MSc Modern Applications of Mathematics
MSc/MRes Statistical Applied Mathematics

POSTGRADUATE TAUGHT STUDENT HANDBOOK

Department of Mathematical Sciences

This handbook is available online or in alternative formats. Please contact facscipgtadmin@bath.ac.uk if required.

Contents

1 Welcome to the Faculty of Science

Welcome to the Faculty of Science at the University of Bath. I am delighted that you have chosen to pursue your postgraduate training with us. In some cases that means continuing from your previous studies at Bath, and you will be familiar with the campus and the staff. But for those of you electing to move to Bath from elsewhere, this will be an exciting new challenge. All of you will be embarking on a new phase in your lives and a move to a new style of thinking and learning inherent in postgraduate training; your Department and the Taught Programmes Team are here to facilitate this transition. Above all, we want you all to succeed in your chosen course or research project, and that it should be an enriching and enjoyable experience. So do attend the induction events to meet key colleagues from the Faculty and the Department, and to network with your peers. I look forward to meeting you all in the coming weeks.

Dr Alan Hayes, Associate Dean for Teaching & Learning

1.1 The Faculty of Science

There are six departments within the Faculty of Science – Biology and Biochemistry, Chemistry, Computer Science, Mathematical Sciences, Pharmacy and Pharmacology, and Physics. The Taught Programmes Team is responsible for supporting postgraduate students across all our Departments, and your key contact person in the team should be your first port of call for any queries you have relating to the organisation of your studies such as unit selection, student records and coursework submissions:

Key Taught Programmes Team contact (MSc/MRes): Matthew Albertyn - facscipgtadmin@bath.ac.uk.
Key SAMBa contact (MRes only): Jessica Ohren - J.M.Ohren@bath.ac.uk

2 Welcome to the Department of Mathematical Sciences

2.1 The Department

The Department of Mathematical Sciences is an integrated department, whose work in the three research areas of Pure Mathematics, Applied Mathematics and Statistics has a strong international reputation. Staff in all three areas are involved in a wide range of national and international research activities, and several members of the Department have won prestigious prizes, medals and research fellowships.

In the most recent Government-led assessment of Universities in the UK (REF 2014), 88% of our research in all areas (Pure and Applied Mathematics, Statistics and Probability) was rated world-leading/internationally excellent. The Department is listed 6th among UK universities in the Complete University Guide mathematics subject table for 2015, with the University placed 8th overall.

The Department welcomes research students (both full-time and part-time) working towards the degrees of PhD, Integrated PhD and MPhil. With 21 professors and 37 other academic staff, a wide range of research topics can be supported in depth, and students with a good honours degree or equivalent will find much to enrich their scientific interests. Some research is of a fundamentally theoretical nature, while much of the more applied work involves collaboration with other departments in the University, with industry and technology, and with government research departments.

The Pure and Applied Mathematics groups work on:

- Algebra and Geometry
- Analysis and Differential Equations
- Continuum Mechanics and Waves
- Industrial Applied Mathematics
- Mathematical Biology

- Mathematical Control Theory
- Numerical Analysis

The Statistics group covers a range of work on:

- Probability
- Statistics

These research groups run regular seminar programmes.

2.2 Who's who in the Department

A staff list can be found at http://www.bath.ac.uk/math-sci/contacts/ with contact details (email, phone, room) for all staff.

Head of Department	Prof Paul Milewski
Director of Studies (MSc Mathematical Sciences and MSc/MRes Statistical Applied Mathematics)	Dr Ben Adams
Senior Tutor	Dr Antal Jarai
Department Coordinator	Myla Watts

2.3 About this handbook

This handbook is intended for all students commencing the MSc Modern Applications in Mathematics and the MSc/MRes in Statistical Applied Mathematics in the academic year 2018/19.

Please note that the contents of this handbook are accurate at 19th September but that information may sometimes be subject to change after this handbook has been issued. Your Director of Studies or Unit Convenor will inform you of any changes that will affect your programme or a particular unit. For further information about unit and programme changes, see the **Unit and programme changes** section in this handbook.

While this Handbook signposts information about **regulations for students**, it does not have regulatory status itself, and the regulations available online (Regulations for Students: www.bath.ac.uk/publications/regulations-for-students and Assessment Regulations: www.bath.ac.uk/registry/nfa) are the most up-to-date and take precedence over the contents of this handbook.

If in doubt about what applies to you, or if your circumstances change (for example if you are returning from a suspension of study, or transferring to a different programme) please contact your Director of Studies for advice.

