School of Mathematical Sciences Undergraduate Handbook

2010–11

Queen Mary
University of London

Audience

This handbook is for all undergraduate students on the following programmes: G100, G110, GG31, G1N1, GN13, GL11, LG11, G1N4, G1L1, GG14, GG41, FG31, G1C8, G102, G1G3.

How to use

This Handbook should be used together with the Academic Regulations and the Student Guide. This Handbook provides information specific to the School of Mathematical Sciences, while the Student Guide gives information common to all students at the College. The Academic Regulations provide detailed information on award requirements and governance.

Nothing in this Handbook overrides the Academic Regulations, which always take precedence.

The School of Mathematical Sciences Undergraduate Handbook is available online at:
http://www.maths.qmul.ac.uk/undergraduate/forms-guidelines/handbook

You will receive a copy of the Student Guide at the start of the academic year. It is also available online at:
http://www.arcs.qmul.ac.uk/registry/useful_information.html

The Academic Regulations are available online at:
http://www.arcs.qmul.ac.uk/policy_zone/index.html#academic_policies

Other formats available

This Handbook is available in large print format. If you would like a large print copy, or have other requirements for the Handbook, please visit the Maths Office (room 101 on the first floor of the Mathematical Sciences Building) or telephone 020 7882 5470. Please note that we produce large print and other special formats only on request, which may take up to two weeks.

Disclaimer

The information in this handbook is correct as of August 2010. In the unlikely event of substantial amendments to the material, the School of Mathematical Sciences will attempt to inform you of the changes.

The College cannot accept responsibility for the accuracy or reliability of information given in third party publications or websites referred to in this Handbook.

School of Mathematical Sciences Undergraduate Handbook 2010–11

Part 1: Module Summary

Part 2: Key Facts about Exams

Part 3: General Guidance

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Part 5: Study Programmes

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Dear Student,

Welcome (back) to Queen Mary. We have written this handbook to provide you with the main information that you need to organise your studies during the coming academic year. We intend it primarily for students following undergraduate degree programmes organised by the School of Mathematical Sciences, but it should also be useful to students taking other joint undergraduate programmes involving the School. We will allocate you an academic adviser, and your adviser and other staff in the School will be happy to try to help you overcome any difficulties you may encounter. But please refer to this handbook before approaching staff.

We have divided this handbook into distinct parts as listed above. The pages of each part are numbered separately starting from 1 in the form "Part *m* – Page *n*". We now provide module details only on the web at www.maths.qmul.ac.uk/undergraduate/modules.

Please visit our website for current undergraduate students at www.maths.qmul.ac.uk/undergraduate regularly. It gives the latest important information and provides links to other online documentation. This handbook is available as PDF files, which you can easily search by computer, at www.maths.qmul.ac.uk/undergraduate/forms-guidelines/handbook. We will correct and update the information on the web as necessary, so the web version may be more accurate than this printed version. In future, we will probably provide progressively more information on the web only and not on paper.

Dr Francis Wright
Director of Studies
August 2010

Module Summary

Our current module codes all begin with "MTH" and the first digit **always** represents the level. Hence, all level-*n* modules have codes of the form either MTH*nxxx* or MTH7*xx*U, where *x* is a digit; the latter indicates a level 7 module that is an MSci version of an MSc module.

Intercollegiate module codes all begin with "I" and correspond to modules taught at another college or institute of the University of London.

Every module is worth 15 academic credits unless indicated to the contrary in the comment field.

Level	Sem	Code	Title	Comment
3	A & B	MTH3100	Essential Mathematical Skills	Transcriptable only; 0 credits
4	A	MTH4100	Calculus I	
4	A	MTH4103	Geometry I	
4	A	MTH4105	Introduction to Mathematical Computing	
4	A	MTH4107	Introduction to Probability	Was MTH4108 Probability I
4	B	MTH4101	Calculus II	
4	B	MTH4102	Differential Equations	
4	B	MTH4104	Introduction to Algebra	
4	B	MTH4106	Introduction to Statistics	
5	A	MTH5102	Calculus III	
5	A	MTH5104	Convergence and Continuity	Revised syllabus and prerequisites
5	A	MTH5106	Dynamics of Physical Systems	
5	A	MTH5112	Linear Algebra I	
5	A	MTH5117	Mathematical Writing	
5	A	MTH5121	Probability Models	New module; partly replaces MTH5118 Probability II
5	A	MTH5122	Statistical Methods	New module; partly replaces MTH5118 Probability II
5	B	MTH5100	Algebraic Structures I	
5	B	MTH5103	Complex Variables	
5	B	MTH5105	Differential and Integral Analysis	
5	B	MTH5109	Geometry II: Knots and Surfaces	
5	B	MTH5110	Introduction to Numerical Computing	
5	B	MTH5120	Statistical Modelling I	
6	A	MTH6104	Algebraic Structures II (Reading)	Reading module
6	A	MTH6107	Chaos and Fractals	
6	A	MTH6109	Combinatorics	
6	A	MTH6117	Entrepreneurship and Innovation	Taught by City University; revised assessment split
6	A	MTH6121	Introduction to Mathematical Finance	
6	A	MTH6126	Metric Spaces	
6	A	MTH6132	Relativity	
6	A	MTH6134	Statistical Modelling II	
6	A	MTH6139	Time Series	
6	A	MTH6140	Linear Algebra II	
6	A & B	INE6001	Mathematical Education for Physical and Mathematical Sciences	Taught at the Institute of Education; was I24001
6	A & B	MTH6103	Advanced Statistics Project	Includes a presentation; 30 credits
6	A / B	MTH6138	Third Year Project	Includes a presentation

Level	Sem	Code	Title	Comment
6	B	MTH6100	Actuarial Mathematics	Revised prerequisites
6	B	MTH6105	Algorithmic Graph Theory	
6	B	MTH6108	Coding Theory	Revised syllabus
6	B	MTH6110	Communicating and Teaching Mathematics: the Undergraduate Ambassadors Scheme	**Acceptance by interview and initial training in semester A**
6	B	MTH6111	Complex Analysis	Revised prerequisites; semester change
6	B	MTH6115	Cryptography	Revised prerequisites
6	B	MTH6116	Design of Experiments	
6	B	MTH6120	Further Topics in Mathematical Finance	Revised prerequisites
6	B	MTH6124	Maths Problem Solving (Reading)	
6	B	MTH6128	Number Theory	
6	B	MTH6129	Oscillations, Waves and Patterns	
6	B	MTH6130	Probability III	Becomes MTH6141 Random Processes from 2011–12
6	B	MTH6136	Statistical Theory	
7	A	MTH703U	Advanced Cosmology	
7	A	MTH705U	Applied Statistics	
7	A	MTH714U	Group Theory	
7	A	MTH715U	Introduction to Dynamical Systems	
7	A	MTH722U	Rings and Modules	Revised syllabus
7	A	MTH724U	Solar System	Evening; 100% exam
7	A	MTH725U	Stellar Structure and Evolution	Evening; semester change
7	A	MTH736U	Mathematical Statistics	Revised syllabus
7	A	MTH738U	Additive Combinatorics	New module
7	A & B	MTH717U	MSci Project	Includes a presentation; 30 credits
7	B	MTH707U	Astrophysical Fluid Dynamics	
7	B	MTH709U	Bayesian Statistics	
7	B	MTH716U	Measure Theory and Probability	
7	B	MTH710U	Enumerative and Asymptotic Combinatorics	
7	B	MTH726U	The Galaxy	Evening
7	B	MTH740U	Electromagnetic Radiation in Astrophysics	Evening; new module
7	B	MTH731U	Computational Statistics	
7	B	MTH732U	Topology	Revised syllabus
7	B	MTH734U	Topics in Probability and Stochastic Processes	Revised prerequisites
7	B	MTH735U	Extrasolar Planets and Astrophysical Discs	
7	B	MTH739U	Topics in Scientific Computing	New module
7	B	MTH737U	Fluid Dynamics	Revised syllabus

Key Facts about Exams

This list is a brief summary; for further details please see Part 3: General Guidance and www.maths.qmul.ac.uk/undergraduate/exams.

Examination periods

- The main exam period is 3 May to 10 June 2011 (2 May is a Bank Holiday).
- Late summer exams are held in the second half of August.

Distribution of main examination results

- Provisional results will be released on Thursday 23 June 2011:
  - finalists' degree classifications (first, upper second, etc) will be posted at the entrance to the Mathematical Sciences Building by 1:00 pm;
  - you can collect your provisional results from the Maths Office after 2:00 pm.
- Alternatively, you can have your provisional results sent by post (anywhere you want) by giving a stamped addressed envelope to the Maths Office beforehand. You must include your student number on the envelope.
- **We do not release results over the phone or by email**, but we expect them to be available online at http://mysis.qmul.ac.uk by about mid July.
- Queen Mary Registry will post official results to your home address by about the end of July.

Resits and first sits

- **Resits** are for **failed** exams and are pegged at 40%; **first sits** are for **missed** exams and are not pegged (unless the exam you missed was a resit).
- Resits **must** be taken at the earliest opportunity and first sits should be taken no later than the following summer.

Missed examinations

- A missed exam counts as a fail unless the absence has been certified.
- If you miss an exam for a good reason (usually supported by a medical certificate), we **may** grant you a first sit. Requests for first sits must be handed in with evidence to the Maths Office as early as possible, and no later than Friday 17 June 2011 (one week after the end of the examination period).

Late summer examinations

- You are automatically entered for all late summer exams for which you are eligible.
- Non-finalists are eligible for late summer first sits if they are approved.
- Only first year students are eligible for late summer resits of maths exams.
- All non-finalists **may** be eligible for late summer resits of other exams.
- Queen Mary Registry will post official results to your home address by about mid September; **results will not be available in any other way**. But you can check whether you progress by emailing maths-ug (add @qmul.ac.uk to complete the email address) from the second week of September onwards.

Registration

- You should register for **all** your modules and main exams for the current academic year in September and you must register within two weeks of the start of the first semester (see www.maths.qmul.ac.uk/undergraduate/forms-guidelines/module-registration).
- You should confirm or update your module and exam registrations (including first sits and resits) in January, within two weeks of the start of the second semester.

BSc progression rules

- To progress from first to second year you need to pass Essential Mathematical Skills and also 90 credits (6 modules), counting resits.
- To progress from second to third year you need to pass 180 credits (12 modules) in total, counting resits.
- Modules at level 3 do not count for progression.

General Guidance

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Preliminary Information

What is your commitment to me and my studies?

What is Queen Mary's mission statement?

As detailed in its Strategic Aims, Queen Mary seeks "to teach its students to the very highest academic standards, drawing in creative and innovative ways on its research."

What are the aims of taught mathematics?

- To ensure that when you graduate you have the mathematical skills most likely to be useful to you and your employers. In particular these include fluency and accuracy in elementary calculation; ability to reason clearly, critically and with rigour, both orally and in writing, within a mathematical context; and, within the areas that you study, a sense of how and where your mathematical knowledge can be applied.

- To help you build up more general skills and sound habits. These include the ability to plan your work, to work independently and in groups, to explain your work to others, and to use computers and the Internet effectively and responsibly.
- To deliver to each student a set of taught modules in mathematics that forms a coherent whole at the appropriate levels for each year of a university degree.
- To challenge the ablest students and encourage the weakest, within a friendly, stimulating and responsive environment.
- To exploit our research strength by designing modules that will be interesting and useful for the students but also reflect recent developments in the subject; and at the same time to build on those modules and procedures that we have found successful in the past.
- To deliver sound assessments of your work in order to keep you informed of your progress during your studies and in order to reflect your overall achievements in your class of degree.
- To make our programmes available to you regardless of your formal qualifications.
- **An additional aim for the MSci degree** is to provide a comprehensive mathematical education that offers a first-class preparation for doctoral study or highly technical employment.

What are the objectives of taught mathematics?

1. All graduates will be able to use deductive reasoning and to manipulate precise concepts, definitions and notation.
2. All graduates will be able to approach a mathematically posed problem with confidence and technical dexterity.
3. All graduates in programmes that involve analysis of data will have acquired skills in data handling, quantitative statistical analysis, and the ability to synthesise results.
4. All graduates in interdisciplinary programmes will have developed both basic knowledge and understanding of the companion discipline, and appropriate mathematical expertise.
5. All graduates will possess basic computational skills.

MSci programme objectives consist of objectives 1, 2, 3 and 5 above but generally at a higher level than for BSc programmes. This applies with particular force to objective 1. In addition:

6. All MSci graduates will be able to write a technical mathematical report that draws on and synthesises work in published sources, using the proper scholarly conventions.
7. All MSci graduates who leave with first-class honours will possess the maturity and the technical ability to be independent learners of research level mathematics.

What are the key dates?

The three terms of the academic year consist of two 12-week teaching semesters followed by a 6-week examination period. The first semester begins with a three-day induction and enrolment period, during which you should agree any options in your programme for the year with your adviser. Dates for the academic year 2010–11 are as follows.

Semester A

Induction and enrolment
Wed 22 September – Fri 24 September 2010

Teaching
Mon 27 September – Fri 17 December 2010

Questionnaire week (Week 6)
Mon 1 November – Fri 5 November 2010

Test and reading week (Week 7)
Mon 8 November – Fri 12 November 2010

Second test week (Week 12)
Mon 13 December – Fri 17 December 2010

Winter vacation
Mon 20 December 2010 – Fri 7 January 2011

Semester B

Teaching
Mon 10 January – Fri 1 April 2011

Questionnaire week (Week 6)
Mon 14 February – Fri 18 February 2011

Test and reading week (Week 7)
Mon 21 February – Fri 25 February 2011

Second test week (Week 12)
Mon 28 March – Fri 1 April 2011

Spring vacation
Mon 4 April – Fri 22 April 2011

Revision week
Mon 25 April – Fri 29 April 2011

Examinations

Main Essential Mathematical Skills exams
Thu 14 October 2010
Wed 27 October 2010
Wed 1 December 2010
Wed 12 January 2011

Main examination period
Tue 3 May – Fri 10 June 2011
(2 May is a bank holiday)

Main examination board
Wednesday 22 June 2011

Release of provisional results
Thursday 23 June 2011

Key College dates are available online at www.qmul.ac.uk/about/calendar.

What must I do as a student?

- Read this handbook and the Queen Mary Student Guide carefully at the start of the year and refer to them later when you have a question about your course.
- Maths staff will normally communicate with you by email sent to your **qmul.ac.uk** email address. We will also send you weekly updates on your exercise and test marks. **Check the email sent to your qmul.ac.uk address every day.**
- Check www.maths.qmul.ac.uk/undergraduate and the student information notice boards in the Mathematical Sciences Building at least twice a week.
- Visit your adviser at the start of each semester and at least once again per semester, and answer messages from your adviser promptly. (NB: In the Queen Mary Student Guide advisers are referred to as personal tutors.)
- Keep your adviser informed of your circumstances and any problems.
- Keep your full contact details up to date at http://mysis.qmul.ac.uk.
- Submit all exercises required for each module by the stated deadline.
- Inform the module organiser if you withdraw from a module or start a module late.
- Ensure you are registered for the correct study programme, which should be the same as your UCAS course unless you have submitted a “Change of Programme of Study” form.
- Ensure that you know and respect your adviser’s and lecturers’ office hours; “office hours” are the times when you may normally visit an office. You can find normal office hours and contact details for academic staff on the web at www.maths.qmul.ac.uk/undergraduate/staff-contacts/office-hours but **before travelling any distance always arrange an appointment by email or phone**.
- Provide your own pens, paper and stapler (for stapling your exercise solutions before submitting); the Maths Office cannot provide these for you.
- Respect the College policy on harassment, which states that all members of the College are entitled to work within an environment where they are treated with dignity and respect and where harassment of any kind is unacceptable.
- Do not smoke **anywhere** on the campus.

Departmental Information

What and where is the School of Mathematical Sciences?

The School of Mathematical Sciences comprises mathematicians who work in pure and applied mathematics, statistics and astronomy. It is located in the Mathematical Sciences Building, which is the "tower" by the Mile End Road at the southwest corner of the Mile End campus.

The postal address for the School is:

School of Mathematical Sciences,
Queen Mary, University of London,
Mile End Road,
London E1 4NS

For general undergraduate enquires please use the following contact details.

Email: maths-ug (add @qmul.ac.uk to complete the email address)

Tel: +44 (0)20 7882 5470

Fax: +44 (0)20 7882 7684

To contact specific staff please see “How do I contact staff?” on page 8.

Various refurbishment works will continue to take place in and around the

Mathematical Sciences Building during the year. Please take extra care when you visit the building and note that access may be at the back of the building at basement level via the sunken garden. If disabled access is required then please contact us in advance.

Where do I find things and people in Mathematical Sciences?

