change</a>	15	Unusual

Term 2	IL108	<a href="#">Reinventing Education</a>	12/15	Unusual
	IL131	<a href="#">Serious Tabletop Game Design and Development</a>	12/15	Unusual
	IL116	<a href="#">The Science of Music</a>	7.5/15	Unusual
	IL123	<a href="#">Genetics: Science and Society</a>	12/15	Unusual

## Statistics Modules

Term	Code	Module	CATS	G100	G103
Term 1	ST226	<a href="#">Introduction to Mathematical Statistics</a> (from 2021 this this is new code for finalists taking ST220).	12	List B	List B
	ST222	<a href="#">Games, Decisions and Behaviour</a>	12	List B	List B
	ST301	<a href="#">Bayesian Statistics and Decision Theory</a>	15	List B	List B
	ST323	<a href="#">Multivariate Statistics</a>	15	List B	List B
	ST333	<a href="#">Applied Stochastic Processes</a>	15	List B	List B
	ST339	<a href="#">Mathematical Finance</a>	15	List A	List B
	ST407	<a href="#">Monte Carlo Methods</a>	15	List B	List B
Term 2	ST305	<a href="#">Designed Experiments</a>	15	List B	List B
	ST318	<a href="#">Probability Theory</a>	15	List A	List A
	ST332	<a href="#">Medical Statistics</a>	15	List B	List B
	ST343	<a href="#">Topics in Data Science</a>	15	List B	List B
	ST337	<a href="#">Bayesian Forecasting and Intervention</a>	15	List B	List B

## Economics Modules

The Economics 2nd and 3rd Year Handbook, which includes information on which modules will actually run during the academic year, is available from the [Economics web pages](#).

Term	Code	Module	CATS	List
Term 1	EC220	<a href="#">Mathematical Economics 1A</a>	15	List B but must have taken EC106 or EC107
Term 2	EC221	<a href="#">Mathematical Economics 1B</a>	15	List B but must have taken EC106 or EC107

## Computer Science

Term	Code	Module	CATS	G100	G103
Term 1	CS301	<a href="#">Complexity of Algorithms</a>	15	List A	List B
	CS324	<a href="#">Computer Graphics</a>	15	List B	List B
	CS325	<a href="#">Compiler Design</a>	15	List B	List B
	CS409	<a href="#">Algorithmic Game Theory</a>	15	List A	List B
Term 2	CS349	<a href="#">Principles of Programming Languages</a>	15	List B	List B
	CS356	<a href="#">Approximation and Randomised Algorithms</a>	15	List B	List B

## Physics

Term	Code	Module	CATS	G100	G103
------	------	--------	------	------	------

Term 1	PX382	<a href="#">Quantum Physics of Atoms</a>	7.5	List B	List B
	PX384	<a href="#">Electrodynamics</a>	7.5	List A	List B
	PX390	<a href="#">Scientific programming</a>	15	List A	List B
	PX392	<a href="#">Plasma Electrodynamics</a>	7.5	List A	List B
	PX397	<a href="#">Galaxies</a>	7.5	List B	List B
	PX408	<a href="#">Relativistic Quantum Mechanics</a>	7.5	List A	List C
	PX420	<a href="#">Solar Magnetohydrodynamics</a>	7.5	List A	List B
	PX425	<a href="#">High Performance Computing in Physics</a>	7.5	List A	List C
	PX430	<a href="#">Gauge Theories for Particle Physics</a>	7.5	List A	List C
	PX436	<a href="#">General Relativity</a>	15	List A	List C
Term 2	PX308	<a href="#">Physics in Medicine</a>	7.5	List B	List B
	PX366	<a href="#">Statistical Physics</a>	7.5	List A	List B
	PX387	<a href="#">Astro Physics</a>	15	List B	List B
	PX389	<a href="#">Cosmology</a>	7.5	List B	List B
	PX396	<a href="#">Nuclear Physics</a>	7.5	List B	List B

## Engineering

Term	Code	Module	CATS	G100	G103
Term 1	ES3C8	<a href="#">Systems Modelling and Control</a>	15	List A	List B

## Warwick Business School

Students wishing to take Business Studies options should preregister using the online module registration (OMR) in year two. If students wish to take an option for which they have not preregistered in year two they should register as early as possible *directly with the Business School* since occasionally the numbers of places on these modules is restricted. More information is available from Room E0.23, WBS. If you start a Business Studies module and then give it up, you *must* formally deregister with the module secretary. [Information for all WBS modules.](#)

You will need to register for modules through MRM and through myWBS. When registering with myWBS you will need to do this in the Spring of the previous academic year to ensure you have secured a place.

Term	Code	Module	CATS	List
Term 1	IB253	Principles of Finance I	15	List B
	IB313	Business Studies I	15	List B
Term 2	IB2C9	Principles of Entrepreneurship	15	List B
	IB254	Principles of Finance II	15	List B
	IB320	Simulation	15	List B

## Philosophy

Term	Code	Module	CATS	List
Term 1	PH210	<a href="#">Logic II: Metatheory</a>	15	List B
	PH373	<a href="#">The Philosophy of Time</a>	15	List B
Term 2	PH251	<a href="#">Metaphysics</a>	15	List B
	PH340	<a href="#">Logic III: Incompleteness and Undecidability</a>	15	List B

## Centre for Education Studies

Note: we advise students to take this module in their second year rather than third since the higher CAT version may involve teaching practice over the Easter vacation which may interfere with revision for final year modules examined immediately after that vacation.

Term	Code	Module	CATS	List
Term 2	EP304	<a href="#">Introduction to Secondary Maths Teaching</a>	15	List B
	EP304	<a href="#">Introduction to Secondary Maths Education</a>	30	List B

## Languages

The Language Centre offers academic modules in Arabic, Chinese, French, German, Japanese, Russian and Spanish at a wide range of levels. These modules are available for exam credit as unusual options to mathematicians in all years. Pick up a leaflet listing the modules from the Language Centre, on the ground floor of the Humanities Building by the Central Library. Full descriptions are available on request. Note that you may only take one language module (as an Unusual Option) for credit in each year. Language modules are available as whole year modules, or smaller term long modules. Both options are available to maths students. These modules may carry 24 (12) or 30 (15) CATS and that is the credit you get. We used to restrict maths students to 24 (12) if there was a choice, but we no longer do this.

**Note 3rd and 4th year students cannot take beginners level (level 1) Language modules.**

There is also an extensive and very popular programme of lifelong learning language classes provided by the centre to the local community, with discounted fees for Warwick students. Enrolment is from 9am on Wednesday of week 1. These classes do not count as credit towards your degree.

The Language Centre also offers audiovisual and computer self-access facilities, with appropriate material for individual study at various levels in Arabic, Chinese, Dutch, English, French, German, Greek, Italian, Portuguese, Russian and Spanish. (This kind of study may improve your mind, but it does not count for exam credit.)

A full module listing with descriptions is available on the Language Centre web pages.

### Important note for students who pre-register for Language Centre modules

It is essential that you confirm your module pre-registration by coming to the Language Centre as soon as you can during week one of the new academic year. If you do not confirm your registration, your place on the module cannot be guaranteed. If you decide, during the summer, NOT to study a language module and to change your registration details, please have the courtesy to inform the Language Centre of the amendment.

Information on languages modules can be found on the [Language Centre webpage](#)

## Objectives

After completing the third year of the BSc degree or MMath degree the students will have

- covered advanced material in mathematics, and studied some of it in depth
- achieved a level of mathematical maturity which has progressed from the skills expected in school mathematics to the understanding of abstract ideas and their applications
- developed
  1. investigative and analytical skills,
  2. the ability to formulate and solve concrete and abstract problems in a precise way, and
  3. the ability to present precise logical arguments
- been given the opportunity to develop other interests by taking options outside the Mathematics Department in all the years of their degree course.

---

## Course Regulations for Year 4

(<https://warwick.ac.uk/fac/sci/math/currentstudents/ughandbook/course/regulations/year4/>)

**Note: The modules below are for the current academic year only, it is not guaranteed that they will run next year, or in future years, due to their highly specialised nature.**

# MASTER OF MATHEMATICS MMATH G103 4th Years

Normal Load = 120 CATS. Maximum Load = 150 CATS.