3 Resources

3.1 Communications

The primary contact for students on the MSc Modern Applications of Mathematics programme is the **Taught Programmes Team**. The primary contact for students on the MRes Statistical Applied Mathematics programme is the **SAMBa Team**. As some taught Masters programmes have units in common with undergraduate programmes, you may need to address some queries to the **Department Office**, which supports our undergraduate programmes. If in doubt, please email the Taught Programmes Team on faccsipgtadmin@bath.ac.uk. The Taught Programmes Team can be found in Wessex House 3.33 Monday to Friday between 9.00am and 5.00pm. The Department of Mathematical Sciences Main Office/Reception (4W 2.13) is open Monday to Friday between 09.00 and 5.00pm.

Pigeon holes

Mail received for postgraduate students is put in the postgraduate pigeon holes on level 4 of 4West. Students are responsible for checking their pigeon holes regularly as the Department cannot accept responsibility for any mail that is not collected. The Department Office will keep back any cheques, registered mail or parcels that arrive and put a note in your pigeon hole.

Email

Your Bath email address has two formats: userid@bath.ac.uk or initials.surname@bath.ac.uk. The latter is generally preferred. So, for example, T Clark, who has user ID tc203, has the email addresses tc203@bath.ac.uk and T.Clark@bath.ac.uk.

Telephones

Telephones in the postgraduate rooms are available for project-related UK calls only. Within the University, calls can usually be made using the 4-digit extension number. To dial a number outside the University, the number "9" should be dialled first. Please consider other people when using telephones in shared offices. If you need to make an international call for your project, contact your Director of Studies.

3.2 Computing resources

Computing services and facilities

The department has a large range of computing equipment, of all shapes and sizes. Additional facilities are provided for the whole University by Computing Services (CS). You can use your University username and password to connect to University computers, email, file storage and printing. You can also access a range of software including Office 365 and antivirus, and work from any location as if you were on campus using our UniDesk and UniApps services. You also have access to Linux servers which provide a platform for scientific computing, through integrated computing environments such as MATLAB and high-level programming languages.

If you would like to know more about these services and how to access them visit http://go.bath.ac.uk/it-new-students. IT Support is available from the IT Service Desk on Level 2 of the library or online at: http://go.bath.ac.uk/it-help-form.

Hacking and software copyright

Unauthorised use of computer systems is a criminal offence. The University of Bath takes a strong line on such abuse. Such behaviour reflects very badly on the University, particularly since we have a leading research centre for cryptography and the detection of computer abuse on campus. Penalties are medieval in their severity, and given our research expertise offenders are invariably caught. If you have any doubts about what you are doing, email support, who will advise.

Illegal copying of software is breach of copyright and theft. The Federation against Software Theft (FAST) is now very active and co-operates with the University in detecting this crime. Ensure you have authority to use any software before copying. If in doubt, email support for advice.

4 Your MSc or MRes programme

The academic year is divided into two semesters. Each semester consists of 11 weeks of teaching followed by a 2 or 3 week assessment period. A unit is an assessable block of study which may be in the form of a lecture course or an approved project. A single unit should correspond to approximately 120 hours of study time. In the case of a lecture unit this usually comprises 16-24 one-hour lectures, plus problem classes/tutorials/practical classes and private study.

4.1 Unit choices

Students must take a total of 90 credits for the award of MSc or MRes, 60 credits in taught units and 30 credits in the Project or Thesis Formulation Report. The online unit and programme catalogues provide details of the structure and content of the programmes, together with links to the assessment regulations. See: http://www.bath.ac.uk/catalogues/2018-2019/ma/ma-proglist-pg.html

New taught postgraduate students select units at the beginning of the academic year. For students commencing their studies in 2018/19 the online system for choosing units will be available from **10.15am** on **Thursday 27 September 2018** to **5pm** on **Wednesday 3 October 2018** You will be required to choose all of your semester 1 and 2 units during this period (60 taught credits in total). It may be possible to change units after the online system has closed. If you wish to do this, please speak to your Director of Studies (MSc) or SAMBa contact (MRes).

4.2 MSc in Modern Applications of Mathematics (with or without placement)

Programme code	MSc Modern Applications of Mathematics: TSMA-AFM08 MSc Modern Applications of Mathematics with Placement: TSMA-APM08
Programme title	MSc Modern Applications of Mathematics
Award type	Master of Science (MSc)
Award title	Modern Applications of Mathematics
Mode of Attendance	MSc Modern Applications of Mathematics: Full-time MSc Modern Applications of Mathematics with Placement: Full-time incorporating placement
Length	MSc Modern Applications of Mathematics 1 year MSc Modern Applications of Mathematics with Placement: 2 years
Designated alternative programme(s)	Diploma in Modern Applications of Mathematics: TSMA-APL04
Approving body and date of approval	Science FLTQC 9.1.2013

Programme aims and learning outcomes

The MSc programme will train students to understand, analyse, evaluate and apply the latest knowledge and skills of interdisciplinary applied mathematics and modern scientific computing in both theoretical and practical contexts. The programme aims to bridge the gap between theory and applications, as well as to link mathematics and statistics with engineering, physics, chemistry and biology in ways that are of direct relevance to industry. The dissertation phase allows students to undertake extensive research and pursue the latest practical applications, often in an industrial context.