Maths Office

Your main point of contact for administrative matters is the **Maths Office**, room 101 on the east side of the first floor of the Mathematical Sciences Building. There is a student noticeboard and a box for posting letters to staff outside the Maths Office. Printed copies of this handbook are available from the Maths Office while stocks last.

The **Maths Office opening hours** during term time are 9:00 am–5:00 pm (last admission 4:45 pm) every weekday except 1:30–2:40 pm on Wednesdays. More limited opening hours may apply during vacations; see www.maths.qmul.ac.uk/undergraduate.

Teaching rooms

The main lecture theatre in the Mathematical Sciences Building is likely to be out of action for at least the first semester of the academic year 2010–11 due to the refurbishment works.

The Mathematics Seminar Room (MSR, room 103) and room 203 are smaller rooms on the west side of the Mathematical Sciences Building; the MSR is on the first floor and room 203 is on the second floor. Very small groups occasionally meet in room 513 on the fifth floor or in room B11 in the basement.

Main noticeboards

The main noticeboards are on the left of the corridor immediately in front of the main entrance to the Mathematical Sciences Building. **You should check them frequently.** They are for official notices from members of staff and sometimes carry urgent information such as changes to examination rooms.

Electronic display boards

There are electronic display boards on the ground floor by the main entrance and on the first floor opposite the lifts. These show breaking news, short-term information such as details of forthcoming meetings and examinations, and topical information such as the “Theorem of the Day”.

Exercise collection boxes

There are brightly coloured locked boxes located along the walls at the west end of the basement and opposite the lifts on the ground and second floors of the Mathematical Sciences Building. They are used for collecting exercise solutions.

Web sites

The School of Mathematical Sciences web site is at www.maths.qmul.ac.uk but the part of the site most relevant to you is at www.maths.qmul.ac.uk/undergraduate. **Please visit this web site frequently.** The main page provides an online noticeboard and other transient information, and on the left is a menu of links to other pages. The web is likely to be the most up-to-date source of information.

Other key web sites are the QM student portal at my.qmul.ac.uk, the QM Student Information System (SIS) at mysis.qmul.ac.uk and *Blackboard*, the QM Virtual Learning Environment, at www.elearning.qmul.ac.uk. You will need to log into MySIS and Blackboard, using your QM username and password, to access personal or confidential information: MySIS for the name of your academic adviser or your main examination results; Blackboard for your support teaching group (if you are in your first year). We also use Blackboard to support some of our modules.

Timetable

The teaching timetable provides information about the times and locations of lectures, exercise classes and computing labs. Our timetable includes lectures and support classes for all Mathematical Sciences modules and lectures for other compulsory modules that appear in our joint degree programmes, but for full details of modules taught by other departments you should consult those departments.

Note that we organise our timetable by semester and a module is usually shown in its principal semester, which is determined by its level. However, you may be taking a module in its principal semester shifted by an even number, e.g. you may be taking a semester-3 module in semester 5 or vice versa, so you may need to consult the timetable for more than one semester.

We publish timetable information on the web at www.maths.qmul.ac.uk/undergraduate/timetable and on the main noticeboards, but not in the printed handbook, because timetable details are subject to change.

Module details

You can find other module details, such as recommended textbooks, on the web at www.maths.qmul.ac.uk/undergraduate/modules. The main School web page for each module includes a link to the module organiser's web page, which will provide teaching materials such as lecture notes and exercises. You can access past exam papers on the library web site at www.library.qmul.ac.uk/exams.

Reporting absence

We require you to attend all elements of your course. If you wish to be absent for more than one day then you must have a good reason and you should ask the Senior Tutor in advance for permission.

If something serious (such as illness) prevents you from attending an assessment (such as an exam or test) or submitting assessed work (such as exercises) then you should report this to us using the appropriate form, which is available either on paper from the Maths Office or on the web at www.maths.qmul.ac.uk/undergraduate/forms-guidelines. If you do so then we may make some allowance for the marks that you would otherwise lose. See "How do I report extenuating circumstances?" on page 13 for details.

What computing facilities do you provide?

All the software that you need for your course should be available on the Queen Mary Student Service. As a Queen Mary student you can also buy **very** cheaply a copy of Maple, a mathematical computing package, to run on your own computer; see www.maths.qmul.ac.uk/undergraduate.

We also run a computing application server that should provide access to all the software you will need. The software runs on the server and your computer acts as a "remote desktop". The purpose of this server is primarily to give you the option of working on your exercises from home rather than in College. See the web site www.maths.qmul.ac.uk/undergraduate/computing-application-server for details on accessing it.

For further details on College IT facilities that you can use, see the Student Guide and the College website.

How will you communicate with me?

Communications from us to you

The College will communicate with you in a variety of ways. It may send you some formal correspondence by letter, so it is important that you keep the College up to date (via http://mysis.qmul.ac.uk) with your personal details and address. However, it is most common for the School of Mathematical Sciences and the College to contact you by email.

The College assigns you an email address when you first enrol and you **must** check this email account daily. You can access your email account in various ways; see www.stu.qmul.ac.uk/mail/.

The School of Mathematical Sciences has developed software that sends your exercise and test marks to your College email address on a weekly basis during the semesters.

We will keep any paper mail for you in the Maths Office and send you an email inviting you to collect it.

Communications from you to us

See ""How do I contact staff?" on page 8.

Email etiquette

When emailing any member of College staff, you must always include your **full name** as registered with the College and your **student number**. Use standard and correct English; do not use abbreviations or colloquialisms. Save "txtspk" for friends and family!

Address staff by their title and surname: for example, Prof. Arrowsmith, Dr Wright, Ms Griffin. You can check staff titles in Table 3 on page 9. If you are replying to an email then please include a copy of that email.

If you follow the above requirements then you can reasonably expect an acknowledgement within about two working days and a full reply within about five working days during term, but replies may take longer during vacations. **If you do not follow the above requirements then we may ignore your email.**

Summer vacation support

During the summer vacation, many academic staff will be elsewhere; you may still be able to contact them by email but not otherwise. You should contact the Maths Office or the Student Support Officer if you need academic advice or assistance and cannot contact the appropriate member of staff.

Who's who in Mathematical Sciences

Who are the key staff?

Table 1 below lists the key staff for undergraduate students.

Table 1: Key staff

Head of the School of Mathematical Sciences	Prof. David Arrowsmith
Deputy Head of School / Head of Teaching	Prof. Boris Khoruzhenko
Director of Studies	Dr Francis Wright
Senior Tutor	Dr Thomas Prellberg
Pastoral Tutor	Dr Oscar Bandtlow
Student-Staff Liaison Committee Chair	Dr Francis Wright
Examination Board Chair	Prof. Ilya Goldsheid
Examination Board Deputy Chair / Late Summer Exams	Prof. Cho-Ho Chu
Admissions Tutor	Dr Steve Coad
Executive Officer (Teaching and Research)	Dr Vivien Easson
Student Support Officer	To be announced
Administrative Officer (Undergraduate Studies)	Ms Caroline Griffin
Administrative Officer (Teaching & Student Support)	Miss Susan Benedict
Careers Coordinator	Prof. Shaun Bullett
Erasmus and Associate Student Coordinator	Prof. Bernard Carr
PASS Coordinator	Dr Juan Valiente Kroon

How can I get advice?

The key staff listed above deal with students in general. We will also allocate you a personal academic adviser and there is a programme director for each degree programme.

For straightforward administrative enquiries, you should normally ask in the Maths Office first. For general academic advice, you should normally ask your adviser first, who may refer you to the appropriate programme director, the Senior Tutor, the Pastoral Tutor or the Student Support Officer. Their roles are described below.

How do I know who my adviser is?

The Senior Tutor will assign a member of academic staff in the School of Mathematical Sciences to be your academic adviser; see “How do I contact staff?” on page 8. You can find out who your adviser is via the information at www.maths.qmul.ac.uk/undergraduate/staff-contacts; if this disagrees with other information then it is likely to be the most accurate.

The SIS (mysis.qmul.ac.uk) will also show who your current adviser is and we post lists of adviser assignments at the start of the academic year on the notice boards on the ground floor towards the back of the Mathematical Sciences Building. If you cannot find who your current adviser is then please contact the Maths Office.

What is my adviser’s role?

Your adviser’s role is to give you information and advice during your undergraduate studies; in particular to discuss with you and approve any options in your “module registration” – the list of modules you register for each year. You should get to know your adviser, since normally you should ask your adviser to act as a referee for job applications etc. If possible, you will keep the same adviser throughout your time at Queen Mary.

Teaching is not part of an adviser's role, although your adviser may be willing to help you with mathematical problems and should be willing to help you with Essential Mathematical Skills.

You should visit your adviser **at the start of each semester** to agree your programme of study for that semester, and you should visit your adviser **at least once again during each semester** to discuss your progress.

Advisers have online access to all their advisees' exercise and test marks for Mathematical Sciences modules.

It is also important that you discuss with your adviser any academic, financial, medical or other problems as soon as they arise. Your adviser can then refer you to the appropriate person within the College to deal with your problem, which you may also need to report to the Pastoral Tutor (see below).

The advising contract

The aim of the adviser-advisee relationship is to

- Foster and develop in our students a sense of value for and ownership of their undergraduate education.
- Actively promote our students' involvement in the planning and achievement of their academic and career goals.

Responsibilities of the Adviser

1. Be available for advisees during office hours and via email according to School policy.
2. Help the advisee to understand the academic and administrative processes of the College.
3. Help the advisee to understand the expected standards of achievement and likelihood of success in certain areas of study.
4. Help the advisee to decide on details of a study programme and give advice about modules.
5. Be involved in discussions with the student and other School staff in the event of poor attendance or performance.
6. Refer advisees to other resources when appropriate, such as specialist careers or counselling advice.
7. Provide references for current and former advisees.
8. Read the Staff Handbook and the Undergraduate Handbook.

Responsibilities of the Advisee

1. Be aware of adviser's office hours. When using email, follow email etiquette.
2. Acquire information needed for selecting modules appropriate to the study programme.
3. Seek academic and career information needed to meet educational goals.
4. Become knowledgeable about relevant policies, procedures, and rules of the College.
5. Be prepared with accurate information and relevant materials, such as **completed** forms, when contacting the adviser.
6. Consult the adviser at least twice a semester.
7. Read the Undergraduate Handbook.

What is the Senior Tutor's role?

The Senior Tutor allocates advisers and oversees the academic aspects of advising and student welfare, in particular, attendance and performance in exercises and tests, and deregistering students from modules if they fail to attend. The Senior Tutor advises the Examination Board on students' non-academic difficulties and progression from one year to the next. If you wish, you can submit an end-of-year summary of non-academic difficulties directly to the Senior Tutor.

What is the Pastoral Tutor's role?

The Pastoral Tutor oversees non-academic aspects of advising and student welfare and liaises with advisers, the Senior Tutor, the Student Support Officer and the Health, Counselling and Welfare services, as appropriate.

You should report details of missed in-term assessments, missed examinations and non-academic difficulties to the Pastoral Tutor when they occur, using the forms available from the Maths Office and on the web at www.maths.qmul.ac.uk/undergraduate/forms-guidelines.

You should hand in completed forms to the Maths Office, in a sealed envelope for confidentiality if you wish.

How can the Student Support Officer help me?

The Student Support Officer is there to help you with any difficulties that are not primarily academic, and to provide an additional layer of support between the Maths Office and the academic staff. The Student Support Officer is an expert on the technical and bureaucratic aspects of student life. In particular, the Student Support Officer will act as a back-up

adviser when your personal adviser is not available, will help you report extenuating circumstances, will direct you to the appropriate College support services, and may be available when the Maths Office is closed. The Student Support Officer will also help us to monitor your attendance, exercise submission, and marks for in-term assessment, and may discuss these issues with you.

What are the Programme Directors' roles?

Each study programme has a director, who decides which modules students must study within that programme. Normally, your degree title will be the title of your study programme and the programme director decides what conditions you must satisfy to obtain that degree title. For full details of current Mathematical Sciences study programmes, see Part 5: Study Programmes.

For joint programmes, there is also a contact in the secondary department, and Mathematical Sciences programme directors act as contacts for students on joint programmes for which Mathematical Sciences is the secondary department; see Table 2 below.

Table 2: Programme directors and second advisers

Name	Programme director for	Second adviser for
Prof. Bill Jackson	G100, G110, G102	
Dr Heiko Grossmann	GG31, G1C8, G1G3	
Dr Barbara Bogacka	G1N1, G1N4, G1L1, GN13, GL11	LG11
Prof. Mark Jerrum	GG14	GG41
Dr Will Sutherland	FG31	

Name	School or Department	Second adviser for
Prof. Geraldine Healy	Business and Management	G1N1, GN13, G1L1, G1N4
Mr Giulio Fella or Dr Aris Kartsaklas*	Economics and Finance	GL11
Dr Graham White	Computer Science	GG14
Dr Mark Baxendale	Physics	FG31

*The School of Economics and Finance allocates a personal second adviser to each GL11 student.

What are the roles of the Head of Teaching and Director of Studies?

The Head of Teaching and Director of Studies together oversee all undergraduate and postgraduate taught programmes. The Head of Teaching takes primary responsibility for strategy, programme development and resource allocation; the Director of Studies takes primary responsibility for day-to-day operations, student information, quality assurance, student feedback and complaints by and about students.

How do I contact staff?

Table 3 below gives names and contact details of members of staff who are relevant to undergraduate students. It is usually best to contact staff (at least initially) by email. You may also visit staff in their offices or telephone them **but only during their office hours**. There should be a notice on each of these staff member's office doors indicating their office hours. Staff should allocate at least two hours per week when they will normally be available in their offices to see students. You can find normal office hours and contact details for academic staff on the web at www.maths.qmul.ac.uk/undergraduate/staff-contacts but **before travelling any distance always arrange an appointment by email or phone**.

When telephoning, please use the direct-dial numbers listed below rather than going through the College exchange or the Maths Office. Note that Mathematical Sciences phones ring up to 5 times and then, if unanswered, switch automatically to the Maths Office, where you can leave a message if you wish.

Table 3: Staff contact details

Name	Room	Email (…@qmul.ac.uk)	Phone
Dr Craig Agnor	512	c.b.agnor	020 7882 7045
Prof. David Arrowsmith	116	d.k.arrowsmith	020 7882 5464
Prof. R. A. Bailey	317	r.a.bailey	020 7882 5517
Dr Oscar Bandtlow	B16	o.bandtlow	020 7882 5438
Prof. Christian Beck	114	c.beck	020 7882 3286
Miss Susan Benedict	101	s.benedict	020 7882 5440
Dr Barbara Bogacka	255	b.bogacka	020 7882 5497
Dr John Bray	B54	j.n.bray	020 7882 5482
Prof. Shaun Bullett	252	s.r.bullett	020 7882 5474
Prof. David Burgess	351	d.burgess	020 7882 5460
Prof. Peter Cameron	157	p.j.cameron	020 7882 5477
Prof. Bernard Carr	311	b.j.carr	020 7882 5492
Dr James Cho	353	j.cho	020 7882 5498
Prof. Cho-Ho Chu	153	c.chu	020 7882 5218
Dr Steve Coad	352	d.s.coad	020 7882 5484
Dr Richard Donnison	515	r.donnison	020 7882 5149
Dr Vivien Easson	156	v.easson	020 7882 5485
Prof. Jim Emerson	G57	j.p.emerson	020 7882 5040
Dr Matthew Fayers	152	m.fayers	020 7882 5479
Prof. Steven Gilmour	257	s.g.gilmour	020 7882 5471
Prof. Ilya Goldsheid	254	i.goldsheid	020 7882 5473
Ms Caroline Griffin	101	c.m.griffin	020 7882 5470
Dr Heiko Grossmann	316	h.grossmann	020 7882 3113
Dr Rosemary Harris	B13	rosemary.harris	020 7882 5478
Prof. Bill Jackson	253	b.jackson	020 7882 5476
Prof. Oliver Jenkinson	B55	o.m.jenkinson	020 7882 3188
Prof. Mark Jerrum	251	m.jerrum	020 7882 5472
Dr Robert Johnson	154	r.johnson	020 7882 5480
Dr Wolfram Just	315	w.just	020 7882 7834
Dr Peter Keevash	313	p.keevash	020 7882 3160
Prof. Boris Khoruzhenko	111	b.khoruzhenko	020 7882 5495
Dr Rainer Klages	B12	r.klages	020 7882 5448
Prof. James Lidsey	455	j.e.lidsey	020 7882 5461
Prof. Shahn Majid	G54	s.majid	020 7882 5444
Dr Karim Malik	454	k.malik	020 7882 5462
Dr Hugo Maruri-Aguilar	256	h.maruri-aguilar	020 7882 5475
Prof. Thomas Müller	155	t.w.muller	020 7882 5489
Prof. Carl Murray	451	c.d.murray	020 7882 5456
Prof. Richard Nelson	511	r.p.nelson	020 7882 5199
Dr Lawrence Pettit	314	l.pettit	020 7882 3285
Dr Alexander Polnarev	356	a.g.polnarev	020 7882 5457
Dr Thomas Prellberg	B51	t.prellberg	020 7882 5490
Dr Olof Sisask	113	o.sisask	020 7882 7833
Prof. Leonard Soicher	B52	l.h.soicher	020 7882 5463
Dr Dudley Stark	G53	d.s.stark	020 7882 5487
Dr William Sutherland	354	w.j.sutherland	020 7882 5481
Prof. Reza Tavakol	456	r. tavakol	020 7882 5451
Dr Ivan Tomasic	G55	i.tomasic	020 7882 5483
Dr Hugo Touchette	B53	h.touchette	020 7882 5520
Dr David Tsiklauri	452	d.tsiklauri	020 7882 5452
Dr Juan Valiente Kroon	G56	j.a.valiente-kroon	020 7882 5493
Prof. Franco Vivaldi	112	f.vivaldi	020 7882 5488
Dr Sergei Vorontsov	357	s.v.vorontsov	020 7882 3611
Dr Mark Walters	B15	m.walters	020 7882 5446
Prof. Robert Wilson	G51	r.a.wilson	020 7882 5496
Dr Francis Wright	151	f.j.wright	020 7882 5453

How do I complain?