Students are required to take at least 90 CATS from the Core plus Lists A, C and D and, in their third and fourth years combined, at least 105 CATS from the Core plus Lists C and D.

[For example, a typical MMath student might satisfy this last requirement by including two **List C** modules in their offering for Year 3, and then including MA4K8/9 Project and three other **List C** modules in their offering for Year 4.]

4th Year MMath students will not be allowed to take second year modules, except as unusual options and even then only with a valid reason for doing so.

[Direct link to MA4K8/9 Projects.](#)

Many **List A** Year 3 Mathematics modules have a support class timetabled in weeks 2 to 10. This is your opportunity to bring the examples you have been working on, to compare progress with fellow students, and where several people are stuck or confused by the same thing, to get guidance from the graduate student in charge. **List C** and **D** modules tend to have fewer students and support classes are less common; in these cases you are more than usually encouraged to discuss problems or concerns directly with the lecturer, either during or after lectures, or in office hours.

For a full list of available modules see the relevant course regulation page.

## Maths Modules

### Optional Modules - List A

As the Third year option List A for [G103 Mathematics](#) (not including MA395 Third Year Essay nor MA397 Consolidation) with the exception of second year modules (coded MA2xx for example).

**NOTE: MA3K4 Introduction to Group Theory is new for 2021/22, and there is significant overlap with MA442 Group Theory from 2020/21.** This module is available to 4th year students ONLY if MA442 has not been taken previously, it must be registered as an Unusual Option and the "paperwork" submitted so we eligibility can be checked. It will still be counted as a List A module.

### Optional Modules - List B

As the Third Year option List B for [G103 Mathematics](#) with the exception of second year modules (coded MA2xx for example).

### Optional Modules - List C and D:

Term	Code	Module	CATS	List
Term 1	MA424	<a href="#">Dynamical Systems</a>	15	List C
	MA426	<a href="#">Elliptic Curves</a>	15	List C
	MA433	<a href="#">Fourier Analysis</a>	15	List C
	MA475	<a href="#">Riemann Surfaces</a>	15	List C
	MA4A2	<a href="#">Advanced PDEs</a>	15	List C
	MA4A5	<a href="#">Algebraic Geometry</a>	15	List C
	MA4C0	<a href="#">Differential Geometry</a>	15	List C
	MA4E0	<a href="#">Lie Groups</a>	15	List C
	MA4F7	<a href="#">Brownian Motion</a>	15	List C
	MA4H0	<a href="#">Applied Dynamical Systems</a>	15	List C
	MA4H4	<a href="#">Geometric Group Theory</a>	15	List C
	MA4J1	<a href="#">Continuum Mechanics</a>	15	List C

	MA4J3	<a href="#">Graph Theory</a>	15	List C
	MA4J5	<a href="#">Structures of Complex Systems</a>	15	List C
	MA4J8	<a href="#">Commutative Algebra II</a>	15	List C
	MA4L6	<a href="#">Analytic Number Theory</a>	15	List C
	PX408	<a href="#">Relativistic Quantum Mechanics</a>	7.5	List C
	PX425	<a href="#">High Performance Computing in Physics</a>	7.5	List C
	PX430	<a href="#">Gauge Theories for Particle Physics</a>	7.5	List C
	PX436	<a href="#">General Relativity</a>	15	List C
Terms 1 & 2	MA4K8 MA4K9	<a href="#">Projects (Research/Maths in Action)</a>	30	Core
	MA472	<a href="#">Reading Module</a>	15	List C
Term 2	MA427	<a href="#">Ergodic Theory</a>	15	List C
	MA448	<a href="#">Hyperbolic Geometry</a>	15	List C
	MA453	<a href="#">Lie Algebras</a>	15	List C
	MA473	<a href="#">Reflection Groups</a>	15	List C
	MA482	<a href="#">Stochastic Analysis</a>	15	List C
	MA4A7	<a href="#">Quantum Mechanics: Basic Principles and Probabilistic Methods</a>	15	List C
	MA4E7	<a href="#">Population Dynamics: Ecology and Epidemiology</a>	15	List C
	MA4H9	<a href="#">Modular Forms</a>	15	List C
	MA4J0	<a href="#">Advanced Real Analysis</a>	15	List C
	MA4J7	<a href="#">Cohomology and Poincare Duality</a>	15	List C
	MA4L0	<a href="#">Advanced Topics in Fluids</a>	15	List C
	MA4L2	<a href="#">Statistical Mechanics</a>	15	List C
	MA4L7	<a href="#">Algebraic Curves</a>	15	List C
	MA4M1	<a href="#">Epidemiology by Example</a>	15	List C
	MA4M2	<a href="#">Mathematics of Inverse Problems</a>	15	List C
	MA4M3	<a href="#">Local Fields</a>	15	List C
MA4M4	<a href="#">Topics in Complexity Science</a>	15	List C	

## Common Unusual Options

Term	Code	Module	CATS	List
Terms 1/2	STxxx	<a href="#">ST4 modules offered by the Statistics Department</a> (note ST401, ST402 and ST404 are <b>only</b> available to Statistics Students and ST407 is List B).	15 or 18	Unusual Option

## Interdisciplinary Modules (IATL and GSD)

Second, third and fourth-year undergraduates from across the University faculties are now able to work together on one of IATL's 12-15 CAT interdisciplinary modules. These modules are designed to help students grasp abstract and complex ideas from a range of subjects, to synthesise these into a rounded intellectual and creative response, to understand the symbiotic potential of traditionally distinct disciplines, and to stimulate collaboration through group work and embodied learning.

Maths students can enrol on these modules as an Unusual Option, you can register for a maximum of TWO IATL modules but also be aware that on many numbers are limited and you need to register an interest before the end of the previous academic year. Contrary to this is GD305 Challenges of Climate Change, form filling is not required for this option, register in the regular way on MRM (this module is run by Global Sustainable Development from 2018 on).

Please see the [IATL page](#) for the full list of modules that you can choose from, for more information and how to be accepted onto them, but some suggestions are in the table below:

Term	Code	Module	CATS	List
Term 1	IL105	<a href="#">Applied Imagination</a>	12/15	Unusual
	GD305	<a href="#">Challenges of Climate Change</a>	15	Unusual
Term 2	IL108	<a href="#">Reinventing Education</a>	12/15	Unusual
	IL131	<a href="#">Serious Tabletop Game Design and Development</a>	12/15	Unusual
	IL116	<a href="#">The Science of Music</a>	7.5/15	Unusual
	IL123	<a href="#">Genetics: Science and Society</a>	12/15	Unusual

## Languages

The Language Centre offers academic modules in Arabic, Chinese, French, German, Japanese, Russian and Spanish at a wide range of levels. These modules are available for exam credit as unusual options to mathematicians in all years. Pick up a leaflet listing the modules from the Language Centre, on the ground floor of the Humanities Building by the Central Library. Full descriptions are available on request. Note that you may only take one language module (as an Unusual Option) for credit in each year. Language modules are available as whole year modules, or smaller term long modules; both options are available to maths students. These modules may carry 24 (12) or 30 (15) CATS and that is the credit you get. We used to restrict maths students to 24 (12) if there was a choice, but we no longer do this.

**Note: 3rd and 4th year students cannot take beginners level (level 1) Language modules.**

There is also an extensive and very popular programme of lifelong learning language classes provided by the centre to the local community, with discounted fees for Warwick students. Enrolment is from 9am on Wednesday of week 1. These classes do not count as credit towards your degree.

The Language Centre also offers audiovisual and computer self-access facilities, with appropriate material for individual study at various levels in Arabic, Chinese, Dutch, English, French, German, Greek, Italian, Portuguese, Russian and Spanish. (This kind of study may improve your mind, but it does not count for exam credit.)

A full module listing with descriptions is available on the Language Centre web pages.

**Important note for students who pre-register for Language Centre modules**

It is essential that you confirm your module pre-registration by coming to the Language Centre as soon as you can during week one of the new academic year. If you do not confirm your registration, your place on the module cannot be guaranteed. If you decide, during the summer, NOT to study a language module and to change your registration details, please have the courtesy to inform the Language Centre of the amendment.