Programme description: Structure of the programme

The taught phase of the programme runs from September to June. There are six Compulsory Units and four chosen from the catalogue of Mathematical Options and Interdisciplinary Options. The dissertation phase of the programme runs from June to September (or June to December on the programme with placement). An average of 50% in the taught phase is required for progression to the dissertation phase.

(i) Compulsory Units

These units introduce ideas, methods and techniques of modern applied mathematics and synthesize the key skills of theoretical understanding with problem identification and formulation for computational solution of real world problems.

Compulsory Units										
Part	**Stage**	**Normal period of study for this Mode**	**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**	**SRU status**	**Taught, or Dissertation/ project credits**	**Notes**
4		**Semester 1**	MA40198	Applied statistical inference	Compulsory Unit	6			T	
4		**Semester 1**	MA50174	Applied numerical computation	Compulsory Unit	6			T	
4		**Semester 1**	MA50181	Mathematical methods 1	Compulsory Unit	6			T	
4		**Semester 2**	MA40177	Scientific computing	Compulsory Unit	6			T	
4		**Semester 2**	MA50176	Case studies in mathematical modelling and industrial mathematics	Compulsory Unit	6			T	
4		**Semester 2**	MA50200	Project scoping	Compulsory Unit	6			T	
4		**Dissertation**	MA50187	Project (non-placement programme only)	Compulsory Unit	30			P	
4		**Dissertation**	MA50244	Placement research project (placement programme only)	Compulsory Unit	30			P	

Note that MA40198 and MA40177 are compulsory only for students who have not previously studied these units (or an equivalent). Students who have previously studied either unit should take additional Optional Units. Please contact your Director of Studies for advice.

(ii) Mathematics Options

You must select a total of 24 credits of optional units from those available in Semester 1 and Semester 2 of this programme. If your undergraduate degree is in mathematics or statistics, 12 of these credits should be chosen from the Mathematics Options and 12 credits from the Interdisciplinary Options in section (iii) below. **Students may take no more than 15 credits of honours level units (i.e. units coded MA3*) during this programme.**

Optional Units – List A										
Part	**Stage**	**Normal period of study for this Mode**	**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**	**SRU status**	**Taught, or Dissertation/ project credits**	**Notes**
4		**Semester 1**	MA40042	Measure theory & integration	Optional Unit	6			T	
4		**Semester 1**	MA40045	Dynamical systems	Optional Unit	6			T	
4		**Semester 1**	MA40092	Classical statistical inference	Optional Unit	6			T	
4		**Semester 1**	MA40171	Numerical solution of evolutionary equations	Optional Unit	6			T	
4		**Semester 1**	MA50125	Markov processes & applications	Optional Unit	6			T	

4		**Semester 1**	MA50183	Specialist reading course	Optional Unit	6			T	
4		**Semester 2**	MA40049	Elasticity	Optional Unit	6			T	
4		**Semester 2**	MA40050	Numerical optimisation and large-scale systems	Optional Unit	6			T	
4		**Semester 2**	MA40058	Probability with martingales	Optional Unit	6			T	
4		**Semester 2**	MA40189	Topics in Bayesian statistics	Optional Unit	6			T	
4		**Semester 2**	MA40239	Discrete probability	Optional Unit	6			T	
4		**Semester 2**	MA50061	Optimal control	Optional Unit	6			T	
4		**Semester 2**	MA50215	Specialist reading course	Optional Unit	6			T	
4		**Semester 2**	MA50251	Applied stochastic differential equations	Optional Unit	6			T	

Optional Units – List B										
Part	**Stage**	**Normal period of study for this Mode**	**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**	**SRU status**	**Taught, or Dissertation/ project credits**	**Notes**
4		**Semester 1**	MA30046	Linear control theory	Optional Unit	6			T	
4		**Semester 1**	MA30047	Mathematical biology 1	Optional Unit	6			T	
4		**Semester 1**	MA30051	Numerical linear algebra	Optional Unit	6			T	
4		**Semester 1**	MA30084	Generalised linear models	Optional Unit	6			T	
4		**Semester 1**	MA30086	Medical statistics	Optional Unit	6			T	
4		**Semester 1**	MA30087	Optimisation methods of operational research	Optional Unit	6			T	
4		**Semester 1**	MA30257	Methods for stochastic systems	Optional Unit	6			T	
4		**Semester 1**	MA50046	Linear control theory	Optional Unit	6			T	
4		**Semester 1**	MA50084	Generalised linear models	Optional Unit	6			T	
4		**Semester 1**	MA50087	Optimisation methods of operational research	Optional Unit	6			T	
4		**Semester 1**	MA50178	Numerical linear algebra	Optional Unit	6			T	
4		**Semester 1**	MA50179	Mathematical biology 1	Optional Unit	6			T	
4		**Semester 1**	MA50181	Mathematical methods 1	Optional Unit	6			T	