We hope you will not need to complain, but if you would like to raise any issues, either as an individual or as a group, please follow the guidelines below.

You should normally address complaints about a module, e.g. the lectures, classes, exercises or tests, to the module organiser initially. (This includes modules taught by other departments.) If this does not solve the problem, talk to your adviser. If he or she cannot help and you want to make a formal complaint, do it in writing (preferably by email) to the Director of Studies. He will keep a record of all such complaints and follow them up, and try to keep you informed in writing of the outcome. If you do not hear anything within two weeks then please ask for an update.

Complaints about matters of student welfare and advising should go to the Senior Tutor, though it would usually be sensible to discuss the problem with your adviser first if you can.

Complaints about other matters in the School of Mathematical Sciences should go to the Director of Studies, if discussions with your adviser do not resolve them.

You should initially discuss any complaints about examination board decisions first with your adviser and then if necessary with the Examination Board Chair. Note that two internal examiners mark all exams and an external examiner from another university moderates the marking, so we do not remark exams. However, you can ask the Examination Board Chair to check that we have not made any administrative errors in addition or transcription.

If you are still not satisfied then you can make a formal written appeal to the College. Please read www.arcs.qmul.ac.uk/examinations/academic_appeals carefully and note the limitations of appeals before beginning an appeal.

If you want to make a serious complaint, such as a complaint that the School of Mathematical Sciences has not properly handled a complaint you have made, see www.arcs.qmul.ac.uk/student_complaints.

Remember also that there are elected student representatives on the Student-Staff Liaison Committee; see www.maths.qmul.ac.uk/undergraduate/feedback. They are not part of the College's complaints procedures, but they may have useful experience and advice, and if you think your complaint is a matter of general interest you may take it to one of them.

The School of Mathematical Sciences undertakes not to disadvantage you if you make a complaint in good faith. The School also understands and respects the fact that you may need to complain in confidence.

What are the safety and emergency procedures?

You should familiarise yourself with emergency procedures for all areas in which you work, noting the location of emergency exits, assembly points and equipment. In case of a fire, immediately leave the building by the nearest exit point. Do not use the lifts. Fire action notices are displayed in corridors and by fire escapes.

If required to evacuate the Mathematical Sciences Building, use the emergency exits in the basement at the front and rear and congregate outside the Drapers Bar until allowed to return.

In an emergency, dial 3333 from any internal phone and clearly state the nature and location of the problem, your name, and the number you are calling from (if known). If no internal phone is available, call 999 and follow the normal procedure. You should ensure that corridors and doorways are not obstructed and that fire fighting equipment is not removed from its station.

For minor accidents, you can obtain first aid assistance by dialling 3333 from an internal phone or 020 7882 3333 from any other phone. For general enquiries, you can contact Queen Mary Security by dialling 5000 from an internal phone or 020 7882 5000 from any other phone.

What prizes do you award?

We award at least one (two in 2010) School or College prize each year to the best first-year Mathematical Sciences undergraduates and several (seven in 2010) College prizes to the best second, third and final year Mathematical Sciences undergraduates. The prizes are all worth £100 each; the amount of money is not very large but the fact of receiving the prize is a useful addition to your curriculum vitae!

In recent years, we have also been able to award Institute of Mathematics and its

Applications (IMA) prizes, consisting of a year's free subscription, to the best two students in the final year in Mathematical Sciences, and a Pfizer Prize in Statistics to the student with the best final year statistics results.

Here is a list of the Mathematical Sciences students who won prizes in summer 2010.

School and College Prizes

Year	Student	Prize
1	Peter Curtis	Mathematical Sciences
1	Patrycja Kubat	Lois Hatton
2	Lauren Bartlett	Westfield Trust
2	Jessica Claridge	Westfield Trust
2	Nilufar Khan	Westfield Trust
2	Emdadur Rahman	Westfield Trust
3	Nicholas Cleaver	Westfield Trust
F	Pruvil Patel	Westfield Trust
F	Inna Polichtchouk	Westfield Trust

Institute of Mathematics and its Applications Prizes

Pruvil Patel
Inna Polichtchouk

Pfizer UK Prize for Statistics

Marina Naz

What is my College ID card?

You will receive a College photo-ID card upon enrolment. This card is very important and you must carry it at all times on campus. If you do not produce this card upon request and satisfy staff that it is your card through comparison of your face and the photograph, College security staff may remove you from the building, or from campus.

The card shows your Student Number, which you will need for various purposes. You must take your College photo-ID card into all examinations and display it on your table for inspection.

The card also serves as your library card and as an access card for certain buildings. Many buildings have security points at which you must show your card and others require you to touch your card on a reader (as with an Oyster card) to release the doors.

It is vital that you keep your card safe and with you at all times on campus. If you lose your card, or if your card is stolen, you should contact the Registry, who will be able to help you. The College may charge a fee to replace lost College ID cards.

Departmental Procedures

How do I submit exercises?

Each module organiser will tell you at the start of the module how to submit exercises for that module. Some modules will use the brightly coloured locked collection boxes located along the walls at the west end of the basement and opposite the lifts on the ground and second floors of the Mathematical Sciences Building. For modules that use a collection box, you must "post" your exercises through the slot in the correct box by the deadline specified by the module organiser. **If you put it in the wrong box then you have not submitted it. You will probably lose your exercises and any marks.**

You must clearly print your student number and your name as registered with the College, with your surname underlined, at the top of the first page of all exercises you submit. We may not accept work that does not meet this requirement, in which case you will score a mark of zero if the exercise carries marks.

We try to return all submitted exercises but we cannot guarantee to do so and occasionally exercises get lost. Therefore, you should take a copy of any exercises that you want to keep before you submit them. If you have a computer and scanner, it will cost you nothing to scan all your exercises before you submit them.

How do I submit project reports?

Each project module organiser will tell you how to submit your project report, but normally you should submit it to the Maths Office. Two copies will normally be required since your report will be read independently by two examiners. The Maths Office staff will attach a note to your report showing the date they received it, and they will give you a receipt. Keep this in case you need to prove when you submitted your report. Project reports must have a title page showing clearly the module code and title, the title of your report, and your full name and student number. They must be robustly bound so that they can be easily read without falling apart.

A project report should look like any well produced printed document and if it is a

mathematical report then it should look like a well produced mathematics textbook. The content is more important than the presentation, but presentation is also important. In particular, you may lose marks for poor spelling and grammar; note that Microsoft Word has a built-in spelling and grammar checker that you would be well advised to use. Divide your text into paragraphs that each deal with one idea or a small number of related ideas.

Unless you have been specifically instructed to the contrary, use normal single-spaced lines of text. Unless the document is very short, divide it into sections, subsections, etc, each with a clear heading, as illustrated by this handbook. If the document is longer than one page, include page numbers. You can draw diagrams by hand or by computer as you prefer, but make sure they are neat, clear, and annotated as appropriate. Tables should have captions above them and diagrams should have captions below them. You can print your report single or double sided, as you prefer. Use of colour is optional.

Correct referencing of other people's work that you have used in your report is essential and will help avoid accusations of plagiarism; see "What is plagiarism?" on page 21 and "How should I include bibliographic references?" on page 21.

How do I get help?

If you have administrative or technical questions relating to a specific module then you should approach the module organiser, either at the end of a lecture or in the module organiser's office hours. Many modules, especially in the first year, have exercise or computing classes, where you have an opportunity to ask questions of the teaching assistants (who may range from graduate students to senior staff). Some module organisers may also provide additional support for students who are finding the module difficult – ask about this if necessary.

What is PASS: Peer Assisted Study Support?

- PASS offers help with all first-year maths modules to smooth your transition from school or work to university study.
- It consists of friendly drop-in study sessions run by student mentors who have successfully completed the first year.
- You can also pop in and talk about anything related to university life (e.g. where something is on campus).

WE CAN HELP YOU PASS

Student mentors are volunteers who are keen to share their knowledge and experience to help you succeed. We train them to run effective PASS sessions.

A student mentor explains: PASS sessions are more like discussion groups than exercise classes. The mentors encourage you to have discussions amongst yourselves before asking for help.

For further details contact Dr Juan Valiente Kroon (see "How do I contact staff?" on page 8), see the PASS posters around the Mathematical Sciences Building or visit www.maths.qmul.ac.uk/undergraduate/student-support.

Do I need to buy textbooks?

Most module organisers recommend one or more textbooks, the main ones of which should be available in the College library. Buying textbooks is normally optional although you will find it helpful to have some textbooks of your own.

However, you must buy the recommended textbook for Calculus I and II, Thomas' Calculus, which includes an access code for Course Compass, the web-based teaching resource we use. You can buy the book together with an access code at the start of the academic year from the Queen Mary bookshop at a reduced price of £34.99; the full price is £52.99 which is partly subsidised by the School of Mathematical Sciences. The reduced price is significantly less than the price of the access code alone on the open market. Therefore, we recommend that you do not buy this book elsewhere and do not buy it second hand because you will still need to buy a new access code, which will cost you almost as much as the book itself.

What happens if I am absent?

We expect you to attend all elements of your course, i.e. all lectures, exercise classes, lab sessions, tutorials, and other events that are part of your modules. If you are absent from College for more than a day or two then please always let your adviser know (preferably by email) at the earliest opportunity; see also "How do I report extenuating circumstances?" below.

Submission of exercises is one of the ways we assess your attendance. We will also collect evidence of attendance from time to time by registers, which it is your responsibility to sign.

Poor attendance will result in the Senior Tutor sending a notice to your Queen Mary email address. If you do not reply to this within seven days, we will put a record of your poor attendance in your file. This information may be passed on to your local authority or used in any reference from the School.

Attendance is important; failing to attend usually leads to failure in assessment, and persistent absence may result in deregistration (see "Why might I be deregistered?" below). Reading lecture notes is not a satisfactory substitute for attending lectures.

Why might I be deregistered?

In cases of persistent absence or persistent failure to submit exercises, we may deregister you from a module. Deregistration withdraws you from the module. You may not attend any further lectures or classes, submit any further exercises, or sit the examination.

The module will appear on your transcript with a mark of '0' (Fail) and you may not register to resit that module later. Once we have deregistered you from a module, you may not register for additional modules during that or subsequent years. If we deregister you from more than 30 credits (normally two modules) during an academic year, we will terminate your enrolment at Queen Mary.

If you fail to submit two weeks' exercises for any particular module without good reason (or if you fail to submit one week's exercises and there is additional evidence of poor attendance) the Senior Tutor will send a notice to your Queen Mary email address. If you fail to respond and adequately explain why you failed to submit the exercises, or you continue to be absent or fail to submit exercises, we will deregister you from the module. The College will send you a letter informing you of this and we will place a copy in your file. This information may be passed on to your local authority or used in any reference from the School.

How do I report extenuating circumstances?

If you believe that circumstances beyond your control have affected your performance in a particular item of assessment, or more generally, then you may wish to register extenuating circumstances. Extenuating circumstances include illness, death of a close relative, etc. Extenuating circumstances do not normally include computer problems, printing problems, misreading information, holidays, or similar avoidable circumstances.

Extenuating circumstances forms are available from the Maths Office and www.maths.qmul.ac.uk/undergraduate/forms-guidelines. If you believe that you have a case for consideration, you should complete the appropriate form and supply supporting documentation, such as medical certification, a death certificate, police report and crime number, or other written evidence from a person in authority. You must submit the paperwork to the Maths Office by the specified deadline.

We must receive all claims as soon as possible after the event and no later than 24 hours before the relevant Examination Board meeting; see "Examinations" on page 3. We do not accept claims made late without a good reason. Please note that although we may accept accompanying documentation late, we cannot consider claims without any evidence.

A small subcommittee of the Examination Board considers all cases of extenuating circumstances. All proceedings of the subcommittee are strictly confidential, and will not normally be discussed at the full Examination Board (or with anyone else).

It is your own responsibility to report extenuating circumstances, not that of your adviser. Please ensure that you complete the submission process in accordance with the guidelines and deadlines.

Normally, only the Pastoral and Senior Tutors see any supporting evidence. We do not distribute it to other staff, but we may disclose it in confidence to relevant College officials. Maths Office staff will process the form itself. Copies will go to your adviser, any relevant module organisers and your file, and will be available to any staff writing a reference for you.

What if I miss exercise submissions or tests?

If you report that an extenuating circumstance prevented you from submitting exercises and/or attending a test and we accept your reason then we will excuse you. We show an excused mark as E.

If you are absent for more than 5 days you must provide supporting documentary evidence such as a letter from your GP.

We normally ignore any excused marks when computing your overall average mark. Note that this puts more weight on your other assessed work.

If you miss exercises and/or tests for modules taught by other departments then you should speak to the module organiser directly and follow the rules of the department concerned.

What if I miss examinations?

Do not delay! If you report that an extenuating circumstance prevented you from attending an examination and we accept your reason then we will allow you to sit the examination later without any penalty (unless you graduate anyway).

We normally require documentary evidence such as a medical certificate or letter (a prescription is not acceptable) from the College Medical Centre, a GP, a hospital or the police. **Please note that a medical certificate or letter from the Health Centre or your GP must clearly state that you were unfit to sit examinations during a specified period.** If you submit the form by post then it is your responsibility to ensure that it arrives in time.

An examination sat later than normal because of extenuating circumstance is called a “first sit”. You normally take “first sits” the following May but we may allow you to take those necessary for progression in August. If you are a finalist and you pass enough credits to graduate then we will take account of any examinations missed because of extenuating circumstance when classifying your degree.

Note that if you attend an examination but later tell us that you were ill during the examination we cannot normally grant you a first sit. If you feel ill before an examination then it may be best not to attend the examination but instead to seek medical advice and submit a medical certificate.

What if my studies are generally disrupted?

If extenuating circumstances either disrupt your studies for a substantial period or have a substantial direct effect on your examination performance (but do not necessarily cause you to miss any assessments) then you should discuss your case with the Senior or Pastoral Tutor before completing a form.

If you wish the department to take account of your extenuating circumstances when determining your progression or degree classification then you should support your form with documentary evidence such as a letter from the College Medical Centre, a GP, a hospital or the police. **The Examination Board will not consider extenuating circumstances without supporting documentary evidence.**

Can I retake the year?

If you expect that you might not meet the hurdle to progress, but have extenuating circumstances, you may be able to retake the year. **In order to be considered for a retake, you must request this before the end of the examination period, i.e. before you know any of your examination results.**

You must demonstrate that significant extenuating circumstances have been present for much of the academic year, which, for example, have led to your missing large parts of Semester A or B. Normally, extenuating circumstances covering only parts of the revision period or the examination period are insufficient. For further information see www.welfare.qmul.ac.uk/documents/leaflets/extcircs/5069.pdf.

You should provide the Senior Tutor with a one-page summary detailing your case. Summarize briefly any extenuating circumstances affecting the current year and, where appropriate, refer to extenuating circumstances forms you submitted earlier. For recent occurrences that have not been covered by previously submitted extenuating circumstances forms, you should also submit a new extenuating circumstances form. The Senior Tutor will be able to advise you on whether a request to retake the year might be successful.

If you want to go ahead with a retake request, you need to complete a College Retake of Academic Year form, which is available from the Registry, room CB05 in the Queens’ Building. Hand in all completed forms to the Maths Office.

How do I interrupt my studies or withdraw?