[Information on modules can be found at the Language Centre page](#)

## Objectives

After completing the fourth year of the MMath degree the students will have

- covered advanced mathematics in greater depth and/or breadth, and be in a position to decide whether they wish to undertake research in mathematics, and to ascertain whether they have the ability to do so
- achieved a level of mathematical maturity which has progressed from the skills expected in school mathematics to the understanding of abstract ideas and their applications
- developed

- investigative and analytical skills,
  - the ability to formulate and solve concrete and abstract problems in a precise way, and
  - the ability to present precise logical arguments
- been given the opportunity to develop other interests by taking options outside the Mathematics Department in all the years of their degree course.

---

## General Advice to First Year Students

(<https://warwick.ac.uk/fac/sci/maths/currentstudents/ughandbook/course/regulations/year1additional/>)

As described in the "General" section, first-year Mathematics students get regular supervisions in groups in Terms 1 and 2, and the first 6 weeks of Term 3, in groups (normally of five) which are assigned at the start of the year. Personal tutors are available to answer questions about the course, individual modules, or anything else within reason.

**Your A level background.** There are many different A level syllabuses, with wide variations from one exam board to another, and from one selection of modules to another; in addition, not all schools teach the entire syllabus. Thus, some students may have missed out on some material which is needed for degree work, or may only have covered some topics skimpily and without adequate practice.

For the success of your career at Warwick, it is most important that you know these topics inside out, and are able to work with them fluently, confidently, and rapidly, even in the new and sometimes unexpected contexts of university maths. In the middle of a complicated argument, a lecturer may well simply assume that you can handle this kind of stuff easily and transparently, and lack of this ability may be a serious impediment to getting the most out of the course. Before you arrive you should have attempted the Refresher Mathematics module, [MA1K2](#), to make sure that you are up to date and proficient in the material that you need to know. This module will appear on your registrations, but does not count for any credit towards your degree.

**Tutorials.** Every student has a personal tutor, with whom they will (where possible) remain throughout their degree. Tutors usually see their first-year students in groups of five once every two weeks, though students can see their tutors individually, in principle, as often as they want. The aim of the regular meetings is to find out how the students are getting on, and to provide extra help where needed. At the start of the year, your tutor can also help you to choose your optional modules.

The relationship between student and tutor is an important one. Your tutor is there to help you not only with mathematical difficulties, but also with other problems that may arise: difficulties in settling down to a steady programme of study, noisy neighbours in the Halls of Residence, how to catch up after an absence through illness, etc. etc. He or she also plays an important role after examinations at the end of each year. For example, if your marks are lower than they should be because you were unwell during your exams, they can give you advice and in the case of mitigating circumstances provide secondary evidence for the exam board (you must always provide primary evidence from third party professionals such as doctors or counsellors). Of course, this can only happen if he or she knows you and has a good idea of your ability. See also the section on [Mitigation](#).

## First year Core and List A options

The Warwick course regulations and our options scheme is listed elsewhere, but the 8 core modules (shared by all students in the Mathematics Department) add up to 90 CATS:

### Core

<a href="#">MA106 Linear Algebra</a>	12 CATS
<a href="#">MA133 Differential Equations</a>	12 CATS
<a href="#">MA124 Mathematics by Computer</a>	6 CATS
<a href="#">MA134 Geometry and Motion</a>	12 CATS
<a href="#">MA132 Foundations</a>	12 CATS
<a href="#">MA136 Introduction to Abstract Algebra</a>	6 CATS
<a href="#">MA131 Analysis</a>	24 CATS
ST111 Probability A	6 CATS

### List A

ST112 Probability B	6 CATS
---------------------	--------

We recommend students to take as many of the List A options as possible during their degrees, for the sake of flexibility with maths modules in future years. ST112 Probability B is a prerequisite for most second and third year Statistics options, and is either a prerequisite or recommended for many courses in Economics and Business Studies. Students on joint degree courses have additional core modules.

---

## Joint Degrees

(<https://warwick.ac.uk/fac/sci/maths/currentstudents/ughandbook/course/joint/>)

Two joint courses are available within Mathematics, leading to joint degrees in Mathematics and Business Studies, or Economics. Students taking such a course follow the first year of the Mathematics course and then transfer to their second department at a later stage. Such a transfer is always subject to the permission of the other department involved, even for students already registered on a joint degree.

*How to transfer:* Every undergraduate student in the Mathematics Department is registered on one of the degree courses: Mathematics, MMath, Mathematics and Business Studies (Year 1 or 2) or Mathematics and Economics (Year 1 or 2), or one of these with Intercalated Year. To change your registration contact the Undergraduate Office, Room BO.02, and they can initiate the transfer for you or follow the links on e-vision. Do this by June or at any rate July to take effect in October. If you are registered for a joint degree you must still complete this process when the time comes to change to the other department. If you wish to change your registration during a year the paperwork must normally be completed by Week 2 of Term 2. Note that all transfers are subject to the permission of the Director of Undergraduate Studies, it is not an automatic right. You should also make sure that you have obtained advice on any visa/financial implications of transferring where appropriate.

See more details on the [transfers page](#).

The joint degree courses are as follows. See also the Prospectus and the Course Regulations.

## Mathematics and Business Studies (BSc)

G1NC Math/Bus

The first two years are in common with the Mathematics degree. Permission to transfer to the Warwick Business School at the end of the second year is subject to an interview with the Business School and an overall honours performance in the second year, with at least a second class mark (50%) in an IB coded module given by the Business School. Although only one of these two modules is required for transfer, students who take other Business School modules, notably IB132 Foundations of Finance, will find the range of available options in Year 3 is improved.

## Mathematics and Economics (BSc)

GL11 Maths/Econ

This course provides a training in modern economics for students with mathematical aptitude. It allows students to apply their mathematics skills in ways different from the conventional applications to the physical sciences. It can lead on to careers in industry, government, or postgraduate work and academic teaching and research.

For details of the course and modules, students should consult the [Economics department handbook](#).

Year 1 of the course is the same as the first year of the Mathematics BSc (G100) except that EC107 Economics 1 and ST112 Probability B must be taken.

Year 2 core consists of 60 CATS of Mathematics and 60 CATS of Economics. The Economics modules are EC204 Economics 2 (30 CATS), plus either EC226 Econometrics 1 (30 CATS) or EC220/221 Mathematical Economics 1a and 1b (30 CATS). The Mathematics modules are MA251 Algebra I, MA244 Analysis III, MA259 Multivariable Calculus, MA260 Norms, Metrics and Topologies, plus 12 CATS from option list A for the second year of the Mathematics BSc (G100). Students taking EC226 as a core module should consider, as recommended options, ST202 Stochastic Processes and/or ST213 Mathematics of Random Events. Students taking EC220/1 as a core module should consider MA209 Variational Principles.

Students are considered by the Economics second year exam board and then transfer to the Department of Economics for their third year. For further information look at the Economics handbook, noting in particular that third year GL11 students are not permitted to overcat, and are not allowed to take any first year modules as unusual.

## Other Mathematical Joint Degrees

For interested Mathematics students we describe here joint degrees in the Departments of Philosophy, Computer Science, Physics or Statistics.

## Mathematics and Philosophy (BA or BSc)

GV17 Maths/Phil

Students join via the Department of Philosophy. Students in the first year must take the modules PH136 Logic 1: Introduction to Symbolic Logic (15 CATS) and PH142 Central Themes in Philosophy (15 CATS) in addition to core maths modules. Transfers are at the discretion of the Philosophy Department.

## Discrete Mathematics (BSc)

G4G1 Discrete Maths

Students on this degree are members of the Department of Computer Science. In the [Discrete Maths](#) course students take a mixture of Mathematics and Computer Science modules including the modules CS136 Discrete Mathematics and its Applications 1 and CS137 Discrete Mathematics and its Applications 2. CS137 is available to Mathematics students as an option, due to the entrance requirements of Mathematics students MA132 is considered the only prerequisite for this module and CS136 cannot be taken. Students interested in transferring to this degree course should contact the Department of Computer Science. Transfers are at the discretion of the Computer Science department.