4		**Semester 1**	MA50257	Methods for stochastic systems	Optional Unit	6			T	
4		**Semester 2**	MA30059	Mathematical methods 2	Optional Unit	6			T	
4		**Semester 2**	MA30063	Mathematical biology 2	Optional Unit	6			T	
4		**Semester 2**	MA30085	Time series	Optional Unit	6			T	
4		**Semester 2**	MA30089	Stochastic processes & finance	Optional Unit	6			T	
4		**Semester 2**	MA30091	Applied statistics	Optional Unit	6			T	
4		**Semester 2**	MA30170	Numerical solution of elliptic PDEs	Optional Unit	6			T	
4		**Semester 2**	MA30245	Graphs and networks: theory and applications	Optional Unit	6			T	
4		**Semester 2**	MA50059	Mathematical methods 2	Optional Unit	6			T	
4		**Semester 2**	MA50063	Mathematical biology 2	Optional Unit	6			T	
4		**Semester 2**	MA50085	Time series	Optional Unit	6			T	
4		**Semester 2**	MA50089	Stochastic processes & finance	Optional Unit	6			T	
4		**Semester 2**	MA50170	Numerical solution of elliptic PDEs	Optional Unit	6			T	

(iii) Interdisciplinary Options

You must select a total of 24 credits of Optional Units from those available in Semester 1 and Semester 2 of this programme. If your undergraduate degree is in mathematics or statistics, 12 of these credits should be chosen from the Mathematics Options in section (ii) above and12 credits from the Interdisciplinary Options.

Optional Units – List C										
Part	**Stage**	**Normal period of study for this Mode**	**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**	**SRU status**	**Taught, or Dissertation/ project credits**	**Notes**
4		**Semester 1**	BB40128	The evolution of genetic systems	Optional Unit	6			T	
4		**Semester 1**	CM30072	Safety-critical computer systems	Optional Unit	6			T	
4		**Semester 1**	EE30031	Digital communications	Optional Unit	6			T	
4		**Semester 1**	EE30123	Power electronics & drives	Optional Unit	6			T	
4		**Semester 1**	EE40054	Digital image processing	Optional Unit	6			T	
4		**Semester 1**	EE40098	Computational intelligence	Optional Unit	6			T	
4		**Semester 1**	ME30032	Aerodynamics	Optional Unit	6			T	

4		**Semester 1**	ME40054	Computational fluid dynamics	Optional Unit	6			T	
4		**Semester 1**	ME40061	Biomechanics	Optional Unit	6			T	
4		**Semester 1**	ME40064	System modelling & simulation	Optional Unit	6			T	
4		**Semester 1**	ME50029	Control systems	Optional Unit	6			T	
4		**Semester 1**	PH30028	Condensed matter physics 2	Optional Unit	6			T	
4		**Semester 1**	PH30031	Simulation techniques	Optional Unit	6			T	
4		**Semester 2**	BB30169	Concepts in systems biology	Optional Unit	6			T	
4		**Semester 2**	BB40117	Microbial evolution - from the laboratory to nature	Optional Unit	6			T	
4		**Semester 2**	CH40039	Computational chemistry	Optional Unit	3			T	
4		**Semester 2**	CM30073	Advanced algorithms & complexity	Optional Unit	6			T	
4		**Semester 2**	CM30080	Computer vision	Optional Unit	6			T	
4		**Semester 2**	CM30173	Cryptography	Optional Unit	6			T	
4		**Semester 2**	CM30226	Logic and semantics of programming languages	Optional Unit	6			T	
4		**Semester 2**	CM30229	Intelligent control and cognitive systems	Optional Unit	6			T	
4		**Semester 2**	PH30078	Magnetism	Optional Unit	3			T	
4		**Semester 2**	PH30079	Superconductivity	Optional Unit	3			T	
4		**Semester 2**	PH40073	Mathematical physics	Optional Unit	6			T	
4		**Semester 2**	PH40085	Nanoscience	Optional Unit	6			T	

Dissertation Period

Compulsory Units

MA50187	Project (MSc without placement)	30 credits
MA50244	Project (MSc with placement)	30 credits

4.3 MSc/MRes in Statistical Applied Mathematics

Programme code	MRes in Statistical Applied Mathematics: TSMA-AFM17 MSc in Statistical Applied Mathematics: TSMA-AFM16
Programme title	Statistical Applied Mathematics
Award type	Master of Research (MRes) Master of Science (MSc)