If you decide to withdraw from Queen Mary, either temporarily or permanently, you should discuss the matter with your adviser and read www.arcs.qmul.ac.uk/registry/instructions_for

_interruption_and_withdrawal_forms.pdf. If you decide to proceed, you must complete an "Interruption of study" or "Withdrawal from College" form, which is available from the Registry, room CB05 in the Queens' Building, and at www.arcs.qmul.ac.uk/registry/maintenance_of_student_records.html. Then take the form to the Senior Tutor, who will want to discuss it with you before agreeing to sign it.

If you wish to interrupt, i.e. withdraw temporarily, then you must do so by the end of the second semester. Interruption of studies is normally for one complete year but, in exceptional circumstances, the period may be up to two years. If you interrupt your studies then you lose the automatic right to enter examinations for modules that you took before you interrupted, and we will not allow you to enter for any examination in which you would be the only candidate.

What if my exams are disrupted?

It is essential that you inform the Senior Tutor in writing well before the end of the examination period of any difficulties that have affected your examination performance. The examination board cannot take account of difficulties you have not reported. The fact that the board was not aware of such difficulties is not grounds for you to appeal against your degree class unless you can prove that it was impossible for you to inform the board.

The examination board considers medical certificates and similar material. However, even when the board makes allowance for medical or other problems, it cannot always give full compensation. The board will recommend only the degree class it is confident you would have achieved, not what you might have obtained in other circumstances, but the board may be able to make allowance for circumstances that result in you performing worse in some examinations than others.

You should provide the Senior Tutor with a one-page summary detailing your case. Summarize briefly any extenuating circumstances affecting your time at Queen Mary, one per paragraph. If your academic results are such that your extenuating circumstances might make a difference then the examination board will consider your summary.

The summary should normally refer to extenuating circumstances that you have reported. However, if they occurred very recently then you may submit the report form and supporting documentation with the summary.

How do I choose or change modules?

You should choose or confirm your modules during the enrolment period before the start of teaching in Semester A and confirm your choices at the start of Semester B. Module registration is now handled online by the Queen Mary Student Information System (SIS); see www.maths.qmul.ac.uk/undergraduate/forms-guidelines/module-registration.

Advice for continuing students

Please note that your adviser may have changed; see "How do I know who my adviser is?" on page 6. If your progression depends on late summer examinations then you may not be able to enrol or register for modules until the first week of teaching.

You should register for all the modules that you propose to take during the current academic year. We should have pre-registered you for the compulsory modules shown in your current study programme.

Most modules have prerequisites and some have overlaps; see www.maths.qmul.ac.uk/undergraduate/modules. You cannot take a module if it overlaps with one that you have already passed or that you are currently taking or will resit. You may normally take a module only if you have taken all the prerequisite modules. If you have not taken one or more prerequisite modules then you should consult the module organiser before registering, otherwise you may find the module too difficult.

Registrations for some modules must be validated, meaning that you must obtain approval (usually from the module organiser) to register for that specific module. **Obtaining this approval is entirely your responsibility.** You can find information about module validation online at www.qmul.ac.uk/modules/registration/.

It is your responsibility to ensure that you satisfy all module requirements. You must normally have written permission from both the Senior Tutor and the Registry to take modules taught outside Queen Mary; for

approved modules run by other colleges and institutes of the University of London, you must complete an intercollegiate course registration form available from the Registry.

What if I have failed modules?

You may attempt each examination at most three times but you cannot resit any examination you have already passed. Once you have passed enough credits you will normally graduate, after which you cannot resit any modules.

It is possible to **retake** a complete module, especially if you are retaking a year. Otherwise, your second and third attempts at a module will be **resits** of the examination alone (without attending any of the teaching for the module) and the maximum overall mark you can obtain will be limited to the minimum pass mark; we say that the mark is "pegged". You must resit examinations at the first opportunity. A resit examination does not count towards the credits that you take in each academic year.

If we discontinue or substantially change a module and no comparable examination paper is being set then we will set a special resit paper for that module, if required, on **one occasion and no more.** We may not allow you to resit modules that have a large element of continuous assessment. **Before you register for a resit you should check with the module organiser whether you can resit** and how we will handle the continuously assessed component for resit candidates. You should check with the current module organisers for any minor changes that may affect your resit examinations.

In summary, the following regulations normally apply to resit examinations:

- You must resit each examination at the first opportunity.
- We currently allow you three attempts at any one module (i.e. two resits).
- When there is a change in either style or content of the examination paper from one year to the next, resit candidates will be set a special resit paper that is comparable to the original one; they cannot take the current year's paper.
- You must make any request to waive any of these regulations by writing to the examination board chair by
    - 31 January for examinations the following May, or
    - 15 July for examinations the following August.

Can I change my study programme?

Your study programme is initially the same as the course for which Queen Mary accepted you. Part 5 of this handbook gives details of all Mathematical Sciences study programmes, which specify what modules you must take. Provided you meet the programme requirements, you can choose your optional modules, subject to the approval of your adviser.

We may allow you to change your study programme, but all such changes require careful consideration and formal approval. You must follow the procedures below in the order shown and complete a College Change of Programme of Study form, which is available from the Registry, room CB05 in the Queens' Building, and on the web at www.arcs.qmul.ac.uk/registry/maintenance_of_student_records.html. **If this form is not completed and returned to the Registry then you will not have changed your study programme; there is no other mechanism!**

How do I change to a new Mathematical Sciences study programme?

1. Complete a Change of Programme of Study form and obtain your adviser's signature (at the bottom of the front of the form; there is no designated area for this signature).
2. On a copy of the new study programme (in Part 5: Study Programmes of your printed handbook or printed from the web):
    - put a tick against all modules taken in previous years; and
    - put a cross against all modules that you propose to take in the current year.
3. Take the completed form and marked study programme to the director of the proposed new programme. If the director accepts the change then leave the form with the director, who will also sign the bottom of the front of the form (by your adviser's signature) and then forward it to the Senior Tutor to complete the processing. Keep the marked study programme as a guide for yourself (and your adviser).

We will not normally allow you to transfer to G1N1, GN13, GL11, G1L1 or G1N4 because these programmes are normally full.

Can I transfer between BSc and MSci?

At the end of the first year, we invite BSc students who have obtained an A-grade average to transfer to the four-year MSci programme. We may also allow BSc students who have obtained a B-grade average to transfer to the MSci programme at their request. Transfer to MSci is possible up to the start of your third year, but you may not be able to extend your funding if you transfer after the start of your second year.

An MSci candidate may opt to transfer to a BSc degree, which has lower "hurdles", at any time up to the start of the third year of study. Later transfer to BSc **may** also be possible but will need approval by the Registry. If you are a candidate for the MSci and you fail to obtain enough credits for the award of the MSci we can consider you for a BSc degree, although we may delay the award of the BSc until the time when you would have completed the MSci programme.

How do I change to a new Study Programme run by another department?

1. Visit the school or department that runs the study programme you want to transfer to and discuss it with them. If they agree to the change then complete a Change of Programme of Study form.
2. Take the completed form to the Senior Tutor for Mathematical Sciences for approval of your release from the School of Mathematical Sciences and inform your adviser.
3. Take the completed form to the other department and follow their procedure for approving a change of study programme. They may require you to return the form to the Registry yourself.

How do I update my personal details?

It is important that the College has up to date personal details for all students. Please ensure that if you change your home or term-time address, telephone number or other details you update them at http://mysis.qmul.ac.uk. If you change your name then you will need to provide evidence to the Registry by visiting Queens' CB05 and also notify the Maths Office to update our departmental records.

Can I study abroad?

The College runs an exchange programme, co-ordinated by the Study Abroad Officer, Mr Harry Gibney, in the Registry. You normally spend the second year of a three-year programme abroad and you need to begin arrangements early in the first year.

The School of Mathematical Sciences also participates in the Erasmus exchange programme administered by the European Commission. This programme offers students the opportunity to study for a period of several months to a year at a university in another European Union (EU) country. The particular networks with which the School of Mathematical Sciences is connected involve more than 40 universities in the EU, with at least one university representing each country in the EU.

Any student interested in studying abroad should contact Prof. Bernard Carr in Mathematical Sciences (see "How do I contact staff?" on page 8.

What are lectures, exercise classes, tests, exams, etc?

In place of the classroom teaching normally used in schools, we use lectures and exercise classes to teach most of our modules. You also need to spend time on your own studying and attempting exercises; we expect you to spend about 40 hours per week on your degree course, of which we timetable about 16 hours.

We will assess you by a mixture of exercises, in-term tests and end-of-year exams; see www.maths.qmul.ac.uk/undergraduate/modules for details of how we assess each module. But note that un-assessed exercises are just as important as assessed exercises; the main purpose of exercises is to help you learn and give you practice for the tests and exams.

Queen Mary policy is that all teaching starts at 5 minutes past the hour and finishes at 5 minutes before the hour, which gives you a 10-minute break between classes. If any member of staff fails to adhere to these times (other than occasionally) then please complain; see "How do I complain?" on page 10.

Lectures

In a lecture, the lecturer stands at the front of the room and talks. The lecturer will normally also write on a board or project slides onto a screen. The written information may include everything important or it may include only key points, depending on the style of the lecturer. You need one or two pens and a pad of paper to write your own lecture notes. What you write is up to you but it will normally form your main record of what the lecturer has taught in the module.

You will generally need to copy carefully what is on the board or screen unless the lecturer provides full lecture notes on paper or on the web. Generally, printed or online notes provided by the lecturer are not a substitute for notes you take yourself.

It is essential that you do not talk while the lecturer is talking. We will take disciplinary action against any student who disrupts lectures in any way.

You should regularly review and correct your notes, check for any points you do not understand and try to resolve them, asking in the exercise classes if you cannot sort them out for yourself. Nobody will look at your lecture notes except you. It is very important that you keep up with each module since mathematical modules tend to refer back to, and rely on, material covered earlier. You should keep your lecture notes for revision.

The module organiser will set problems as exercises. Working through the exercises is essential in order to understand each module. Moreover, we use the handing in of exercise solutions as an "attendance register".

Exercise classes

In a mathematical sciences exercise class there will normally be several members of staff and PhD students to help you with specific problems. It is up to you to ask them questions (about any aspect of the module). However, their job is to guide you towards the solutions to problems, not just to tell you the answers!

You should try to solve the problems **before the class** by looking up the meanings of relevant terms in your lecture notes or appropriate textbooks or by searching the web. If you cannot solve a problem then make yourself a note to ask for help in the next exercise class. There is not enough time to write out all the solutions during the classes, but there should be time to ask questions about the things you do not understand **provided you have thought about them beforehand**. The exercise classes for some modules take place in a computing laboratory.

Tests

These are mini-exams, normally held in week 7 of the semester, but some modules may have a second test in week 12 at the end of the semester. Examination regulations apply to tests. Many departments use week 7 as a “reading week” but the School of Mathematical Sciences uses it as a “consolidation, revision and test week”. Week 7 has a different timetable from the rest of the semester, which will be published on the noticeboard and the web by week 6.

Time management

Ideally, you should make up your own study timetable, including lectures, and specify when you are going to read the lecture notes and do the exercises each week. Studying at university is a full-time job; the standard expectation of time spent by students studying for a degree is 1200 hours per year. That is equivalent to 150 hours for each 15-credit module and to 40 hours per week for 30 weeks of the year.

How must I behave?

The Queen Mary Code of Student Discipline, available at www.arcs.qmul.ac.uk/student_complaints, covers general student behaviour. Below is more detail of the behaviour required of Mathematical Sciences students.

When must I not talk?

You must not talk (except to members of staff) in lectures, in the library (except in designated areas) or in computing laboratories. **If you persistently talk in lectures or in quiet areas of the library then the College may take disciplinary action against you; we take a serious view of behaviour that prevents other people from working.**

When must I not use my mobile phone?

You must not use a mobile phone or allow your mobile phone to make any sound in lectures, classes, the library, computing laboratories or staff offices. If you do then a member of staff may ask you to leave.

You must **switch off** your mobile phone in all tests and examinations. **Allowing your mobile phone to ring during a test or an**

examination is a disciplinary offence that will normally lead to failure in the test or examination with a mark of zero, with more severe penalties for a second offence.

What is an examination offence?

Queen Mary takes your assessment very seriously. This means that we must strictly obey the rules governing assessments, but so must you. Generally, calculators are not allowed in examinations, but if calculators are allowed then the examination rubric will state this clearly, so be sure to read the rubric. If you use a calculator in an examination in which calculators are not allowed, you can expect to receive a mark of zero for the examination. It is also an examination offence to take any notes into the examination room even if you do not look at them, to look at another student's work, to disrupt the examination in any way or to fail to do what an invigilator asks you to do. These rules apply also to tests.

How are students represented?

Your views are important to the School of Mathematical Sciences and to Queen Mary. You can communicate your opinions to us in a variety of ways. At College level there are student representatives on Council and Senate and the School has a Student-Staff Liaison Committee.

What is the Student-Staff Liaison Committee?

The School of Mathematical Sciences Student-Staff Liaison Committee (SSLC) meets at least once a semester. It discusses matters of interest to undergraduates, including the curriculum, student welfare and facilities, and advises the Head of School. The Students' Union arranges elections for two student representatives from each year and we display their photographs and names in the first-floor corridor of the Mathematical Sciences Building opposite the staff photographs. Please raise any matters of concern with one of your student representatives.

The School takes suggestions from the SSLC very seriously. The committee is chaired by the Director of Studies and attended by the Head of School and the Senior Tutor. We provide full details of the SSLC on our Blackboard site, including contact details for members and minutes of past meetings; see www.maths.qmul.ac.uk/undergraduate/feedback.

What are module evaluation questionnaires?

In week 6 of each semester, we will ask you to complete a standard one-page questionnaire for each of the Mathematical Sciences modules that you are taking. We use the results to try to identify any problems and rectify them as quickly as possible.

How can I provide personal feedback?

You are welcome to make (polite) informal comments to members of staff, such as your module organisers or adviser, and we will try to pursue any serious suggestions that may lead to improvements in our procedures.

What is the National Student Survey?

All final-year students at UK institutions take part in the National Student Survey (NSS). This is your opportunity to share your experiences of Queen Mary with the wider world and future students. Please do complete the NSS, and fill it in honestly. If you are a finalist, the NSS organisers will usually contact you by email in the spring term. The results are important as they are used in compiling university league tables, which can determine national university 'rankings' in the press.

What are student ambassadors?

We employ a few students to act as tour guides and talk to prospective students who attend College Open Days or visit us after we have made them an offer of a place. There are similar opportunities within the College. Look out for emails and notices if you are interested, and see our Student Support web page at www.maths.qmul.ac.uk/undergraduate/student-support.

What are the marking and grading criteria?

Marking of assessed work in mathematical sciences is normally objective and specified down to a level of around 1–2% for an exam or around 5% for a test or exercise. We award marks for knowledge (e.g. reproducing definitions, theorems and proofs), understanding (e.g. applying definitions and theorems and constructing proofs) and

technical ability (e.g. completing calculations correctly). We normally award partial marks for partial answers, such as partly correct knowledge, partial understanding or partly correct calculations.

All elements of assessment will include an indication of the allocation of marks to questions or sub-questions (although not necessarily at the level of detail used to mark the work). All assessment will follow the Queen Mary Code of Practice on Assessment and Feedback.

Mark ranges and their corresponding grades broadly mean the following.

100–70%, A
Excellent knowledge base with perceptive understanding of mathematics. Able to calculate quickly and accurately. Outstanding comprehension and clarity of expression.

69–60%, B
Good knowledge base and understanding of mathematics. Able to calculate quickly and accurately in most situations. Good comprehension and clarity of expression.

59–50%, C
Adequate knowledge base and understanding of basic mathematics. Able to calculate quickly and accurately in some situations. Acceptable comprehension and clarity of expression.

49–40%, D, E
Limited evidence of understanding or ability to apply basic mathematics. Limited ability to calculate quickly or accurately. Limited ability to construct a logical argument. Poor comprehension. Explanations lack precision and clarity.

39–0%, F
No evidence of understanding or ability to apply basic mathematics. Unable to calculate quickly or accurately. Unable to construct a logical argument. No comprehension. Explanations lack meaning.

Writing and Assessment

What are exercises?

For most of our modules, we set exercises approximately once a week to illuminate the previous week's teaching. You must attempt these exercises in your own time, write out neat solutions and hand them in if required; the module organiser will tell you, usually in a lecture early in the semester. (We sometimes refer to these exercises as "coursework".) **Doing the exercises for each module is compulsory.**

Depending on the module, we may:

- assess or mark some exercises and count the marks (usually as 10%) towards the final mark for the module;
- “correct” or write comments but not marks on some exercises to provide you with feedback to help you learn;
- not look at any of the exercises.

We will provide “model solutions” on the web (and possibly also in other ways) to most of the exercises that we set, which you should use to learn how the module organiser would solve the problems. If your solution is different then it may still be correct, although the model solution may be better (e.g. more elegant, more succinct or more sophisticated).