## Mathematics and Physics (BSc)

GF13 Maths Phys

The arrangements for this joint degree are different from the others, because it aims to provide approximately 50% maths and 50% physics in each year of study. Details of the first year modules can be found on the [Physics department website](#). Students wishing to follow this joint degree *must choose to do so in the first two weeks of the first year*. Transfer to single subject maths, or physics at the end of the first year is subject to the approval of the department

concerned. For further details consult the Physics Department.

## Mathematics and Statistics (BSc)

## GG13 Maths/Stats

Students on this course are normally in the Department of Statistics. However, transfer to this degree is possible after the first or second year, provided that appropriate options in Statistics have been taken.

*Syllabus:* The compulsory modules in the second year are MA257 Mathematical Analysis III, ST213 Mathematics of Random Events, MA260 Norms, Metrics and Topologies, ST208 Mathematical Methods, ST202 Stochastic Processes, ST2178/9 Mathematical Statistics A+B, ST221 Linear Statistical Models.

In addition, options may be selected from those available to second year Mathematics students and ST204 Essay or Project. The normal load is 120 CATS. In the third year at least 60 CATS of third year modules given by the Department of Statistics must be taken. Options may be selected from those available to third year maths students, and the normal load is 120 CATS.

See the [Statistics Department's handbooks](#) for more details.

## MORSE (BSc)

## Y602 MORSE

This degree course in Mathematics, Operations Research, Statistics and Economics is administered by the Statistics Department, with the collaboration of the Departments of Economics, Business Studies and Mathematics. Students interested in transferring to this joint degree should include the following amongst their options

EC106 Introduction to Quantitative Economics (24 CATS, Terms 1-2);

IB104 Mathematical Programming I (12 CATS, Term 3).

This would allow transfer into the second year of MORSE, which consists of roughly equal proportions from the four participating departments (Statistics, Economics, Business Studies and Mathematics). See the [Statistics Department's handbooks](#) for more details.

Year 1 regs and modules  
G100 G103 GL11 G1NC

Year 2 regs and modules  
G100 G103 GL11 G1NC

Year 3 regs and modules  
G100 G103

Year 4 regs and modules  
G103

Exam information  
Core module averages

---

## Registration, Exams and Assessment

(<https://warwick.ac.uk/fac/sci/math/currentstudents/ughandbook/course/assessment/>)

## Examinations

Mathematics students take most of their university examinations in Term 3 of each academic year. The scripts are marked, and, together with the marks for assessed work, the marks are processed to produce an end of year each overall percentage for each student (taking a subset of marks, that fulfils regulations, to achieve the best outcome). An examination board for each year makes recommendations and decisions based on these marks and other information. This section aims to inform students of the procedures used by the Mathematics Department and their effect.

## Mitigating Circumstances

If your examinations, or revisions for examinations, have been affected by illness or other extenuating circumstances or you wish to appeal against an exam board decision, please refer to the departments [Mitigating Circumstances and Appeals document](#) which is also emailed to all maths students and posted around the department during the Examination period.

## Assessed Work

Most science modules at Warwick are assessed by written examination in Term 3 (although some examinations take place earlier) and an increasing number now have an assessed component too. A small number are assessed entirely by coursework. For example, the computing option MA117 Programming for Scientists is entirely assessed.

## Deadline enforcement

Assessed work usually comes with a deadline for completion; this is essential in fairness to all students doing the work, and to make the markers' job feasible (we also often release solutions as soon as the deadline has passed for students and supervisors to access). For small pieces of work (e.g. work marked by supervisors or TAs) the deadline is absolute; if you are late it will still be marked for feedback but you will score 0. This rule is absolute and you cannot argue for an exception. If you have a legitimate reason for handing in late you can submit mitigation which can be considered for waiving the piece of work.

For more substantial projects or essays (worth more than 2 CATS) the Mathematics Department enforces deadlines according to the standard University rule: credit for the piece of work to be submitted is automatically decreased by 5 percentage points per day by which the work is late. Deadlines are usually at noon midweek. Thus if the deadline is at **noon** on a Wednesday and you do not get your work into the Department Office until 12.30 on Wednesday, your mark for that piece of work will be reduced by 5 percentage points (e.g. a mark of 65% will be reduced to 60%). University rules require 5 percentage points to be deducted for every working day work is submitted in excess of the deadline.

NOTE: for Term 1 2020/21 the late penalty for small pieces of work was temporarily adjusted from this to allow for the move to online submissions.

**Essentially, there is no reason for leaving submission to the last minute, especially now most work is submitted online. Make sure you plan to submit well before each deadline.**

## (Pre-)Registration and Deregistration

Registering and deregistering is done on-line via the University's module registration system (for students this is eVision) - see the link from the undergraduate web pages. Core, List A and list B options will be approved immediately on line. For unusual options you must register on-line and also fill in the [unusual option form](#).

Each student is required to make a preliminary registration (or *pre-registration*) in advance for modules he or she wishes to take. Students pre-register for the first time in Term 1, before the end of Week 3. The university uses data from pre-registration during the year to assess demand for particular modules and to assist in timetabling.

You have several opportunities to fine-tune your current selection of modules: there are registration sessions in Term 1, (until week 3) and Term 2 (again, until week 3) at which you can add or remove modules. For the final opportunity to deregister, see below.

All students (but especially those who scored less than 55% last year) are encouraged to discuss their choice of modules with their tutor. Where a low-scoring student submits an ambitious registration the Department may require further such discussion with a view to focusing the student's attention on a manageable programme.

Deregistration: You may deregister from an optional module, up to the deadline:

End of the last week of Term 2 for modules examined in April,

A further deadline over the Easter Vacation for modules examined in May/June, usually the last week of that vacation. Please keep an eye on your emails for the exact dates.

The Academic Office will not accept deregistration beyond the deadline except on medical or compassionate grounds approved by the department's Director of Undergraduate Studies (this rule is agreed with other university departments, and we enforce it strictly.)

Note, you may not be allowed to deregister from a module for which you have submitted (or should have submitted) work counting for more than 10% of the credit for that module. This is particularly true for modules from departments other than Mathematics, and, in particular, **if an exam occurs after deregistration has closed you will almost certainly have to sit that exam and have it count**. For Maths modules we tend to be more relaxed about this rule and allow deregistrations even after a typical 15% of assessed work has been completed.

## Taking the Examinations

Most University examinations take place in Term 3. Information on timetables, which are created by the Examinations team at the University, is available on the [Exams](#) web pages. Personalised timetables are made available shortly after the main timetable is released. Please note that you should not organise your revision on the basis of any provisional version of the timetable that is made available, as this will be subject to change.

Third year and fourth year modules taught in Term 1 and the second year modules Algebra I, Analysis III, Combinatorics Geometry and Vector Analysis are examined in the first week of Term 3.

Examinations (in non-Covid times) are held in many locations across campus, e.g. Rootes Hall, Panorama Room and in the Arts Centre, Butterworth Hall, and in a number of other venues such as the Desso Hall in the Sports Centre (now the Junction), Westwood Sports Hall and the Oculus. It's your responsibility to find out when and where the examination takes place; if you forget to go to an examination, your score is automatically zero.

In 2019/20 and 2020/21 all exams were moved online due to Covid. All Mathematics exams post January 2022, as well as some other exams from partner departments, in 2021/22 will be held in-person. January exams are expected to remain online.

*Use of Calculators:* Programmable and graphics calculators are prohibited in all examinations. Moreover the default position is that **NO calculators** are allowed in Mathematics exams, unless the lecturer has specifically requested that they be allowed for the module that they are teaching, and then the only calculators permitted are those with a display consisting of a single row of digits.

Calculators are also not permitted in any tests organised by the Mathematics Department unless you are explicitly told otherwise. Calculators with a display consisting of a single row of digits are permitted in exams run by other Departments (for example Statistics and Physics).

## The Examination Boards and Degree Classes

The first year board is currently a department Board for the Summer examinations, but then meets as a committee of the Faculty of Science, which considers maths students together with other science students, in September to consider the results of the resit examinations. The first year examination board in September allocates to each student a pass or a requirement to withdraw. The department informally also awards an honours class, mainly as a guideline for students and their tutors; the final classification of your degree will, of course, depend on your performance in all your years of study. The second year board is an internal Mathematics Department committee. It does not allocate an honours class or pass but it can require a student to resit in the next available examination period (see the section below on resits). The Finals (third and fourth year) board is a Mathematics Department committee plus external examiners from other Warwick science departments and other universities, who are there to ensure fair play and to see that academic standards are maintained. This board recommends the award of Mathematics degrees (but not Joint degrees) to the university according to the university's conventions which can be found under [Assessment Conventions](#).