Award title	MRes in Statistical Applied Mathematics MSc in Statistical Applied Mathematics
Mode of Attendance	Full time
Length	1 Year
Designated alternative programme(s)	MSc/PGDiploma in Statistical Applied Mathematics PGDiploma in Statistical Applied Mathematics
Approving body and date of approval	Science FLTQC 13.9.2017

Programme aims and learning outcomes

The MRes and MSc programmes train students at the interface between Statistics and Applied Mathematics. Students learn methods for mechanistic modelling (Applied Mathematics), stochastic modelling (Probability), and fitting models to data (Statistics). Modern applications such as climate reconstruction and weather prediction or the modelling of big data often require the integration of all three methodologies. Through interactions with industrial partners, students gain hands-on experience of problem formulation and the development of research projects. After successful completion of the MRes stage, students proceed to PhD research and follow a project formulated during the MRes.

Programme description: Structure of the programme

The taught phase of the programme consists of a two-semester taught unit `Student-Led Symposia and Integrative Think Tanks' and eight single semester units. Four of these units are compulsory, four are chosen from the catalogue of Optional Units.

The thesis formulation phase runs from June to September. Here students develop the topic and approach for the research that they will carry out in the PhD phase of the SAMBa programme. An average of 60% in the taught phase is required for progression to the MRes thesis formulation phase. If this threshold is not attained, students with an average over 50% may have the opportunity to write a dissertation for the award of MSc instead.

i. Compulsory Units

Two-semester taught unit:

MA50246	Student-Led Symposia and Integrative Think Tanks	12 Credits

Semester 1: Compulsory Taught Units

MA40198	Applied statistical inference	6 Credits
MA50174	Advanced numerical computation	6 Credits
MA50178	Numerical linear algebra	6 Credits

Semester 2: Compulsory Taught Units

MA50247	Bayesian and large scale methods	6 Credits

ii. Optional Units

Semester 1: Optional Taught Units

Select one unit from this list.

MA40045	Dynamical systems	6 Credits
MA40092	Classical statistical inference	6 Credits
MA40171	Numerical solution of evolutionary equations	6 Credits
MA50087	Optimisation methods of operational research	6 Credits
MA50125	Markov processes & applications	6 Credits
MA50183	Specialist reading course	6 Credits
MA50257	Methods for stochastic systems	6 Credits
MA50205	Advanced Mathematical Study 1	6 Credits

MA40042	Measure theory & integration	6 Credits
MA40044	Mathematical methods 1	6 Credits
MA50046	Linear control theory	6 Credits
MA50084	Generalised linear models	6 Credits
MA50179	Mathematical biology 1	6 Credits
MA50181	Mathematical methods 1	6 Credits
MA50196	Financial derivatives	6 Credits

Semester 2: Optional Taught Units

Select between one and three units from this list. Please note that any not taken must be completed in the second year of study.

MA50250	Inverse problems, data assimilation and filtering	6 credits
MA50251	Applied stochastic differential equations	6 credits
MA50170	Numerical solutions of elliptic PDEs	6 credits
MA40177	Scientific computing	6 credits

Select between one and three units from this list (so that you have four Semester 2 options in all).

MA40050	Numerical optimisation and large-scale systems	6 Credits
MA40058	Probability with martingales	6 Credits
MA40239	Discrete probability	6 Credits
MA50089	Stochastic processes & finance	6 credits
MA50176	Case studies in mathematical modelling and industrial mathematics	6 Credits
MA50215	Specialist reading course	6 Credits
MA50206	Advanced mathematical study 2	6 Credits
MA40048	Analytical & geometrical theory of differential equations	6 Credits
MA40049	Elasticity	6 Credits
MA40059	Mathematical methods 2	6 Credits
MA40203	Theory of partial differential equations	6 Credits
MA40255	Viscous fluid dynamics	6 Credits
MA50059	Mathematical methods 2	6 Credits
MA50061	Optimal control	6 Credits
MA50063	Mathematical biology 2	6 Credits
MA50085	Time series	6 Credits

Dissertation Period

Compulsory Units

MA50248	Thesis Formulation Report (MRes)	30 Credits
MA50187	Project (MSc)	30 credits

4.4 Option choices

Information about how to choose optional units can be found at: www.bath.ac.uk/catalogues/information/students/online-unit-selection.html You will be notified by email at the relevant point in the academic year when online unit selection is available, and informed of the deadline for making your choices. If you have any queries about which optional units you should choose, please discuss this with your Director of Studies, SAMBa contact or Personal Tutor.

4.5 Dissertation period: Project (MA50187/MA50244) or Thesis Formulation Report (MA50248)

At the start of the second semester you should discuss possible topics and supervisors for a project with your Director of Studies, SAMBa contact or Personal Tutor. You may suggest a suitable project yourself, after consultation with a member of staff who agrees to be the supervisor. Details of the content of the project and the form of the dissertation, by which it will be assessed, should be set out in a Project Specification, prepared by the supervisor in consultation with you.