There are normally weekly exercise classes in which you can get help, although higher-level modules may not have exercise classes.

How will you assess me?

The main types of assessment that you will encounter as Mathematical Sciences students are:

- exercises;
- tests;
- written examinations;
- project reports and presentations.

As explained above, if we assess exercises then they normally contribute 10% in total to the overall mark for a module.

Tests are short examinations held during the semester, usually near the middle or the end. Tests normally contribute 10% (if there are assessed exercises) or 20% (if there are no assessed exercises) to the overall mark for a module.

Final written examinations take place during the main and late summer examination periods and normally contribute at least 80% to the overall mark for a module.

A project involves writing a report that carries most of the marks and also giving a short presentation that may increase your marks if you do it well.

To get full marks in any assessed work (exercises, tests or exams) you must not

only give the right answers but also explain your working clearly and give reasons for your answers by writing legible and grammatically correct English sentences. Mathematics is about logic and reasoned arguments and the only way to present a reasoned and logical argument is by writing about it clearly. Your writing may include numbers and other mathematical symbols, but they are not enough on their own. You should copy the writing style used in good mathematical textbooks, such as those recommended for your modules. You can expect to lose marks for poor writing (incorrect grammar and spelling) as well as for poor mathematics (incorrect or unclear logic).

If you take modules taught by other departments then you may have to write assessed essays, computer programs, or laboratory reports.

What is plagiarism?

Plagiarism is the failure to credit the writings or ideas of another person that you have used in your own work. In such cases, you are deliberately or inadvertently attempting to pass their work off as your own. Plagiarism is a serious offence and can carry severe consequences, from failure of the module to deregistration from the College. You may also commit plagiarism by failing to reference your own work that you have submitted previously, or by failing to credit the input of other students on group projects.

It is your responsibility to ensure that you understand what plagiarism means and how to avoid it. The recommendations below can help you in avoiding plagiarism.

- Be sure to record your sources when taking notes, and to cite these if you use ideas or, especially, quotations from the original source. Be particularly careful if you are cutting and pasting information between two documents, and ensure that references are not lost in the process.
- Be sensible in referencing ideas – commonly held views that are generally accepted do not always require acknowledgment of particular sources. However, it is best to be safe to avoid plagiarism.
- Be particularly careful with quotations and paraphrasing.
- Be aware that technology is now available at Queen Mary and elsewhere that can automatically detect plagiarism.
- Ensure that you reference appropriately all works used in the text of your work and fully credit them in your bibliography.
- If in doubt, ask for further guidance from your module organiser, project supervisor or adviser.

How should I include bibliographic references?

Look at some published mathematical research papers for examples of how to reference previous work. Many suitable research papers are available via the Queen Mary Library and the research section of the School of Mathematical Sciences web site at www.maths.qmul.ac.uk/research.

Different publications use different referencing styles; you should choose one and use it consistently. What is most important is to provide enough information that the reader can find the document you are referencing. You must always include the author and document title, and you must include the publication date of a printed document and the date when you last accessed an online document. We hope to provide more detailed online guidance for preparing project reports.

What writing support is available?

Mathematical Sciences students often have difficulty writing essays and other descriptive text. However, this is an essential skill that you will probably use much more than mathematics in your working life, so you need to improve it during your university course.

- We offer some general guidance on mathematical writing at www.maths.qmul.ac.uk/undergraduate/forms-guidelines/reports-and-documents.
- You can take our module MTH5117 Mathematical Writing in your second or third year.
- The Drapers' Skills Award spans the first and second years and includes a writing component; see www.learninginstitute.qmul.ac.uk/ee/dsa/.
- The Mind the Gap Undergraduate Journey Planner includes resources to support writing; see www.mindthegap.qmul.ac.uk.

- The Language and Learning Unit provides a free Academic Study Programme that aims to prepare you for all aspects of academic study and help you manage your own success as a student; see www.languageandlearning.qmul.ac.uk.

How are examinations organised?

How and when will I get my examination timetable?

We will invite you by email to collect your individual examination timetable from the Maths Office towards the end of Semester B. Please check it and report any errors to the Registry immediately. In particular, check your resit and first sit entries.

How and when can I get my results?

- If you would like to have your provisional results posted to you in June then please leave a stamped addressed envelope with the Maths Office. This envelope must show your full name and student number clearly.
- Provisional classifications for finalists will be displayed (showing student numbers but not names) in the Mathematical Sciences Building by 1:00 pm on Thursday 23 June 2011. (If you prefer not to have your results displayed then you should advise Ms Caroline Griffin in the Maths Office by the end of the examination period.)
- You can collect provisional results not sent by post from the Maths Office after 2:00 pm on Thursday 23 June 2011.
- Your adviser should be available on Thursday 23 and Friday 24 June 2011 to discuss future options with you. **Please have your results with you when you visit your adviser.**
- We release results only to students who are not in debt to the College. **We do not give results over the phone or by email.** However, we expect that you will be able to access your results online at http://mysis.qmul.ac.uk.
- Note that the results provided by the School are “provisional” because the Degree Examination Board has not yet formally approved them; only the Registry can provide official results. However, no member of the School of Mathematical Sciences can change the results at this stage.
- The Registry will send out official notices of results, approved by the Degree Examination Board, by post to your registered home address by about the end of July.

Am I eligible for late summer examinations?

Late summer examinations are currently not available for finalists. If you are a non-finalist then we will offer you late summer **first sits**. Otherwise, individual departments decide whether to offer late summer examinations for modules they teach and if so whether to offer them only to students in their first developmental year. See the Student Guide for details. We will enter you automatically for late summer resits for which you are eligible. You cannot withdraw and if you are absent then it counts as a fail.

We will put the late summer examination timetable for Mathematical Sciences modules on the web at www.maths.qmul.ac.uk/undergraduate/exams as soon as it is available.

Queen Mary Registry will post official results to your home address by about mid September; **results will not be available in any other way**. But you can check from the second week of September onwards whether you progress by emailing maths-ug (add @qmul.ac.uk to complete the email address).

Please note that academic staff members are available to help you with your modules during term time, but not generally during vacation time, and certainly not without you first making an appointment.

How do I progress to the next year or graduate?

How many credits must I pass?

In the following, level 3 modules including Essential Mathematical Skills (EMS) do not contribute to the minimum numbers of credits required either for progression from one year to the next or for obtaining a degree. However, the marks from level 3 modules (other than EMS) do count towards your degree classification.

You must normally accumulate passes in 270 credits (normally 18 modules) to obtain a BSc

degree and 420 credits (normally 28 modules) to obtain an MSci degree. Furthermore:

- A BSc student must pass EMS and 90 credits (6 modules) to progress into the second year and 180 credits (normally 12 modules) in total to progress into the final year.
- An MSci student must pass EMS and 105 credits (7 modules) to progress into the second year, 210 credits (normally 14 modules) in total to progress into the third year and 300 credits (normally 20 modules) in total to progress into the final year.

These numbers include modules passed by resitting examinations failed at an earlier stage.

You will not normally be entitled to continue studying at Queen Mary if you fail to pass the required number of credits at the end of any given year (including late summer examinations). However, after a year out of attendance, you may resit those examinations for which you are eligible.

During a year out, you cannot attend lectures or exercise classes. You may occasionally consult your adviser or seek information from a lecturer, but we can offer only very limited advice and assistance.

How do you grade my degree?

We will grade your degree from best to worst as either first, upper second, lower second or third class, or pass. (All University of London degrees, including pass degrees, are honours degrees.)

Provided you began your current degree programme in 2004 or later, we will base your degree classification on all the modules you took, i.e. all 360 credits for a BSc degree or all 480 credits for an MSci degree. For a BSc, modules taken in the first, second and third years will be weighted 1:3:6 respectively. For an MSci the weighting will be 1:2:4:4. The year referred to here is "developmental year", which indicates progression through a study programme and hence corresponds to the number of credits passed, not to the number of calendar years of study. The resulting College mark will be on a percentage scale.

We will base your degree classification on the scale shown in Table 4 below but if your weighted mark places you at or just below a borderline then we can take account of other relevant information. The exam board would usually **consider** promoting any candidate who is up to 2% below a borderline, although we might occasionally look lower. So for example if your overall College mark is 58.00–59.99 we would be looking to see if your overall performance justified a 2:1. We look at all the information we have in making a decision and the opinion of our external examiners is very important. They will often look especially at the scripts of candidates in a borderline range.

Table 4: Degree classification

	College mark ≥ 70%	:	First class honours
70% >	College mark ≥ 60%	:	Second class honours, upper division
60% >	College mark ≥ 50%	:	Second class honours, lower division
50% >	College mark ≥ 45%	:	Third class honours

If you have passed sufficient credits for the award of a degree but your College mark falls below 45% then you will normally be eligible only for the award of a pass degree.

If you are a BSc candidate

- and you have
  - either passed at least 270 credits in total but fewer than 270 credits at level 4 or above,
  - or passed only 240 or 255 credits at level 4 or above
- and you have a College mark above 40%
- and your performance has been affected by illness or other acceptable cause

then we may offer you the award of a pass degree. You may opt to either receive the pass degree or resit failed examinations next year in an attempt to meet the requirements for a third-class degree.

If you are an MSci candidate and you fail to pass the required number of credits at the end of the MSci degree programme then you may opt to resit failed examinations next year or

transfer to a BSc degree, in which case modules taken in your final year will not count towards your degree class.

If you have passed enough credits then we will normally classify you for honours. However, you may request postponement of honours, in which case we defer classification for a year, if either:

- you transferred from one degree programme to start another from the beginning, so that only the modules taken in association with the second degree programme will count or be included in the calculation of the College mark; or
- your overall performance has been significantly affected by absence from final year examinations for reasons acceptable to the examination board. You may request to sit the missed exams as if for the first time the following year.

The Student Guide

The Student Guide is a College publication that you will receive at the start of the academic year. (You can collect a copy from the Maths Office.) It is also available online at www.arcs.qmul.ac.uk/registry/useful_information.html. You should use the Guide together with this handbook for general information on your time at Queen Mary.

The Student Guide contains a wide range of information, including:

- Academic and student support services
- The academic year
- Campus facilities
- Simplified academic regulations
- "How to?" advice
- Queen Mary contact information
- Calendar
- Graduation and alumni
- Student administration, and common issues and processes
- College policies
- Campus and College information

Changes from Last Year

Here is a summary of changes from last year, mainly for the benefit of continuing students; please see elsewhere in this handbook for full details.

Modules

Part 1: Module Summary includes a summary of the key module changes that will affect continuing students this year; see also the online module details at www.maths.qmul.ac.uk/undergraduate/modules.

The probability stream

We are in the process of implementing revisions to the sequence of modules MTH4108 Probability I, MTH5118 Probability II and MTH6130 Probability III. Since these modules span three levels and hence normally three years of study, we are phasing the changes so that you follow the old sequence if you began in 2008 or earlier, or the new sequence if you began in 2009 or later. The main change is to split Probability II into two new modules, MTH5121 Probability Models and MTH5122 Statistical Methods, each of which focuses on either probability or statistics respectively. This will increase your flexibility of module choice by allowing you (subject to study programme constraints) to take one or the other or both modules.

Because we no longer have a module entitled Probability II, we need to change the titles (and hence codes) of Probability I and Probability III. This year, we have replaced MTH4108 Probability I by MTH4107 Introduction to Probability, but the syllabus has not changed, and we have replaced MTH5118 Probability II by MTH5121 Probability Models and MTH5122 Statistical Methods. Either MTH4108 Probability I or MTH4107 Introduction to Probability is an acceptable prerequisite for both MTH5121 Probability Models and MTH5122 Statistical Methods, so current second-year students can follow the new probability stream.

We are still offering MTH6130 Probability III this year, so that current third- and final-year students can complete the old probability stream. Next year, we will replace MTH6130 Probability III with the new module MTH6141 Random Processes.

Here is a summary of the changes:

MTH4108 Probability I, MTH5118 Probability II, MTH5119 Sampling, Surveys and Simulation
We no longer offer these modules.

MTH4107 Introduction to Probability
This is MTH4108 Probability I with a new title (and hence code); the syllabus is identical. The title change is necessary because we are withdrawing Probability II (and Probability III).

MTH5121 Probability Models, MTH5122 Statistical Methods
These two modules effectively replace MTH5118 Probability II and MTH5119 Sampling, Surveys and Simulation, with MTH5122 Statistical Methods replacing MTH5118 Probability II where it was compulsory in study programmes. MTH5121 Probability Models has content from MTH5118 Probability II and MTH6130 Probability III. MTH5122 Statistical Methods has content from MTH5118 Probability II and from MTH4106 Introduction to Statistics before its syllabus change in summer 2009.

MTH6141 Random Processes
This module will be offered from 2011–12 and will replace MTH6130 Probability III. This is primarily a change of module title, but we have reorganised the syllabus a little and moved some material into MTH5121 Probability Models.

Other module changes

MTH6124 Mathematical Problem Solving (Reading)
We have reintroduced this module, which we did not offer last year.

MTH6104 Algebraic Structures II
We are offering this module as a reading module rather than a lecture module this year.

MTH6122 Linear Operators and Differential Equations
MTH6123 Mathematical Aspects of Cosmology
MTH720U Relativity & Gravitation
MTH733U Fields and Galois Theory
We are not offering these modules this year due to resource constraints, but we may offer some of them again in the future. Comparable intercollegiate modules may be available at King's College London (KCL) or University College London (UCL).

MTH738U Additive Combinatorics
MTH739U Topics in Scientific Computing
These are new level-7 modules.

MSc/MSci Project Training
This is a new initiative. Students taking other project modules who are interested should consult the organiser, Prof. Oliver Jenkinson.

I24001 Mathematical Education for Physical and Mathematical Sciences
The Queen Mary module code has changed to INE6001. (The introduction of the SIS has led to the recoding of all intercollegiate modules.) This module no longer counts as an MTH module but you can still take it as one of the non-MTH modules allowed in the third or final year of all Mathematical Sciences study programmes.

Study programmes

We have tightened the restrictions on the years in which you can take modules at various levels.

Level-4 modules in your third or final year

We will no longer normally allow you to take level-4 (or level-3) modules after your second year, so you should take any optional modules at level 3 or 4 in your second year; see Part 5: Study Programmes towards the bottom of page 4.

Level-5, 6 and 7 modules

We will no longer allow you to take level-5 modules after your third MSci year, and we advise you not to take extra level-6 modules in your second year or level-7 modules in your third MSci year, other than those required by your study programme. For details, see Part 5: Study Programmes, especially page 4.

Transfer to MSci

If you wish to transfer to one of our MSci programmes, you should normally do so by the beginning of your third year. Exceptionally, we may allow you to transfer up to the end of the second semester of your third year, but only if you have already taken all the first, second and third year modules that are compulsory for the MSci programme.

The Student Information System (SIS)

Queen Mary has introduced a new Student Information System (SIS), which you can access online at http://mysis.qmul.ac.uk. The SIS will progressively take over processes that we previously handled on paper or within the School. Look out for further information by email and on the web. In particular, the SIS will handle enrolment, personal details and module registration, and we expect that you will be able to access your end-of-year results via the SIS. This year will be transitional and some information will be available via the SIS and elsewhere as in the past. We will continue to provide exercise and test marks by email via SID, the School of Mathematical Sciences Student Information Database.

The key aspect of the SIS is how it affects module registration for Mathematical Sciences students. Before you attempt to register for your modules this year, please read carefully the information in Part 5: Study Programmes and online at www.maths.qmul.ac.uk/undergraduate/forms-guidelines/module-registration.

Study Programmes

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Disclaimer

This handbook attempts to provide advice but please see the Queen Mary Academic Regulations for definitive information. Nothing in this handbook overrides the Academic Regulations, which always take precedence, and are available online at www.arcs.qmul.ac.uk/policy_zone.

Guidance for students in the first year

What is Essential Mathematical Skills?

Essential Mathematical Skills is a progression hurdle, which you must pass in order to progress from the first to the second year of any Mathematical Sciences degree programme, i.e. those listed later in this part of the handbook. It does not contribute to your progression or degree classification in any other way although it will appear on your results transcript, which potential employers will want to see. If you are in your first year then you must register for Essential Mathematical Skills **in addition** to the other eight modules shown on your study programme. (In fact, we should automatically register you for all nine modules.) Essential Mathematical Skills does not count towards the limit of 150 credits at level 3 or 4.