Advice on how end of year averages are calculated for the 3rd and 4th year of the MMath can be [found here](#).

The Finals Board implements the university's conventions according to the [Mathematics Finals Examination Board Procedures](#) (this is the 2021/22 version).

## Results

Examination results are currently released through Tabula, at dates determined at University level so all students of a year receive their results at the same time. The exact dates can vary, so please see the University's [Examinations page](#) for details. We will distribute dates within these pages once they have been confirmed.

Examination results for finalists are usually released the earliest in order to feed into graduation arrangements. The classification you will receive (Pass Degree, or Honours Class III, II.1, II.2, or I) is that of the overall degree performance. In the second year you are classified as "Proceed to honours" or "Resit" (although your tutor may give you an unofficial classification based purely on your end of year average for the purposes of references etc.)

First and second year students are listed on Tabula with either progression confirmation or a note of which exams will need to be passed on resit in order to progress, this will normally happen once Term has finished. Students who are required to resit exams will also be sent a separate email from the examinations office with details.

Results will not be given to anyone else, even if they have been given permission to by you.

**Appeals:** A student dissatisfied with the class awarded by the finals examination board may appeal through his/her Personal Tutor to the Chair of the Mathematics Department. Such an appeal must be based on information not available to the examination board (for example, a serious error of arithmetic, or a medical note made available to the Department but not passed on to the examination board). If you have cumulative credit 58.6% in your final year and think you deserve a II.1, then you can be quite sure that the examination board has already seriously discussed the merits of your case. Appeals may also be made to the University in certain circumstances - see [Regulation 8.12](#) in the University Calendar.

As described in the University Regulations, a student required to withdraw has the right to appeal formally to the Appeals Committee of the Board of the Faculty, in writing, within 10 days of the publication of the examination results.

See the [Appeals Section](#) of the University Examination pages for more advice on procedures.

## Resits for failed students

### **First year:**

The first year examination board requires first year students with inadequate performance in the June examinations to resit certain papers in September. The intention of the resits is to ensure that students are adequately prepared for second year work. For each module the honours mark is 40%, and students may be required to resit any module in which an honours mark is not attained. Resits are normally required only in the Core modules (in fact usually a subset of the core, designated as "required cores"). Consideration of individual cases can be complicated, but essentially the overall performance of the candidate is crucial, in both the June and September exams. For exams being resat as a final attempt it is the exam mark that is used for decisions, it is not recombined with previous assessed work or examination marks, so 40% must be achieved in each exam being resat, and a capped mark of 40% is carried forward if a module is passed on resit. For a student resitting as a further first attempt (e.g. due to mitigating circumstances) then the exam mark is recombined with other assessed components and the actual mark obtained is carried forward.

The required cores for Maths, which must be passed either initially or as a resit, are MA106 Linear Algebra, MA131 Analysis, MA133 Differential Equations and MA134 Geometry and Motion. Maths and Economics students (GL11) need to, in addition, pass EC107. In addition an overall 40% must be achieved for the year, and at least 90 CATS of modules passed.

Details of which papers students are required to resit are sent in July to the official Warwick email address of the student, as well as being updated on Tabula.

In cases of extremely poor performance in the June examinations, there may be a recommendation to withdraw from the University. Our experience is that students performing at this level have very little chance of success, and encouraging withdrawal may be kinder than raising false hopes. However, *it is only a recommendation*, and a student in this position has a right to resit the examinations in September.

The two possible outcomes of the September resits are:

"Permitted to proceed to the second year of an honours degree course"

or "Required to withdraw".

For the student who continues, the credit carried forward comes from the marks in the June examinations (but with failed modules subsequently passed awarded 40%) and not the September resit mark. (the first year accounts for 10% of the cumulative credit for the degree.)

For students who are "required to withdraw" there is the possibility of an appeal on limited grounds, and [this form](#) should be read carefully and used to submit a case if appropriate.

Decisions must be made on the basis of the University's [First Year Board of Examiners' Conventions](#).

If you have disappointing results, or asked to undertake resit exams, you should discuss this with your Personal Tutor.

### **Second year:**

A student who fails the second year examinations has the right to resit some/all of the failed modules, in the next available exam session for those modules, as chosen by the exam board. This will sometimes mean a whole year out of residence and resitting exams in April and June of the following year, but more likely in September following the initial attempts. Again it is the exam mark of the resit that must be above 40% to be considered a pass. The mark carried forward for cumulative credit is that obtained at the first attempt (but with failed modules subsequently passed awarded 40%); therefore the function of the resit is to ensure that the student knows enough to cope with third year modules.

Students can currently still continue into the third year without resit, even if they have failed a couple of core modules, provided that their overall average is above 40% and that they have passed at least 60 CATS of modules (at the 40% level). This will be raised to 90 CATS of modules for students commencing their studies in 2021/22. Please see the [Second Year Exam Board page](#) for more information.

**A student who has been asked to resit exams cannot formally appeal against this decision, but, as usual, if there are mitigating circumstances that you should have made us aware of, but didn't, then you should contact the Undergraduate Office as soon as you can.**

The University regulations on this can be found here:

<http://www2.warwick.ac.uk/services/academicoffice/quality/categories/examinations/conventions/ugprogression09/>

### **Third year:**

A student who fails the final year examinations has the right to resit failed modules, designated by the exam board, in next available exam period for those modules in an attempt to obtain a pass degree, usually in September but sometimes this may mean without residence at the University. In this case, special papers will be set whenever module changes from one year to the next make this necessary.

## **The Pass Degree and intermediate years**

From 2015 intermediate year students can no longer be placed on a "Pass Degree" by the first or second year exam boards (although a pass degree can still be awarded to final year students who have not done enough to be awarded a 3rd class honours degree). Previously being on a pass degree meant that students followed a reduced load (with the option of being allowed by the department to increase this to a normal load under certain circumstances). Final

year students on a pass load were also required to take MA397 Consolidation, a 7.5 CAT module with additional support to go over first and second year core material.

Now, students who do sufficiently well to be allowed to continue into the third year, but with marks that suggest they will struggle (so typically an overall average near 40% and several failed core second year modules) will be offered (and encouraged) to take MA397 Consolidation and will not be allowed to overcat (i.e. be restricted to 120 CATS, or at the discretion of the Director of Undergraduate Studies be allowed to go over this figure by a small number of CATS).

## Prizes

Undergraduate prizes will be awarded for outstanding academic achievement. They will be judged by the appropriate Examination Boards that meet in the last week of the Summer Term.

*Mathematics Department Prizes:* Normally six prizes of £100 each will be awarded, two to second-year undergraduates, two to BSc finalists and two to MMath finalists. The criteria of merit will be broadly interpreted and may include a distinguished project or essay as well as an outstanding examination performance. The prizes may be shared and the prize money may be divided in other ways.

Year 1 regs and modules  
G100 G103 GL11 G1NC

Year 2 regs and modules  
G100 G103 GL11 G1NC

Year 3 regs and modules  
G100 G103

Year 4 regs and modules  
G103

Exam information  
Core module averages

---

## Mitigating Circumstances

(<https://warwick.ac.uk/fac/sci/math/currentstudents/ughandbook/course/assessment/mitigating/>)

**Please note, that for intermediate years (non-finalists) formal appeals can only be made against being required to withdraw: appeals cannot be made over classifications, or over being asked to resit exams (either in September or without residence).\***

[University mitigating circumstances page](#)

## Mitigating Circumstances and Appeals

Students are reminded that they must draw the Department's attention to any circumstances which they feel may have affected their academic performance. Examples are: illness of yourself; serious illness of a close friend or relative, resulting in a significant impact on your studies; death of a close friend or relative; extreme family situations leading to stress; extreme financial circumstances leading to stress; any other factor that has a serious and significant impact on your academic performance.