MSc students must hand in two copies of the dissertation, each with a signed coversheet, to the Taught Programmes office in Wessex House 3.33 by noon on **13th September 2019** for the programme without placement (and noon on **13th December 2019** for the programme with six month placement).

MRes students must hand in three bound copies of the Thesis Formulation Report, each with a signed coversheet, and a pdf copy to the SAMBa office by noon on **13th September 2019**. Any dissertation or report handed in after the deadline may be awarded a zero assessment.

4.6 Guidelines on preparation and assessment of M level material for MA3/5 unit

MA5 versions of MA3 units contain additional material at Masters (M) level and an additional element of summative assessment to distinguish them from the MA3 level version of the unit. The basic principles are:

a) MA5 students attend the MA3 lectures and take the MA3 exam (labelled MA5)
b) MA3 assessment comprises 75% of the total MA5 mark
c) Additional M level material is learnt through independent study and assessed separately. This assessment contributes 25% of the total MA5 mark.

Additional Material

An important distinguishing feature of M level material is that it should be *learnt independently.* This material will normally be acquired through additional reading set by the lecturer. An element of supervision or formative assessment should be provided; for example, additional problems on existing sheets or an additional problem sheet. It is left to the lecturer's discretion as to how (and when) the additional material is incorporated into the course, and what type of formative assessment is provided. The quantity and difficulty of the additional material should roughly reflect its contribution to the total mark. As a suggested guideline, it should involve about 25 hours of work. This will require Masters students to assimilate the MA3 level material in less than the 120 hours normally allotted for an undergraduate.

Additional assessment

The summative assessment of the M level material may involve the following, as deemed appropriate by the lecturer:

i. Coursework
ii. Oral exam/presentation
iii. Class test

At the beginning of the unit (before the deadline for student unit choices), the lecturer should provide students with a brief summary of the additional material (e.g. syllabus-style key words), and the approximate timing and mode of the additional assessment. It is recommended that the 25% CW element of assessment should act as a cap on the total amount of coursework undertaken by MA5 students (this being of relevance to MA3 courses that already have a coursework aspect).

4.7 Public understanding of science

The Department of Mathematical Sciences is nationally recognised for promoting the public understanding of science. Two of the key events organised annually within the department are the *Masterclass Series* and *Bath Taps Into Science*, both of which take place in spring.

The *Masterclass Series* is aimed at Year 8 school children (12-13 year olds) who have shown interest and aptitude in mathematics. It involves a series of Saturday morning workshops during which the children are exposed to new mathematical concepts, ideas or applications.

Bath Taps Into Science is an event open to the general public during Science Week, co-coordinated from the Department of Mathematical Sciences. Volunteers from the University, local schools and scientific companies set up stalls in central Bath to allow the public to explore a wide range of scientific phenomena including applied mathematics.

Students enrolled on the MSc or MRes programme are encouraged to participate in one of these activities and present ideas based on the role of mathematics in understanding real-world phenomena. This is, however, not a formal requirements of the MSc or MRes programmes.

4.8 Timetables

Programme and unit timetable information can be found online at: www.bath.ac.uk/timetable You can use MyTimetable to create a customised programme timetable that can be downloaded into an electronic calendar: www.bath.ac.uk/timetable/MyTimetable.htm

4.9 Unit and programme changes

We continually look for ways to develop and improve our programmes. For example:

- it might be desirable to make some updates to content to reflect the latest developments in a particular field of study
- a review of assessments across a programme (including feedback received) might identify that changes to a unit assessment would better support student learning.

Students who would be affected by proposed changes are consulted about them, either via their Staff/Student Liaison Committee or directly, depending on the nature of the change.

In addition, it is sometimes necessary to make changes due to unforeseen or unavoidable circumstances. For example:

- the accrediting body for a programme may require changes to be made to it
- it may not be possible to run a particular unit because a member of teaching staff with specialist expertise leaves the University and we are unable to find a suitable replacement
- it may not be viable to run a particular optional unit in a given year because very few students select it.

In such cases, the University will always try to ensure that any impact on students is minimised and that students are informed of the changes at the earliest opportunity.

All programme and unit changes are managed through a formal process set out by the University. The aim of this is to ensure that changes are academically appropriate and properly supported, take place in a timely manner, and safeguard the interests of students.

5 Assessment

5.1 Assessment processes

Assessment and marking processes at the University are designed to ensure that assessment of your work is fair and consistent, and that academic standards are appropriate and comparable between the University and other higher education institutions. This is achieved in a number of ways.

Marking: Assessments you complete during your programme are marked according to:

- *marking criteria (or assessment criteria)* - these are the knowledge, understanding and skills which it has been identified that students should demonstrate in the assessment and which are taken into account during marking. They are based on the learning outcomes being assessed.
- *marking schemes* - these are detailed descriptions of how specific numbers of marks should be assigned against individual components of an answer within the assessment task.
- *grade descriptors* - these are descriptions of the levels of achievement required in order to get a result within a given band of marks (e.g. 70% or more).