We will allow you seven attempts at the Essential Mathematical Skills exam during your first year and two resit attempts out of attendance the year after if necessary. As soon as you pass, you can stop attending the module and you will not need to take the exam again. You will have three attempts during the first semester and one attempt in January. These all count as first attempts and if you pass then your transcript will show a mark of 100% and an A grade. If you pass later,

your transcript will show a mark of 40% (a bare pass) and an E grade. **Your transcript will look better if you pass Essential Mathematical Skills by the end of January.**

If you do not pass Essential Mathematical Skills by the end of January then you should continue attending the tuition. You will have resit opportunities towards the end of the second semester, in the main examination period and in the late summer examination period. If you have not passed Essential Mathematical Skills by the end of August, you will not progress to the second year and you will have to take a year out of College. The following year you may attempt the resit examination towards the end of the second semester and in the main examination period. If you pass, you will progress to the second year and may continue your course; otherwise, you will not be able to continue on a Mathematical Sciences degree programme at Queen Mary.

For further details, including the dates of the exams run during the semesters, follow the link at www.maths.qmul.ac.uk/undergraduate/modules?module=MTH3100 to the module organiser's website.

Note that you should take Essential Mathematical Skills only if your home department is the School of Mathematical Sciences, i.e. your study programme is one of G100, G110, GG31, G1N1, GN13, GL11, G1N4, G1L1, GG14, FG31, G1C8, G102 or G1G3. In particular, you should not take Essential Mathematical Skills if your study programme is one of LG11 or GG41. Students who have progressed from the SEFP and already passed Essential Foundation Mathematics must still pass Essential Mathematical Skills, which covers different, although similar, material.

Guidance for students in the second and later years

Should I follow the current study programme?

Generally, you should follow the current version of your study programme, and if you began your undergraduate course in 2008 or later then you must follow the study programme for your degree that appears later in this part of the handbook.

However, there were significant changes to GN13 and G1L1 in summer 2008 that required us to maintain two different versions of those study programmes: one for students who entered in 2007 or earlier, most of whom have now graduated, and one for students who entered in 2008 or later. If you entered GN13 or G1L1 in 2007 or earlier then you should follow the latest version of the programme for 2007 entry. This appeared in the undergraduate handbook for 2009–10, which is available from the archive section at the bottom of the handbook web page at www.maths.qmul.ac.uk/undergraduate/forms-guidelines/handbook#archive.

When might the general regulations not apply?

We can request suspension of the regulations outlined in our study programmes if necessary in special cases.

If we allow you to change study programme then you may need to take more than 150 credits (10 modules) in total at level 4 in order to meet the requirements of the new programme. This will normally happen only if you transfer from GL11, which is the only Mathematical Sciences programme with more than two non-MTH modules in the first year. If necessary, the programme director for your new programme will either:

- waive one compulsory level-4 module; or
- liaise with the Director of Studies and the Senior Tutor to request suspension of regulations and allow you to take more than 150 credits (10 modules) at level 4.

If you take a year abroad, we will not require you to pass the full number of Queen Mary credits, although we may require you to meet an equivalent requirement from your year abroad.

What happens if I do not follow my study programme?

Normally, your degree title will be the title of your study programme. If you fail to meet any of the specific requirements of your study programme then we may give you the degree title "Mathematical Studies". Failure to pass specific modules will affect only the title and not the class of your degree. Provided you pass enough credits in total, your marks for all the modules you

have taken determine the class of your degree as specified by Queen Mary Academic Regulations.

What does “choose another *n* credits” mean?

A requirement of this general form in a study programme means that you must choose optional or elective modules to the value of *n* credits – normally each module is worth 15 credits – subject to any constraints stated in the requirement. The constraints may be that you can choose only MTH modules or only modules at certain levels. However, **you can choose additional modules from any lists of modules from which you have already chosen some modules** (provided they satisfy the constraints).

When choosing each optional or elective module, **it is your responsibility** to ensure that:

- the department teaching the module will allow you to take it (see below);
- you satisfy the prerequisites;
- it does not overlap with any module you have already taken, are taking or must take later.

To take INE6001 Mathematical Education for Physical and Mathematical Sciences you require approval from the Director of Studies; see the module details at www.maths.qmul.ac.uk/undergraduate/modules?module=INE6001. If you want to take any other intercollegiate module then you require the approval of the Senior Tutor and Registry. Some intercollegiate modules may not be available to select online but there will be a mechanism to allow you to register for approved intercollegiate modules. It may be best to register online for a full diet of Queen Mary modules initially and then change some to intercollegiate modules later.

Can I take Business Management (BUS) modules?

You can take Business Management (BUS) modules only if they appear in the current version of your study programme. The Business Management modules in our study programmes are all compulsory and there are no Business Management options. If you register for any modules that Business Management will not allow you to take then you will be deregistered later and you may have difficulty finding replacements.

Can I take Economics (ECN) modules?

You can take Economics (ECN) modules only if they appear in the current version of your study programme or your study programme is GL11. If you register for any modules that Economics will not allow you to take then you will be deregistered later and you may have difficulty finding replacements.

How are credits, course units and modules related?

The Queen Mary Academic Credit Framework came into effect for students entering Queen Mary in 2008 and defines academic credit in such a way that 15 academic credit points (credits) are equivalent to 1 course unit. Queen Mary is phasing out the term “course unit”. We now call the smallest unit of teaching a “module”. All modules offered by the School of Mathematical Sciences are worth 15 credits except for the Advanced Statistics Project and the MSci Project, which are “double modules” and carry 30 credits each.

What are academic levels?

The academic level of a module reflects its target study year, although you can take modules in other years, which is common in joint honours programmes. The Queen Mary Academic Credit Framework follows the National Qualifications Framework in which levels 4–7 correspond to developmental years 1–4. This is consistent with university entry qualifications (such as GCE A-levels) being at level 3. Modules in our foundation programmes and Essential Mathematical Skills are also at level 3. The first digit in all current Mathematical Sciences undergraduate module codes is the level, but this is not yet the case for most modules taught by other departments. Therefore, the following study programmes show the level of each module explicitly in square brackets between the module code and title. There are requirements on the numbers of credits you must take at various levels, which we have incorporated into our current study programmes.

How do the Student Information System and Academic Regulations affect my study programme?

Queen Mary completed the transfer of all student information to its new Student Information System (SIS) over summer 2010 and module registration now takes place online. The SIS will check that you have satisfied the Academic Regulations before allowing you to graduate but it cannot check in all cases that your module registrations each year are consistent with the Academic Regulations. This is because module registration uses lists of allowed modules for each semester and not a count of modules at specific levels.

We have therefore revised our study programmes to ensure that, if you follow them, you will satisfy the Academic Regulations and be able to graduate. We now specify more precisely the developmental years in which you can take modules at particular levels, as explained in the next two sections, although this should not affect most students.

Note that it is your responsibility to ensure that you have taken prerequisite modules and that you do not take overlapping modules; the SIS does not enforce these requirements. We include prerequisites and overlaps in the module details that we publish on the web; see www.maths.qmul.ac.uk/undergraduate/modules or www.maths.qmul.ac.uk/undergraduate/forms-guidelines/handbook.

Should I take modules at level 6 or 7 before my final year?

For a BSc programme, you will be required to take the number of level-6 modules specified in your final year even if you took extra level-6 modules as options in your second year. For an MSci programme, you will be required to take the number of level-7 modules specified in your final year even if you took extra level-7 modules as options in your third year. Therefore, you should not normally take modules at level 6 or 7 earlier than required by your study programme. If you do, you will be taking a more difficult programme than necessary. We allow, but do not recommend, this because you may get lower marks and hence a lower degree class than if you had followed the minimum requirements of your study programme.

Can I take modules at level 4 or 5 in my final year?

We target level-4 modules at your first year of study, level-5 modules at your second year of study, etc. and it is generally not academically appropriate to take modules at more than two levels below their target year. This means that we will not allow you to take level-4 or level-5 modules in the final year of an MSci degree and, from academic year 2011–12 onwards, we will not allow you to take level-4 modules in the final year of a BSc degree, as reflected in our current study programmes. A similar or more restrictive rule already applies in many departments, such as the School of Economics and Finance. If you want to take level-4 modules after your first year, you should take them in your second year. If necessary, your adviser may allow you to defer one or more second-year modules at level 5 or 6 to make way for lower-level modules.

However, as a transitional arrangement in academic year 2010–11 for BSc programmes other than G1N1, GL11 and GG14, we will allow you to take level-4 Mathematical Sciences (MTH) modules in your final year. **If you do so, it is your responsibility to ensure that you satisfy the appropriate Queen Mary Academic Regulations; otherwise, you may not be able to graduate.** We will not generally allow you to take level-4 modules offered by other departments in your third or final year. If you wish to do so then you must apply by email to the Director of Studies by the end of the first week of the semester, giving a clearly reasoned academic case explaining why we should allow your choice of modules. If you take level-4 modules in your final year, you are less likely to benefit from the exam board's discretion to move you up if you fall just below a degree class boundary than if you take only modules at level 5 or higher.

G100 BSc in Mathematics

Programme director: Professor Bill Jackson

To obtain a BSc degree:

- You must take 360 credits (normally 24 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally 6 modules) at level 6 or higher.
- You must pass at least 270 credits (normally 18 modules) at level 4 or higher. Special regulations apply if you take a year abroad.

To obtain a BSc in Mathematics:

- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must take all compulsory modules and the required number of compulsory options as shown in the outline programme or as agreed with the programme director.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core)	
MTH4100 [4] Calculus I **MTH4103 [4] Geometry I** **MTH4105 [4] Intro. to Math. Computing** **MTH4107 [4] Introduction to Probability**	**MTH4101 [4] Calculus II** **MTH4102 [4] Differential Equations** **MTH4104 [4] Introduction to Algebra** **MTH4106 [4] Introduction to Statistics**

Year 2

Semester 3	Semester 4
MTH5112 [5] Linear Algebra I **Choose <u>two</u> of:** MTH5102 [5] Calculus III MTH5104 [5] Convergence & Continuity MTH5106 [5] Dynamics of Physical Systems MTH5117 [5] Mathematical Writing MTH5121 [5] Probability Models MTH5122 [5] Statistical Methods **Choose another 15 credits at any level.**	**Choose <u>two</u> of:** MTH5100 [5] Algebraic Structures I MTH5103 [5] Complex Variables MTH5105 [5] Differential & Integral Analysis MTH5109 [5] Geometry II: Knots and Surfaces MTH5110 [5] Intro. to Numerical Computing MTH5120 [5] Statistical Modelling I **Choose <u>one</u> of:** MTH6105 [6] Algorithmic Graph Theory MTH6128 [6] Number Theory MTH6129 [6] Oscillations, Waves & Patterns MTH6136 [6] Statistical Theory **Choose another 15 credits at any level.**

Year 3

Semester 5	Semester 6
Choose 75 credits from MTH modules at level 6 or 7 and 45 credits† at level 5, 6 or 7.	

† See also "Can I take modules at level 4 or 5 in my final year?" on page 4.

G110 BSc in Pure Mathematics

Programme director: Professor Bill Jackson

To obtain a BSc degree:

- You must take 360 credits (normally 24 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally 6 modules) at level 6 or higher.
- You must pass at least 270 credits (normally 18 modules) at level 4 or higher. Special regulations apply if you take a year abroad.

To obtain a BSc in Pure Mathematics:

- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must take all compulsory modules and the required number of compulsory options as shown in the outline programme or as agreed with the programme director.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core)	
MTH4100 [4] Calculus I	**MTH4101 [4] Calculus II**
MTH4103 [4] Geometry I	**MTH4102 [4] Differential Equations**
MTH4105 [4] Intro. to Math. Computing	**MTH4104 [4] Introduction to Algebra**
MTH4107 [4] Introduction to Probability	**MTH4106 [4] Introduction to Statistics**

Year 2

Semester 3	Semester 4
MTH5104 [5] Convergence & Continuity	**MTH5100 [5] Algebraic Structures I**
MTH5112 [5] Linear Algebra I	**MTH5103 [5] Complex Variables**
MTH5117 [5] Mathematical Writing	**MTH5105 [5] Differential & Integral Analysis**
Choose another 15 credits at any level.	**Choose <u>one</u> of:** MTH6105 [6] Algorithmic Graph Theory MTH6128 [6] Number Theory

Year 3

Semester 5	Semester 6
Choose <u>three</u> modules from the lists below:	
MTH6104 [6] Algebraic Structures II	MTH6108 [6] Coding Theory
MTH6107 [6] Chaos & Fractals	MTH6111 [6] Complex Analysis
MTH6109 [6] Combinatorics	MTH6115 [6] Cryptography
MTH6126 [6] Metric Spaces	MTH716U [7] Measure Theory and Probability
MTH6140 [6] Linear Algebra II	MTH732U [7] Topology
	MTH733U [7] Fields and Galois Theory (not offered 2010-11)
Choose another 30 credits from MTH modules at level 6 or 7 and 45 credits† at level 5, 6 or 7.	

† See also "Can I take modules at level 4 or 5 in my final year?" on page 4.

GG31 BSc in Mathematics and Statistics

Programme director: Dr Heiko Grossmann

To obtain a BSc degree:

- You must take 360 credits (normally 24 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally 6 modules) at level 6 or higher.
- You must pass at least 270 credits (normally 18 modules) at level 4 or higher. Special regulations apply if you take a year abroad.

To obtain a BSc in Mathematics and Statistics:

- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must take all compulsory modules and the required number of compulsory options as shown in the outline programme or as agreed with the programme director.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core)	
MTH4100 [4] Calculus I	**MTH4101 [4] Calculus II**
MTH4103 [4] Geometry I	**MTH4102 [4] Differential Equations**
MTH4105 [4] Intro. to Math. Computing	**MTH4104 [4] Introduction to Algebra**
MTH4107 [4] Introduction to Probability	**MTH4106 [4] Introduction to Statistics**

Year 2

Semester 3	Semester 4
MTH5112 [5] Linear Algebra I	**MTH5120 [5] Statistical Modelling I**
MTH5122 [5] Statistical Methods	**MTH6136 [6] Statistical Theory**
Choose <u>two</u> modules from the lists below:	
MTH5102 [5] Calculus III	MTH5100 [5] Algebraic Structures I
MTH5104 [5] Convergence & Continuity	MTH5103 [5] Complex Variables
MTH5106 [5] Dynamics of Physical Systems	MTH5105 [5] Differential & Integral Analysis
MTH5117 [5] Mathematical Writing	MTH5109 [5] Geometry II: Knots and Surfaces
MTH5121 [5] Probability Models	
Then choose another 30 credits at any level.	

Year 3

Semester 5	Semester 6
Choose <u>five</u> modules from the lists below:	
MTH6134 [6] Statistical Modelling II	MTH6100 [6] Actuarial Mathematics
MTH6139 [6] Time Series	MTH6105 [6] Algorithmic Graph Theory
	MTH6116 [6] Design of Experiments
	MTH6129 [6] Oscillations, Waves & Patterns
	MTH6130 [6] Probability III (to be replaced from 2011–12)
	MTH709U [7] Bayesian Statistics
	MTH731U [7] Computational Statistics
	MTH734U [7] Topics in Prob. and Stoch. Proc.
Then choose another 45 credits† at level 5, 6 or 7.	

† See also "Can I take modules at level 4 or 5 in my final year?" on page 4.

G1N1 BSc in Mathematics with Business Management

Programme director: Dr Barbara Bogacka

To obtain a BSc degree:

- You must take 360 credits (normally 24 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally 6 modules) at level 6 or higher.
- You must pass at least 270 credits (normally 18 modules) at level 4 or higher. Special regulations apply if you take a year abroad.

To obtain a BSc in Mathematics with Business Management:

- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must take all compulsory modules and the required number of compulsory options as shown in the outline programme or as agreed with the programme director.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core)	
MTH4100 [4] Calculus I	**MTH4101 [4] Calculus II**
MTH4103 [4] Geometry I	**MTH4102 [4] Differential Equations**
MTH4107 [4] Introduction to Probability	**MTH4106 [4] Introduction to Statistics**
BUS001 [4] Fundamentals of Management	**BUS017 [4] Economics for Business**

Year 2

Semester 3	Semester 4
MTH5112 [5] Linear Algebra I	**MTH4104 [4] Introduction to Algebra**
BUS021 [4] Financial Accounting	**BUS011 [5] Marketing**
Choose either	
MTH5102 [5] Calculus III MTH5106 [5] Dynamics of Physical Systems	MTH6129 [6] Oscillations, Waves & Patterns and another 15 credits at level 5, 6 or 7
or	
MTH5122 [5] Statistical Methods and another 15 credits at level 5, 6 or 7	MTH6136 [6] Statistical Theory and another 15 credits at level 5, 6 or 7

Year 3

Semester 5	Semester 6
BUS204 [5] Strategy	**BUS324 [6] Management of Human Resources**
Choose 60 credits from MTH modules at level 6 or 7 and another 30 credits† at level 5, 6 or 7.	

† See also "Can I take modules at level 4 or 5 in my final year?" on page 4.

GN13 BSc in Mathematics, Business Management and Finance

Programme director: Dr Barbara Bogacka
(Students who entered before 2008 should follow the previous version of this programme.)