Students should inform the Taught Programme Manager for Department of Mathematics (via the Undergraduate Office) of any circumstances which they feel should be taken into account by the appropriate board of examiners. Alternative, you may wish to speak to your Personal Tutor, Year Tutor, or the Senior Tutor (Richard Sharp).

From the 2019/20 academic year onward submission of Mitigating Circumstances forms is via an online workflow in Tabula from your personal page; <https://tabula.warwick.ac.uk/profiles/view/me/personlacircs>. Information on how to use the portal is available [here](#). **The deadline for the submission of mitigating circumstances forms is midday on Friday 10th June 2022, but mitigation for assessed work should be submitted by Monday 23rd May 2022.**

The form must be accompanied by appropriate evidence which should be third party independent confirmation of the circumstances. This may include an original medical certificate; copy of a death certificate; a letter from the University Counselling Service; and original bank statements. Please submit your mitigating Circumstances form as soon as possible- supporting evidence can be submitted later, although please make sure you provide this as soon as it

becomes available and at least two weeks before the appropriate examiners' meeting.

Students should note that a future appeal may be prejudiced if they did not bring mitigating circumstances (together with supporting documentation) to the attention of the Department at the correct time.

The Department does recognise that, in a case where the mitigating circumstances are extreme and/or of a very personal nature, a student may not wish to divulge details of these unnecessarily. Nevertheless, if there is any possibility that they may be cited in an appeal, one of the official channels (tutor, Senior Tutor, University Counselling Service) must be informed of their existence within the timescale outlined above.

## Appeals

Formal appeals against decisions of Boards of Examiners must be made through the Examination Section of the Academic Office within a specified short period immediately following the release of examination results. Students may appeal on one of the following grounds:

- (a) the student is in possession of evidence relevant to his/her examination performance which was not available to the Board of Examiners when its decision was reached and can provide good reasons for not having made the Board of Examiners aware of this evidence;
- (b) there appears to have been procedural irregularities in the conduct of the examination process;
- (c) there appears to be evidence of prejudice or bias on the part of one or more of the examiners.

There is no appeal against the academic judgement of Boards of Examiners on a student's academic performance.

Appeals can often be settled informally within the Department and you should make your grounds for appeal known to the Head of Department (John Greenlees), the Senior Examination Secretary (Richard Sharpe) or the Undergraduate Office as soon as possible after the release of results (without prejudicing your right to a formal appeal on the grounds set out above).

An appeal form can be downloaded from:

<https://warwick.ac.uk/services/academicoffice/examinations/students/appeals/>

*\*First-year and intermediate-year undergraduate students have the right to appeal only against a decision that they be required to withdraw from their course of study, and then only if they are in possession of relevant evidence which was not available to the Board of Examiners when its decision was reached. An appeal will not be considered if both the Chair of the Board of Examiners and the Chair of the Appeals Committee consider that no such relevant evidence has been presented by the student. Please refer to the appropriate section of Regulation 8 for your degree in the University Calendar (University Regulations) for further information. You are required to complete a form if you wish to appeal. This form, which includes contact details for advice on appeal procedures, is available here. This form is for first-year and intermediate-year students only. Appeals by first- and intermediate-year students under Regulation 8 are administered by the Faculty Secretariat of the appropriate Faculty Board (see the appeal form for further details and faculty contacts). An appeal must be lodged in writing within 10 days of the publication of the exam results.*

*NB The appeal procedures may not be used to challenge the academic judgement of examiners nor to dispute marks awarded in individual modules or pieces of work.*

Extenuating or mitigating circumstances are those events which have had a detrimental effect on your study, to the point that it is in your interest to draw your department's attention to them and ask for them to be considered in mitigation of poor performance. Such circumstances include (but are not limited to) illness, both bodily and emotional; the severe illness or death of a close family member; a shocking or traumatic personal experience. In addition, sudden, unexpected changes in family circumstances might affect your ability to make academic progress as a consequence of their demonstrable emotional impact upon you, and may also be considered as mitigation.

The University is aware that in some cultures it is considered shameful or embarrassing to disclose the details of these kinds of circumstances to those outside one's family. This is not the case in the prevailing UK culture and you should be aware that your department and the University are fully supportive of students in difficult circumstances and want to assist if at all possible. If you feel inhibited from talking to a tutor or other member of staff in the first instance, you may also consider talking to a member of your SSLC, the Students' Union, or a counsellor for initial, informal advice.

Clearly, though, in order for your circumstances to be considered as mitigating by your department, they must be conveyed formally to someone in your department (a tutor, the Director of Graduate/Undergraduate Studies, a course/module convenor, for instance). The University expects that you will discuss your circumstances before Exam Boards meet, so that they may be taken into account in good time. You should be aware that, in the event you feel you need to appeal the outcome of an Exam Board, offering extenuating or mitigating circumstances at that point will need to be accompanied by a good reason why you withheld the information earlier. Without wanting to invade your privacy, the University does expect that you bring such circumstances to your department's attention in a timely manner, despite the discomfort you might feel in so doing. Failure to disclose such circumstances at a time when you could have done so may subsequently be problematic. Your department will do all it can to support you in difficult situations.

(<https://warwick.ac.uk/fac/sci/math/currentstudents/ughandbook/course/assessment/1styearresults/>)

*Note that if there are extenuating circumstances (e.g. medical) that you have informed us about then these are taken into account in the decisions below. It is unusual to use such information to alter the carry forward Seymour, but all notes on file are carried forward to the finals exam board in case the second year Seymour would have an adverse effect on a final degree classification, and in serious cases the Board can make recommendations to the final exam board on how to treat the second year Seymour.*

First year exam results are considered by an Internal Exam Board on the Monday of Week 10, and then taken to the Sub-Faculty of Science First Year Board of Examiners. Once this meeting has taken place, first years are allowed to collect their results from their Personal Tutor (usually at 2pm in Thursday).

## Decisions of the Exam Board

The exam board can (informally) award a classification for the first year (1st, 2.1, 2.2 or a 3) or ask you to retake some of the exams in September as a resit. You must pass the 4 required cores (Analysis, Linear Algebra, Differential Equations and Geometry and Motion) in order to proceed into the second year as well as obtaining an overall 40% for the year and passing at least 80 CATS of modules at 40%. Joint degree students must, in addition, pass EC107 (GL11 Maths and Economics).

Those resitting exams in September will either be allowed to proceed to honours or will be required to withdraw depending on whether they reach these targets.

If a module is failed in June and passed on resit, a bare pass mark of 40% is carried forward and used to calculate the first year score that will be used in future years.

Sometimes, if there are extenuating circumstances in the Summer exams a student may be given the opportunity to resit exams in September as a first attempt. In these cases the mark carried forward will be the one achieved in the resit exam. If such an exam is failed, and is a "required core" then a further resit will be required the following June, during which time the student will not be resident at the University.

*NOTE: Regulations do not allow you to appeal against these decisions, but if you have extenuating circumstances that the board were not aware of you should tell your tutor and submit any documentation as soon as possible to the Undergraduate Office together with an explanation of why you did not submit it earlier.*

## Finally

Exams are not remarked, and neither you, nor your Personal Tutor, are permitted to see any of your exam scripts. If you have zeros that you think you shouldn't have then you should contact the Undergraduate Office by email immediately. If you are merely disappointed with your marks then I'm afraid there is nothing that can be done. If you think there has been some procedural irregularity, please bring it to the attention of the UG office, but do not expect an instant response. The department's priority in the weeks immediately after term will be with finalists since any of their queries need to be sorted out as a matter of extreme urgency.

---

## The Second Year Exam Board and Results

(<https://warwick.ac.uk/fac/sci/math/currentstudents/ughandbook/course/assessment/2ndyearresults/>)

*Note that if there are extenuating circumstances (e.g. medical) that you have informed us about then these are taken into account in the decisions below. It is unusual to use such information to alter the carry forward average, but all notes on file are carried forward to the finals exam board in case the second year average would have an adverse effect on a final degree classification, and in serious cases the Board can make recommendations to the final exam board on how to treat the second year average. In particular exams missed with extenuating circumstances will still be marked as zero for the exam in the results. [Note: here "average" is taken to mean the adjusted average based on the best subset of module marks fulfilling regulations.]*

## GL11 Maths and Economics Students

Maths and Economics students are considered by the Economics department 2nd year exam board which is held after term has finished (usually the second week after term has finished). You will be able to access your results from My.Economics some time after that board has met, the Economics Department will contact you when they are available.