Anonymous marking: The University has adopted a principle of anonymous marking in order to protect students and staff from bias, and the perception of bias, in the marking process. It normally applies to all examinations and, where practical, other assessment. It is not possible to mark all coursework anonymously as in some types of assessment the student can be easily identified by the marker (e.g. presentations, group work, laboratory work) or it might not be practical, or in the student interest, to do so. You will be informed when your coursework is to be marked anonymously.

Moderation: Both the setting and the marking of assessments are normally independently checked through a process known as moderation to ensure that questions test the learning outcomes and are set at the right standard, and that marking is consistent and fair. Moderation is conducted by internal and external examiners.

Boards of Examiners:

Assessment decision-making at the University is the responsibility of Boards of Examiners established at three levels: assessment outcomes go first to *Boards of Examiners for Units*, then *Boards of Examiners for Programmes*, then finally to *Boards of Studies*. Boards of Studies confirm decisions relating to student progression from one stage of the programme to the next and the final award. **The assessment marks you are given initially by markers are therefore provisional up until the point when they have been confirmed by the Board of Studies for your programme.** An official release date is set when your confirmed results will be made available to you via SAMIS (the University's student records system). An appeal can only be made in relation to a confirmed mark (see the section in this Handbook on **Procedures for Academic Appeals**).

All marks for a unit are reviewed at a meeting of a Board of Examiners for Units which will verify that the assessment process has been conducted appropriately and that the marks are an accurate reflection of the standards achieved. On rare occasions a Board of Examiners may decide to recommend a change to the marks assigned initially, based on evidence that there was a problem with the assessment (for instance, disruption during an examination, or an exam paper that was too easy or difficult) which means that the marks assigned initially do not accurately reflect the standards achieved by the candidates. This adjustment is known as scaling and under these circumstances the marks of all affected students will be changed.

5.2 Assessment regulations

The University's **Assessment Regulations NFAAR-PGT** specify the rules governing postgraduate taught students' progression from one stage of their programme to the next as well as for the award of degrees. The rules cover all areas of assessment, including supplementary assessment and the extent to which failure may be condoned. The sections below highlight areas of the University's assessment framework for the type of programme you are undertaking. They explain the regulations that govern your assessment and outlines how the University makes decisions concerning your progression through your programme and award. Complete information is available in the NFAAR-PGT document. If at any time you are in doubt about how NFAAR-PGT provisions apply to your work, please consult your Director of Studies.

Important information
This section may contain terms unfamiliar to you. In addition to the explanations we give below you can find full definitions at:
www.bath.ac.uk/registry/nfa/nfaar-pgt-appendix-02.pdf
For full details of the NFAAR-PGT visit: www.bath.ac.uk/registry/nfa
For information relating to your programme visit: www.bath.ac.uk/catalogues

5.3 Your programme and how you are assessed

Within your programme of study, there are *compulsory units*, (which must be taken by every student), and *optional units* (which may be chosen from a range of options).

The *Your MSc or MRes programme* section earlier in this handbook shows the structure of your programme. You can also access this information via links in your programme's description in the programme & unit catalogues available at: http://www.bath.ac.uk/catalogues/ At the end of the table, there is a link to the relevant appendix of the NFAAR-PGT which states exactly how the assessment rules operate. The following points will help you to understand how the assessment rules relate to your specific programme.

- There are several references below to the persistent generic rules on the extent of any failures of units permitted overall. The rules are that you can only (1) fail and retrieve units, or (2) marginally fail units and have them condoned, **within set limits.** Breaking these rules results in failure of the programme.
- Your programme does not have any Designated Essential Units (DEUs). However, all units must be passed or condoned to qualify for the award of MRes, MSc or PG Diploma.
- Your programme is divided into stages and follows the general principle that all stage assessments must be successfully completed before progression to the next stage is permitted. This means that, if you are required to undertake supplementary assessment, you will have to do so before you can progress further.
- Your programme has a taught phase and a dissertation phase. The Programme Progression Requirement to get from the taught phase of the MSc programmes to the dissertation phase is that all units are passed or condoned and the taught stage average is at least 50%. The Programme Progression Requirement to get from the taught phase of the MRes Statistical Applied Mathematics to the Thesis Formation Report phase is that all units are passed or condoned and the taught stage average is at least 60%.
- If you fail to qualify for the award of the degree of MRes or MSc, you may be considered for the award of a Postgraduate Diploma, subject to you having met the requirements for that award.