To obtain a BSc degree:

- You must take 360 credits (normally 24 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally 6 modules) at level 6 or higher.
- You must pass at least 270 credits (normally 18 modules) at level 4 or higher. Special regulations apply if you take a year abroad.

To obtain a BSc in Mathematics, Business Management and Finance:

- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must take all compulsory modules and the required number of compulsory options as shown in the outline programme or as agreed with the programme director.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core)	
MTH4100 [4] Calculus I **MTH4103 [4] Geometry I** **MTH4107 [4] Introduction to Probability** **BUS001 [4] Fundamentals of Management**	**MTH4101 [4] Calculus II** **MTH4102 [4] Differential Equations** **MTH4106 [4] Introduction to Statistics** **BUS017 [4] Economics for Business**

Year 2

Semester 3	Semester 4
MTH5112 [5] Linear Algebra I **MTH5122 [5] Statistical Methods** **BUS021 [4] Financial Accounting** **Choose another 15 credits at any level.**	**MTH5120 [5] Statistical Modelling I** **MTH6100 [6] Actuarial Mathematics** **BUS011 [5] Marketing** **BUS022 [5] Managerial Accounting**

Year 3

Semester 5	Semester 6
BUS204 [5] Strategy **BUS306 [6] Financial Management** **MTH6121 [6] Introduction to Math. Finance**	**BUS324 [6] Management of Human Resources** **Choose <u>one</u> of:** MTH6120 [6] Further Topics in Math. Finance MTH6130 [6] Probability III (to be replaced from 2011–12)
Choose <u>one</u> module from the lists below:	
MTH6134 [6] Statistical Modelling II MTH6139 [6] Time Series	MTH6136 [6] Statistical Theory
Then choose another 30 credits† at level 5, 6 or 7.	

† See also "Can I take modules at level 4 or 5 in my final year?" on page 4.

GL11 BSc in Mathematics, Statistics and Financial Economics

Programme director: Dr Barbara Bogacka

To obtain a BSc degree:

- You must take 360 credits (normally 24 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally 6 modules) at level 6 or higher.
- You must pass at least 270 credits (normally 18 modules) at level 4 or higher. Special regulations apply if you take a year abroad.

To obtain a BSc in Mathematics, Statistics and Financial Economics:

- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must take all compulsory modules and the required number of compulsory options as shown in the outline programme or as agreed with the programme director.
- You must **pass** all ECN modules indicated with a * as *ECN.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core)	
MTH4100 [4] Calculus I **MTH4103 [4] Geometry I** **MTH4107 [4] Introduction to Probability** ***ECN199 [4] Economic Principles**	**MTH4101 [4] Calculus II** **MTH4106 [4] Introduction to Statistics** ***ECN106 [4] Macroeconomics I** ***ECN111 [4] Microeconomics I**

Year 2

Semester 3	Semester 4
MTH5112 [5] Linear Algebra I **MTH5122 [5] Statistical Methods** ***ECN214 [5] Games and Strategies** **ECN222 [5] Financial Markets and Institutions**	**MTH5120 [5] Statistical Modelling I** **MTH6136 [6] Statistical Theory** ***ECN211 [5] Microeconomics II** ***ECN226 [5] Capital Markets 1**

Year 3

Semester 5	Semester 6
ECN371 [6] Corporate Finance 1	**Choose <u>one</u> of:** **ECN358 [6] Futures and Options** **ECN372 [6] Corporate Finance 2**
Choose <u>two</u> modules from the lists below:	
MTH6134 [6] Statistical Modelling II MTH6139 [6] Time Series	MTH6116 [6] Design of Experiments MTH6130 [6] Probability III (to be replaced from 2011–12) MTH731U [7] Computational Statistics
Then choose another 15 credits from ECN modules at level 6 and another 45 credits at level 5, 6 or 7.	

G1N4 BSc in Mathematics with Finance and Accounting
G1L1 BSc in Mathematics and Statistics with Finance

Programme director: Dr Barbara Bogacka

(G1L1 students who entered in 2008–09 may transfer to G1N4; G1L1 students who entered before 2008 should follow the previous version of this programme.)

To obtain a BSc degree:

- You must take 360 credits (normally 24 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally 6 modules) at level 6 or higher.
- You must pass at least 270 credits (normally 18 modules) at level 4 or higher. Special regulations apply if you take a year abroad.

To obtain a BSc in Mathematics with Finance and Accounting / Mathematics and Statistics with Finance:

- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must take all compulsory modules and the required number of compulsory options as shown in the outline programme or as agreed with the programme director.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core)	
MTH4100 [4] Calculus I	**MTH4101 [4] Calculus II**
MTH4103 [4] Geometry I	**MTH4102 [4] Differential Equations**
MTH4107 [4] Introduction to Probability	**MTH4106 [4] Introduction to Statistics**
BUS021 [4] Financial Accounting	**BUS017 [4] Economics for Business**

Year 2

Semester 3	Semester 4
MTH5112 [5] Linear Algebra I	**MTH5120 [5] Statistical Modelling I**
MTH5122 [5] Statistical Methods	**MTH6100 [6] Actuarial Mathematics**
BUS201 [5] Financial Institutions	**BUS022 [5] Managerial Accounting**
Choose another 15 credits at any level.	**Choose another 15 credits at any level.**

Year 3

Semester 5	Semester 6
MTH6121 [6] Introduction to Math. Finance	**MTH6136 [6] Statistical Theory**
BUS306 [6] Financial Management	
Choose <u>two</u> modules from the lists below:	
MTH6134 [6] Statistical Modelling II	MTH6116 [6] Design of Experiments
MTH6139 [6] Time Series	MTH6120 [6] Further Topics in Math. Finance
	MTH6130 [6] Probability III (to be replaced from 2011–12)
Then choose another 45 credits† at level 5, 6 or 7.	

† See also "Can I take modules at level 4 or 5 in my final year?" on page 4.

GG14 BSc in Mathematics and Computing

Programme director: Professor Mark Jerrum

To obtain a BSc degree:

- You must take 360 credits (normally 24 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally 6 modules) at level 6 or higher.
- You must pass at least 270 credits (normally 18 modules) at level 4 or higher. Special regulations apply if you take a year abroad.

To obtain a BSc in Mathematics and Computing:

- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must take all compulsory modules and the required number of compulsory options as shown in the outline programme or as agreed with the programme director.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core)	
MTH4100 [4] Calculus I **MTH4103 [4] Geometry I** **MTH4107 [4] Introduction to Probability** **DCS100 [4] Procedural Programming**	**MTH4101 [4] Calculus II** **MTH4104 [4] Introduction to Algebra** **MTH4106 [4] Introduction to Statistics** **DCS104 [4] Object Oriented Programming**

Year 2

Semester 3	Semester 4
MTH4105 [4] Intro. to Math. Computing **MTH5112 [5] Linear Algebra I** **DCS210 [5] Algorithms and Data**	**MTH5110 [5] Intro. to Numerical Computing** **DCS103 [4] Language and Communication**
Choose <u>one</u> module from the lists below:	
MTH5102 [5] Calculus III MTH5117 [5] Mathematical Writing MTH5121 [5] Probability Models MTH5122 [5] Statistical Methods	MTH5100 [5] Algebraic Structures I MTH5103 [5] Complex Variables
Remark: Choose Statistical Methods in Semester 3 if you choose Statistical Theory in Semester 4.	**Choose <u>one</u> of:** MTH6105 [6] Algorithmic Graph Theory MTH6128 [6] Number Theory MTH6136 [6] Statistical Theory
Choose another 15 credits at level 5, 6 or 7.	

Year 3

Semester 5	Semester 6
Choose 75 credits from MTH modules at level 6 or 7 and 30 credits from DCS modules at level 5, 6 or 7. Then choose another 15 credits at level 5, 6 or 7. (Approval from the Department of Computer Science may be required for some DCS modules.)	

Students interested in applied mathematics may attend MTH4102 Differential Equations in semester 2 or 4 but not register for it or take the final exam. We will accept attendance, together with at least a C grade for Calculus I and II, as a prerequisite for subsequent modules.

FG31 BSc in Mathematics and Physics

Programme director: Dr Will Sutherland

To obtain a BSc degree:

- You must take 360 credits (normally 24 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally 6 modules) at level 6 or higher.
- You must pass at least 270 credits (normally 18 modules) at level 4 or higher. Special regulations apply if you take a year abroad.

To obtain a BSc in Mathematics and Physics:

- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must take all compulsory modules and the required number of compulsory options as shown in the outline programme or as agreed with the programme director.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core)	
MTH4100 [4] Calculus I	**MTH4101 [4] Calculus II**
MTH4103 [4] Geometry I	**MTH4102 [4] Differential Equations**
MTH4107 [4] Introduction to Probability	**MTH4106 [4] Introduction to Statistics**
PHY116 [4] From Newton to Einstein	**PHY215 [4] Quantum Physics**

Year 2

Semester 3	Semester 4
MTH5102 [5] Calculus III	**MTH6129 [6] Oscillations, Waves & Patterns**
MTH5106 [5] Dynamics of Physical Systems	**PHY210 [4] Electric and Magnetic Fields**
MTH5112 [5] Linear Algebra I	**PHY304 [5] Physical Dynamics**
PHY214 [5] Thermal and Kinetic Physics	**PHY319 [5] Quantum Mechanics A**

Year 3

Semester 5	Semester 6
	PHY403 [6] Statistical Physics
Choose 45 credits from non-project MTH or PHY modules at level 6 or 7.	
Choose either (a) <u>one</u> of: MTH6138 [6] Third Year Project PHY709 [6] Independent Project **and another 45 credits† at level 5, 6 or 7,** **or (b)** PHY776 [6] Extended Independent Project (30 credits, double module over both semesters) **and another 30 credits† at level 5, 6 or 7.**	

† See also "Can I take modules at level 4 or 5 in my final year?" on page 4.

G1C8 BSc in Mathematics with Psychology

Programme director: Dr Heiko Grossmann

To obtain a BSc degree:

- You must take 360 credits (normally 24 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally 6 modules) at level 6 or higher.
- You must pass at least 270 credits (normally 18 modules) at level 4 or higher. Special regulations apply if you take a year abroad.

To obtain a BSc in Mathematics with Psychology:

- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must take all compulsory modules and the required number of compulsory options as shown in the outline programme or as agreed with the programme director.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core) **Essential Psychology Skills for G1C8**	
MTH4100 [4] Calculus I **MTH4103 [4] Geometry I** **MTH4107 [4] Introduction to Probability** **SBC104 [4] Exploring Psychology**	**MTH4101 [4] Calculus II** **MTH4102 [4] Differential Equations** **MTH4106 [4] Introduction to Statistics** **SBC105 [4] Cognition, Evolution & Behaviour**

Year 2

Semester 3	Semester 4
MTH5112 [5] Linear Algebra I **MTH5122 [5] Statistical Methods** **SBC201 [5] Cognitive Psychology** **Choose another 15 credits at any level.**	**MTH5120 [5] Statistical Modelling I** **MTH6136 [6] Statistical Theory** **SBC202 [5] Social & Developmental Psychology** **Choose another 15 credits at any level.**

Year 3

Semester 5	Semester 6
MTH6134 [6] Statistical Modelling II **SBC302 [6] Personality & Individual Differences**	**SBC344 [6] Animal Cognition**
Choose <u>two</u> modules from the lists below:	
MTH6139 [6] Time Series MTH6140 [6] Linear Algebra II	MTH6116 [6] Design of Experiments MTH6130 [6] Probability III (to be replaced from 2011–12)
Choose another 45 credits at level 5, 6 or 7, of which at least 30 credits must be from MTH modules.	

Essential Psychology Skills for G1C8 is additional support teaching that we provide instead of some of the teaching that the School of Biological and Chemical Sciences provides for its own students. It is not a formal module, it carries no academic credit and you cannot register for it.

G102 MSci in Mathematics

Programme director: Professor Bill Jackson

Degree requirements

- You must take 480 credits (normally the MSci Project and 32 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally the MSci Project and 4 other modules) at level 7.
- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must pass at least 420 MTH credits at level 4 or higher or other approved modules, and comply with the outline programme.
- You must take the MSci Project and in addition at least 60 MTH credits (normally 4 modules) at level 7 or approved modules at other colleges of the University of London.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core)	
MTH4100 [4] Calculus I	**MTH4101 [4] Calculus II**
MTH4103 [4] Geometry I	**MTH4102 [4] Differential Equations**
MTH4105 [4] Intro. to Math. Computing	**MTH4104 [4] Introduction to Algebra**
MTH4107 [4] Introduction to Probability	**MTH4106 [4] Introduction to Statistics**

Year 2

Semester 3	Semester 4
MTH5104 [5] Convergence & Continuity	**MTH5100 [5] Algebraic Structures I**
MTH5112 [5] Linear Algebra I	**MTH5105 [5] Differential & Integral Analysis**
MTH5117 [5] Mathematical Writing	
Choose <u>two</u> modules from the lists below:	
MTH5102 [5] Calculus III	MTH5103 [5] Complex Variables
MTH5106 [5] Dynamics of Physical Systems	MTH5109 [5] Geometry II: Knots and Surfaces
MTH5121 [5] Probability Models	MTH5110 [5] Intro. to Numerical Computing
MTH5122 [5] Statistical Methods	MTH5120 [5] Statistical Modelling I
	MTH6105 [6] Algorithmic Graph Theory
	MTH6128 [6] Number Theory
	MTH6129 [6] Oscillations, Waves & Patterns
	MTH6136 [6] Statistical Theory
Then choose another 15 credits at level 3, 4, 5 or 6.	

Year 3

Semester 5	Semester 6
Choose <u>six</u> modules from the lists below:	
MTH6104 [6] Algebraic Structures II	MTH6108 [6] Coding Theory
MTH6107 [6] Chaos & Fractals	MTH6111 [6] Complex Analysis
MTH6109 [6] Combinatorics	MTH6115 [6] Cryptography
MTH6122 [6] Linear Ops. & Diff. Equations (not offered 2010-11)	MTH6123 [6] Math. Aspects of Cosmology (not offered 2010-11)
MTH6126 [6] Metric Spaces	MTH6130 [6] Probability III (to be replaced from 2011–12)
MTH6132 [6] Relativity	MTH733U [7] Fields and Galois Theory (not offered 2010-11)
MTH6140 [6] Linear Algebra II	MTH737U [7] Fluid Dynamics
Then choose another 30 credits at level 5, 6 or 7.	

Year 4

Semester 7	Semester 8
MTH717U [7] MSci Project (30 credits, double module over both semesters)	
Choose 60 credits from MTH modules at level 7 and another 30 credits at level 6 or 7.	

G1G3 MSci in Mathematics with Statistics

Programme director: Dr Heiko Grossmann

Degree requirements

- You must take 480 credits (normally the MSci Project and 32 modules of 15 credits each) including at most 30 credits (2 modules) at level 3, at most 150 credits (10 modules) at level 3 or 4, and at least 90 credits (normally the MSci Project and 4 other modules) at level 7.
- You must pass Essential Mathematical Skills, which is a 0-credit level-3 core module, to progress from the first to the second year of this programme.
- You must pass at least 420 MTH credits at level 4 or higher or other approved modules, and comply with the outline programme.
- You must take the MSci Project and in addition at least 60 MTH credits (normally 4 modules) at level 7 or approved modules at other colleges of the University of London.

If you graduate but fail to meet these requirements then your degree title may be "Mathematical Studies".

Outline programme

See also Part 5 pages 1–4. Modules in **bold** are compulsory and must normally be taken in the year shown. You must take modules to the value of 120 credits (normally 8 modules) in each developmental year. The value of each module is 15 credits unless otherwise indicated. The square brackets show levels.