## All other second year students in the Mathematics Department (G100, G103, G101, G106, G1NC)

In line with most other departments in the University, the Second Year Exam Board will be held after term has finished.

Results will be released centrally through Tabula (see separate page on Covid exam details for dates).

Over the summer break you should only obtain your results and module marks using the online methods described above. Once you have your marks, your tutor may be able to discuss them with you, but many tutors will not be available, or unable to reply to emails, over the summer. If you cannot contact your tutor please do not immediately contact other members of the department such as the Senior Tutor or Director of Undergraduate Studies. If you have an urgent query then contact the Undergraduate Office in the first instance, bearing in mind that they are not permitted to discuss marks with students. They will then be able to put you in touch with an appropriate member of staff if necessary.

Students who have failed the year and will be offered to resit, this year these will most likely take place in September (see below).

## Decisions of the Exam Board

Unlike all other years, the second year exam board does not give each student a classification (although your tutor, when writing a reference for you, may still refer to a 61% as a 2i, for example). The Board only has to decide whether students "proceed to honours" or "fail". Individual circumstances and marks are taken into account when the Board makes decisions so the decision in your case may differ.

**Honours:** generally speaking, if your best average is over 40% and you have passed at least 60 CATS at the 40% level, then you are classed as proceed to honours, and continue on into the 3rd year of your degree. This is EVEN IF YOU HAVE FAILED SOME CORE MODULES. If you fail too many though you may still be asked to resit even if you have got over 40% with good marks in external modules. Note, the threshold is being raised to 90 CATS for students commencing their studies in 21/22.

**Pass:** The pass degree has now been abolished across the University (except as an exit qualification) but some students who have been struggling in the second year will be offered the chance to take Consolidation as an unusual option, for credit, (indeed, strongly recommended to) and will still be restricted from overcattng, this year such students will generally not be allowed to register for more than 135 CATS.

**Resit:** if you do not achieve results to place you in one of the above two categories then you have failed the year. This is not the end however! You have the option to "resit". This means that you can take resit exams in modules decided by the exam board, probably in September. If those resits are passed then you would be allowed to continue into a third year on an honours degree.

*NOTE: Regulations do not allow you to appeal against these decisions, but if you have extenuating circumstances that the board were not aware of you should tell your tutor and submit any documentation as soon as possible to the Undergraduate Office together with an explanation of why you did not submit it earlier.*

## Staying on the MMath

In addition to the above, the second year board decides whether those students on the MMath can remain on it. Again, individual circumstances are taken into account in reaching the decision, this decision should be based on the following guidelines:

1/ If a student has over 65% on the best 90 CATS of maths modules (i.e. MA2xx modules) then they stay on the MMath.

2/ A student with less than 65% on the best 90 CATS of maths modules is not normally allowed to continue on the MMath. Such students are permitted to appeal this decision (to the Director of Undergraduate Studies) but such appeals will almost certainly fail (not trying hard enough this year and promising to work harder next year is NOT a valid basis for an appeal, for example). This should be done before the end of July.

3/ In any case, students around the 65% borderline are considered carefully by the Board on a case by case basis.

The thinking behind these guidelines is that if you are scoring less than 65% on your best maths modules then you would struggle on the four year degree (in particular MA4 modules) and are much better off on the three year degree where you can choose modules to maximise your final degree classification. The three year Warwick Maths BSc. is still a highly valued and much sought after qualification.

*Note: 3rd year BSc students who were not/would not have been allowed to stay on the MMath are not permitted to take MA4 modules as an unusual option.*

## Finally

Exams are not remarked, and neither you, nor your Personal Tutor, are permitted to see any of your exam scripts. If you have zeros that you think you shouldn't have then you should [contact the Undergraduate Office](#) by email immediately. If you are merely disappointed with your marks then I'm afraid there is nothing that can be done. If you think there has been some procedural irregularity, please bring it to the attention of the UG office, but do not expect an instant response. The department's priority in the weeks immediately after term will be with finalists since any of their queries need to be sorted out as a matter of extreme urgency.

---

## MMath Continuation Rate

(<https://warwick.ac.uk/fac/sci/math/currentstudents/ughandbook/course/assessment/2ndyearresults/mmathcontinuationrate/>)

For students registered on the 4 year MMath, it is required that they get a sufficiently high average over the best 90 CATS of maths modules, in recent memory this has been set by the Second Year Exam Board at 65.0 (the Board dos also look at individual cases just below this borderline and takes into account mitigation).

For information, there follows the statistics for progression, non-progression and potential progression to the 3rd year of the MMath for the last academic year.

## Academic Year 2020/21

In total we had approximately 299 2nd year students on either the G100 BSc or G103 MMath degrees, at the time of the exam board (who were not allowed to resit as a first attempt for mitigation):

G103 (163 students)

57 students achieved a maths average less than 65% and so were transferred by the Exam Board to the G100 BSc degree, representing 35% of those students who were on G103 at the time of the exam board.

106 students achieved a maths average over 65.0% and so were permitted to continue on the MMath, representing 65% of this cohort.

---

## MMath end of year calculations

(<https://warwick.ac.uk/fac/sci/maths/currentstudents/ughandbook/course/assessment/averages/>)

The contributions of years 3 and 4 to your final MMath mark (in the usual 10:20:30:40 ratio over 4 years) are calculated as follows.

At the end of Year 3, we calculate your Year 3 mark as the best weighted average of any combination of modules you registered for that year that satisfies the regulations. (In particular, this will be of at least 120 CATS that include 90 CATS of modules from Lists A and C. This may or may not include any MA4 modules you take, depending on your results in those modules.)

At the end of Year 4, we calculate your Year 4 mark as the best weighted average of any combination of modules you registered for that year that satisfies the regulations. (Again, this will be of at least 120 CATS that include 90 CATS of Core and modules from Lists A, C and D; which modules take part in the average depends on your marks in them, but no individual module other than the Core will necessarily appear in the final average.)

Over the two years, you must have REGISTERED for at least 105 CATS of List C or D modules to qualify for MMath.

You should be aware that for the award of MMath with 1st class honours in borderline cases, in addition to meeting an overall mark threshold, the Finals Exam Board would normally require a number of List C or D modules above 70% -- these could be from Year 3 or Year 4. (The word 'normally' is there to allow, for example, for the possibility of mitigation evidence to be taken into account fairly.) Ultimately, in all cases, it is up to the academic judgment of the Finals Exam Board which degree classification to award, and when considering MMath with 1st class honours it does look at the marks on all MA4 modules across both years as an important factor.

You should also be aware that if your overall mark was in any borderline the Finals Exam Board would consider your performance in all MA4 modules that you registered for across both Years 3 and 4 in their deliberations.

More detailed guidance can be found from the [Examinations page](#).

Note that the marks of all modules you register for appear on your HEAR document (aka transcript of marks), whether they are used in calculating your average or not, and that this document can be seen by potential employers and by postgraduate admissions. Therefore, you are STRONGLY ADVISED not to take modules that you suspect you may not pass, and not to take more than 30 CATS of MA4 modules in Year 3.

---

## Expectations

(<https://warwick.ac.uk/fac/sci/maths/currentstudents/ughandbook/course/crime/>)

### Attendance

All students registered at the University are expected to be actively engaged with their course, to be attending lectures and seminars on a regular basis and to be living within a reasonable distance of the University. Failure to adhere to this can result in being referred to the University Continuation Committee who have the power to terminate your registration at the University.

In particular:

"All full-time students must live within a reasonable distance of the University" ([regulation 36.1](#))

"Students are expected to engage fully with their course of study, take responsibility for their own learning and co-operate with their department and wider University as members of the University community. Students must comply with the requirements for their course as set out by the department." ([regulation 36.2](#))

### Monitoring Points

Starting from October 2009 every department in the University has been required to introduce "monitoring points" to monitor the attendance of students and make sure that they are engaging with their degrees.

Over the year there will be up to 13 "monitor points" for every student in the department, details will be circulated separately since they vary depending on which year you are in. Examples include attendance at supervisions, handing in at least 80% of specified assignments and seeing your tutor at appropriate times. Missing monitor points has consequences, three will trigger an interview with your tutor, if you miss as many as eight you could have your registration at the University terminated.