Year 1

Semester 1	Semester 2
MTH3100 [3] Essential Mathematical Skills (core)	
MTH4100 [4] Calculus I	**MTH4101 [4] Calculus II**
MTH4103 [4] Geometry I	**MTH4102 [4] Differential Equations**
MTH4105 [4] Intro. to Math. Computing	**MTH4104 [4] Introduction to Algebra**
MTH4107 [4] Introduction to Probability	**MTH4106 [4] Introduction to Statistics**

Year 2

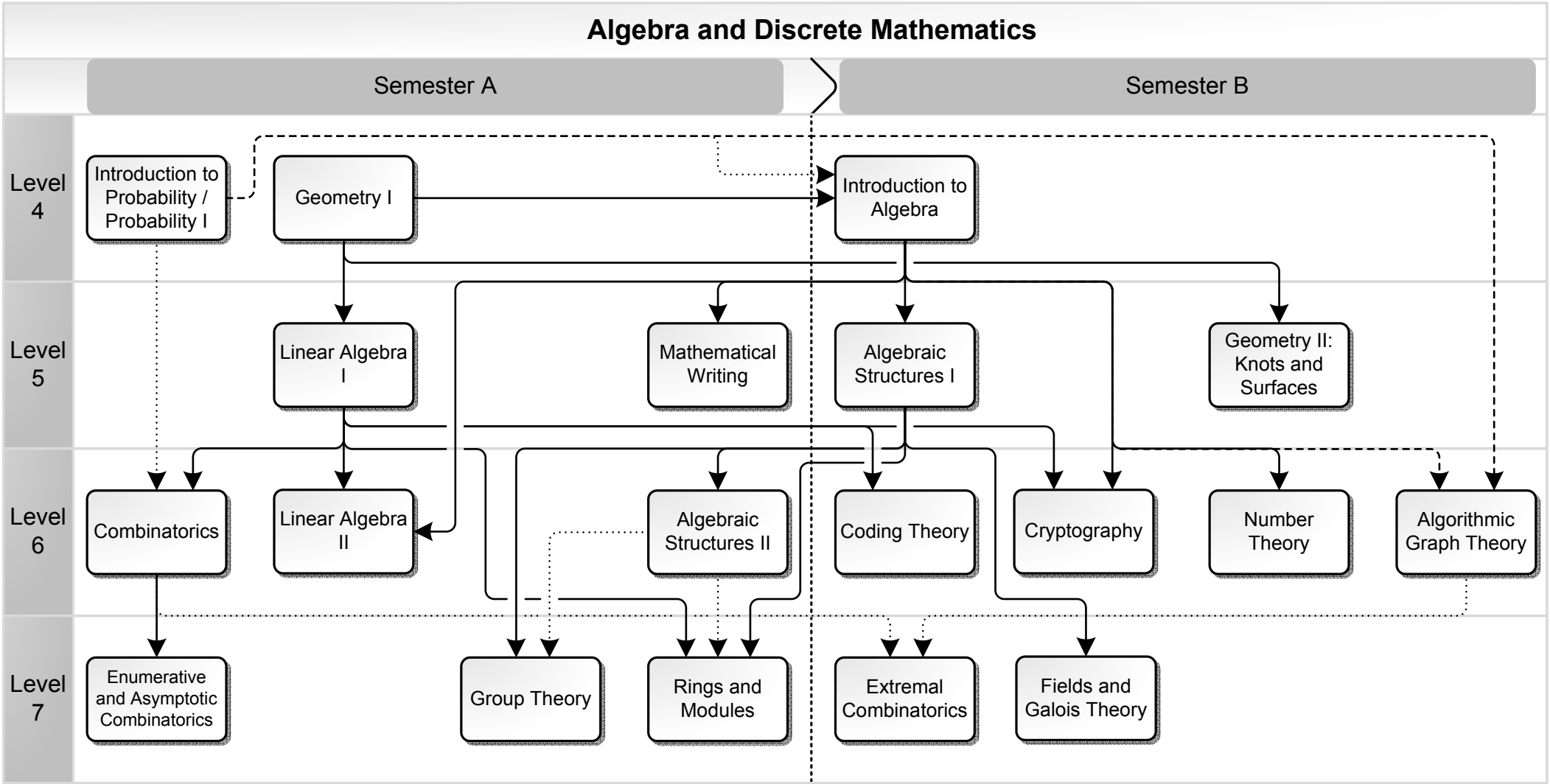
Semester 3	Semester 4
MTH5104 [5] Convergence & Continuity	**MTH5100 [5] Algebraic Structures I**
MTH5112 [5] Linear Algebra I	**MTH5105 [5] Differential & Integral Analysis**
MTH5117 [5] Mathematical Writing	**MTH5120 [5] Statistical Modelling I**
MTH5122 [5] Statistical Methods	**MTH6136 [6] Statistical Theory**

Year 3

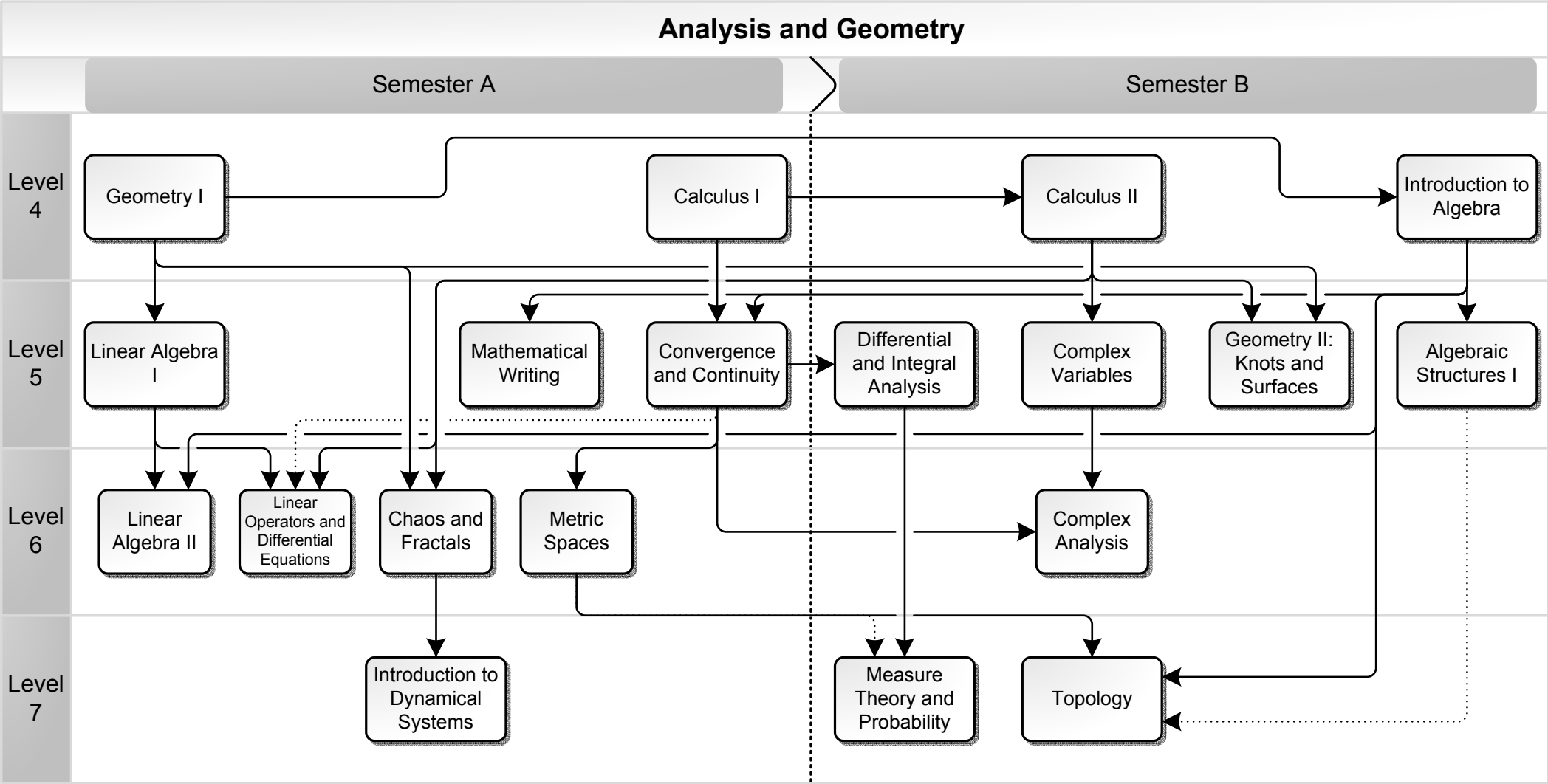
Semester 5	Semester 6
Choose <u>two</u> modules from the lists below:	
MTH6104 [6] Algebraic Structures II	MTH6108 [6] Coding Theory
MTH6107 [6] Chaos & Fractals	MTH6115 [6] Cryptography
MTH6126 [6] Metric Spaces	
MTH6140 [6] Linear Algebra II	
Choose <u>three</u> modules from the lists below:	
MTH5121 [5] Probability Models	MTH6116 [6] Design of Experiments
MTH6134 [6] Statistical Modelling II	MTH6130 [6] Probability III (to be replaced from 2011–12)
MTH6139 [6] Time Series	MTH709U [7] Bayesian Statistics
	MTH731U [7] Computational Statistics
Then choose another 45 credits at level 5, 6 or 7.	

Year 4

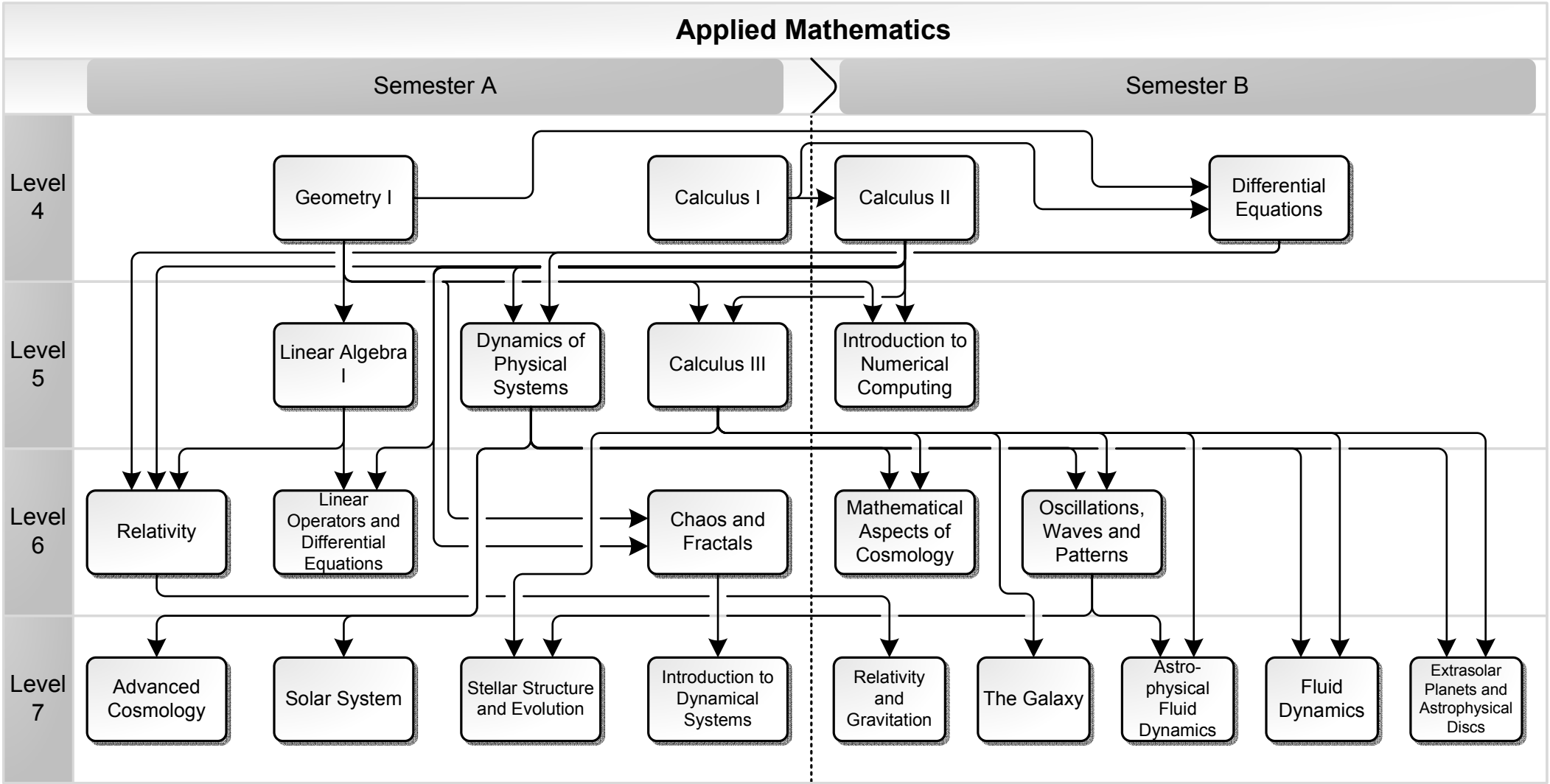
Semester 7	Semester 8
MTH717U [7] MSci Project (30 credits, double module over both semesters)	
Choose 60 credits from MTH modules at level 7 and another 30 credits at level 6 or 7.	



A solid arrow pointing from module *X* to module *Y* indicates that module *X* is a prerequisite for module *Y*; dashed arrows indicate alternative prerequisites.
A dotted arrow pointing from module *X* to module *Y* indicates that module *X* provides useful background for module *Y*.
This diagram is not definitive and not all modules are included.



A solid arrow pointing from module *X* to module *Y* indicates that module *X* is a prerequisite for module *Y*.
A dotted arrow pointing from module *X* to module *Y* indicates that module *X* provides useful background for module *Y*.
This diagram is not definitive and not all modules are included.



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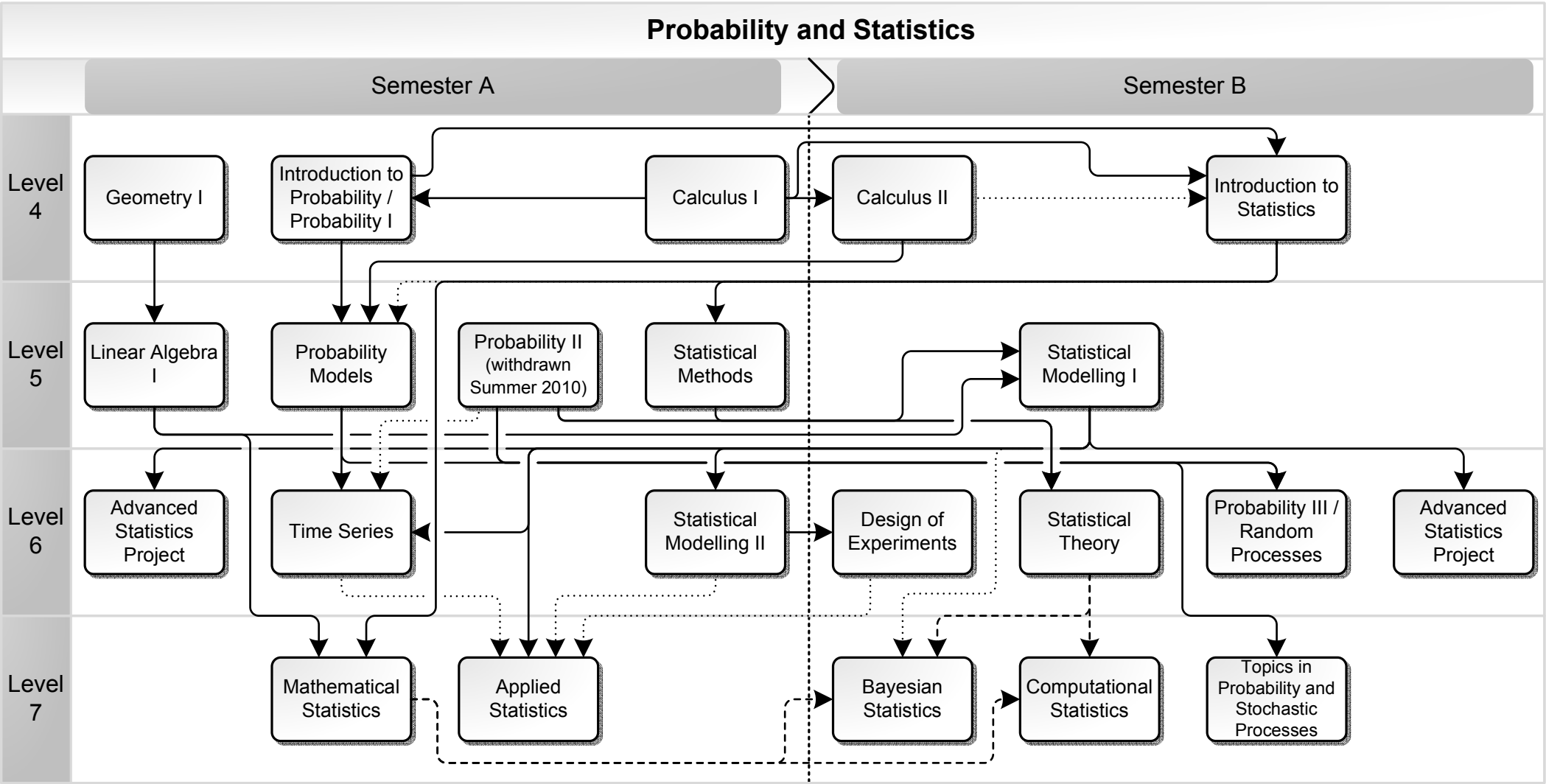

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A dotted arrow pointing from module *X* to module *Y* indicates that module *X* provides useful background for module *Y*.
This diagram is not definitive and not all modules are included.