If you attend your lectures, complete the majority of your assessed assignments (read core for first and second years), and see your tutor when you are asked then none of this will affect you as the monitor points will be ticked off and you will not trigger any events. If you are building up missed monitor points then it is a sign that you are not engaging with the degree, and you should discuss this with your tutor sooner rather than later.

Please be aware that you will be contacted should we become concerned about your missed Contact Points, and we have to report missed points to the University who will also contact you directly.

A. After three Contact Points are missed we will contact you to investigate whether you are having any problems that are preventing you from fully engaging with your course.

B. After four Contact Points are missed we may refer you to the relevant professional within the University welfare system who could help you, such as the Senior Tutor or the Counselling Service, as appropriate.

C. After six Contact Points are missed you will be contacted to make you aware that you are at risk of being recommended for termination of your registration at the University.

D. After eight Contact Points are missed the Department is able to invoke Regulation 36 (see below link to the University Calendar) to begin termination of registration proceedings and your case is handed over to the Academic Office.

<http://www2.warwick.ac.uk/services/gov/calendar/section2/regulations/reg36registrationattendanceprogress/>

***International students should be particularly aware of the consequences of missing Contact Points: the Academic Office is obliged to report to the UK Borders Agency if any students have been found not to be engaging with and attending their degree course.***

The Mathematics Department brings to your attention the following two warnings in the most emphatic terms possible.

### Monitoring FAQs

Q: What if I cannot meet a monitoring point due to factors beyond my control, such as a family emergency?

A: If you have any extenuating circumstances which may prevent you attending a monitoring point, please submit this information, along with any relevant evidence, to Tabula via the mitigating circumstances ribbon.

Q: I have been incorrectly recorded as having missed a monitoring point. How can I get this fixed?

A: If you have been incorrectly recorded as having missed a monitoring point, please email [UGMathematics@warwick.ac.uk](mailto:UGMathematics@warwick.ac.uk) to ask for the record to be corrected. Please include any relevant evidence (such as an email from your personal tutor if the monitoring point relates to a personal tutor meeting).

## Cheating (including Plagiarism)

Plagiarism is copying another person's writings or ideas and presenting them as your own. It covers copying from the internet, from books or other published sources, and from friends or other students. Though some examples of plagiarism are very obvious, there are circumstances - for example where students are encouraged to work together but to write up their results separately - where you may need to seek advice about what is and what is not allowed. If you are uncertain you should ask. For certain pieces of assessed work you will be asked to sign a declaration that the work is your own, or will be asked to list the people with whom you have worked (if this is allowed).

For weekly assignments copying a friend's piece of work, while risking getting caught and punished, is also an extremely ill advised thing to do for other reasons. We set the assignments for you to learn the material and have a better understanding. If you copy the work just to get (a very small amount of) credit not only are you not going through the necessary process to understand the material, but in addition, your supervisor will not realise that you do not understand it and will not help you to do so.

Cheating also covers more obvious sins such as copying in tests, stealing work from other students (either electronically or in another way), or taking your mobile phone into an examination. Note that you are guilty of cheating if you assist another student to cheat (for example by allowing them to copy your work).

Both cheating and plagiarism are taken very seriously by the Department. The University rules governing how cases are dealt with are in [Regulation 11 of the University Calendar](#).

The Department has decided that every suspected case of cheating or plagiarism will be dealt with strictly according to the regulations, and will be referred to a person in the Department designated by the Chair of Department who will keep records of each case. It is not possible to negotiate with individual lecturers.

The following consequences are non-negotiable:

1) Where a penalty is appropriate this will be exacted according the rules in the University Calendar section 11. In particular, where the Department means to deal with the case itself:

- there will be a formal letter to the student signed by the Chair;
- the student will be asked to formally accept the penalty or to launch a formal appeal;
- the student's Department and the appropriate Board of Examiners will be formally informed of any penalty imposed;

- copies of all such formal letters will be kept in a file in Maths until the student concerned has graduated - they will be destroyed on graduation if there have been no further similar instances.

2) For the purpose of the regulations the Department deems that the wording "the piece of work concerned" in the Regulations means:

- the whole of the assessed component of a module for which the majority of the credit comes from an examination (so cheating on a single homework assignment or class test may mean that the Department sets to zero the marks on the whole assessed component of a module).
- all the work submitted for a single deadline for those modules which are more completely assessed (so that, for example, cheating on any part of an assessment may mean that the Department sets to zero the marks on the whole of that assessment, even if it is broken into several parts.)

You should note that aggravated cases, including second or subsequent cases, will be dealt with by the University, and the penalties in these cases can be much more severe.

## To computer hackers

The University Disciplinary Committee has recently fined and issued a formal reprimand to a student for writing a program which trapped users' passwords and usercodes, and it has been confirmed that such matters constitute a Major Offence within the University's Disciplinary Regulations.

The intention of the University Disciplinary Committee was that activities such as the following will henceforth be regarded as "Major Offences" within the Disciplinary Regulations:

- Usercode/password trap.
- Unauthorised use of another person's usercode and/or password.
- Unauthorised access to other users' files.
- Unauthorised access to system files.
- Unauthorised writing of programs detrimental to, or disruptive of the computing system.
- Breach of the University's Data Protection Registration.
- Any *attempt* to commit the above breaches of security, *even if unsuccessful*.

This list is merely indicative of the type of offence and is not exhaustive.

See [www2.warwick.ac.uk/services/its/helpfaq/policies/](http://www2.warwick.ac.uk/services/its/helpfaq/policies/) for details of rules governing the use of University and Department computing facilities.

Year 1 regs and modules  
G100 G103 GL11 G1NC

Year 2 regs and modules  
G100 G103 GL11 G1NC

Year 3 regs and modules  
G100 G103

Year 4 regs and modules  
G103

Exam information  
Core module averages

## Complaints and Appeals

(<https://warwick.ac.uk/fac/sci/math/currentstudents/ughandbook/course/appeals/>)

If you are having problems with your Supervisions then the FIRST person you should speak to is YOUR SUPERVISOR! Many are doing this for the first time and may not realise there is a problem. The same can be said for TAs taking support classes, the first person you should talk to is the TA, they won't bite!

For all other complaints there are University guidelines:

[www.warwick.ac.uk/go/studentfeedbackandcomplaints/](http://www.warwick.ac.uk/go/studentfeedbackandcomplaints/)

There are both informal and formal channels for making a complaint or providing feedback about a department or service at the University of Warwick. The University encourages informal resolution where appropriate and also has a formal Student Academic Complaints Procedure. Full details of the various channels are detailed on the website, along with information about the Office of the Independent Adjudicator and support open to students across the University.

### Academic Appeals

Under certain defined circumstances and as per the University Calendar (University Regulations) students may appeal against decisions relating to their academic progress or outcomes. These may be summarised broadly as follows:

- Final-year undergraduate students may appeal against the award of a particular degree class or if they have not been awarded a qualification.
- First-year and intermediate-year undergraduate students have the right to appeal only against a decision that they be required to withdraw from their course of study, and then only if they are in possession of relevant evidence which was not available to the Board of Examiners when its decision was reached.
- Postgraduate taught students have the right to appeal if it is decided that their performance merits the award of a lower qualification than the one for which they were registered or does not merit the award of a qualification at all.
- Postgraduate research students have the right of appeal (i) if it is decided that they have not completed the taught component of their PGR degree satisfactorily, (ii) if it is decided that they may not upgrade from MPhil to PhD or (iii) if it is decided that their performance merits the award of a lower qualification than the one for which they were registered or does not merit the award of a qualification at all.

Please see the department's advice for students taking exams where they may have mitigating circumstances, or who may wish to appeal against the decision of the finals exam board... it can be found here:

<http://www2.warwick.ac.uk/fac/sci/math/undergrad/ughandbook/course/assessment/mitigating/>

Year 1 regs and modules  
G100 G103 GL11 G1NC

Year 2 regs and modules  
G100 G103 GL11 G1NC

Year 3 regs and modules  
G100 G103

Year 4 regs and modules  
G103

Exam information  
Core module averages