The normal pass mark for a unit is 40%. In some units, you might need to achieve a threshold mark in one or more component assessments in order to pass the unit overall. Particular rules apply to failure of taught units. They are as follows:

- If you fail any units badly (achieve less than 35%), you will have to undertake supplementary assessment – unless you have failed so many units that you fail outright or the attempted retrieval would break the rule on how much failure can be retrieved.
- If you only fail units marginally (achieve 35%-39%), you might be able to progress without supplementary assessment. Whether you do progress will depend on the total credit value of the failed units.

For dissertation units only cases of marginal failure (35%-39%) are given permission for attempted retrieval through supplementary assessment, and any resubmission that is permitted for marginal failure must be made within a specified period.

Your unit results are combined as follows to make overall assessment/award decisions:

- The Taught Stage Average (TSA) will be calculated by taking the credit-weighted average of marks for all units required to contribute to the taught stage of the programme.
- The Dissertation/Project Average (DPA) will be calculated by taking the credit-weighted mark for the dissertation/project stage of the programme.
- The Overall Programme Average (OPA) will be calculated by taking the credit-weighted average of marks for all units required to contribute to the programme.

A Board of Examiners will decide at appropriate points whether you are continuing to meet the requirements for the programme (including not breaking persistent generic rules whereby you can only fail and retrieve, or marginally fail and have condoned, units within set limits), and/or whether you have met all the requirements for your target award or any alternative that might be available. The outcomes will depend on both your performance in individual units and your overall performance. Generally, if you pass each of your units, you will progress and, in due course, be recommended for an award.

If you fail units beyond certain credit values, or you fail some too badly, you might break one of the persistent generic rules whereby you can only fail and retrieve, or marginally fail and have condoned, units within set limits, and this will result in failure of the programme — without any opportunity for supplementary assessment. The criteria for making awards with distinction or with merit are described in the relevant NFAAR-PGT rules.

5.4 Supplementary assessment

Supplementary assessment is the term normally used for an opportunity given to a student to retrieve failure before starting the next stage of a programme. It generally involves re-doing coursework or re-sitting an examination. Students undertaking supplementary assessments are likely to have to do so at the University in the summer re-sit examinations. For the 2018-19 academic year, this period will be **14th August to 23rd August 2017**. Each unit's method of supplementary assessment is shown in the online unit catalogue.

At supplementary assessment, students will normally have the opportunity to gain credit for units and to have the mark gained reported to them for feedback purposes. But a maximum mark of 40% will be awarded and used in the overall stage average, the overall programme average, the taught-stage(s) average, and any award calculation.

You must pass all your supplementary assessments before you will be able to progress onto the next stage of your programme and/or be considered for an award.

5.5 Feedback to students on assessment

Policy on feedback on assessed work

During your programme, you will normally receive feedback on assessed work. Feedback on assessments may take different forms, depending on your subject and the type of assessment. You will be informed of the timing and nature of the feedback you will receive on each assessment, including whether the piece of work itself will be returned to you. For formal written examinations, students may receive general feedback to the group rather than individual feedback. You can discuss feedback you receive on assessments alongside your performance and progress in your studies at meetings with your Personal Tutor or Director of Studies.

Pedagogical rationale

Fundamental ideas in mathematics can be difficult to comprehend and digest for future application. We believe that mastery of these ideas can only be achieved reliably with study over an extended period by working on problems that exercise these ideas. Our policies are designed to provide students with the opportunity to grapple with these ideas and give feedback that channels and reinforces this effort. We aim to help students learn the practice of mathematics and this requires the active participation of both student and teacher. We believe that formative assessment is the best way to provide feedback. Summative assessment in the form of exams is primarily for judging student achievement and not for providing feedback.

Examinations

Many units in mathematics are assessed solely by examination. Several years (where available) of past examination papers with worked solutions are available via the library website. We do not grant automatic access to marked examination scripts. However, the unit convenor, your Personal Tutor or Director of Studies may provide individual feedback in cases where results are unexpectedly poor.

Staff responsibilities

- Personal Tutors or Directors of Studies will advise students on examination skills including assessment criteria.
- Lecturers will make clear, at the start of the unit, the format and style of any examination to be used.
- Personal Tutors or Directors of Studies will obtain and discuss marked examination scripts when a special case for access to these has been made.

Student responsibilities

- Students will develop their examination skills by participation in tutorials and making use of published resources.

Coursework

Some units are partially assessed by coursework. A few units are entirely assessed by coursework.

Staff responsibilities

- Provide a detailed specification of the assignment and of the examiner's intentions, including an explicit estimate of the time that average students are expected to devote to it.

- Provide an estimate of the total number of marks allocated and, if the assignment is in several parts, the relative weights of these parts.
- Indicate the conditions under which an assignment is to be attempted, e.g. in scheduled sessions or own time, and whether or not the examiner, tutors, other lecturers or students may be consulted.
- Indicate the date on which the assignment is set (i.e. available to students) and the time and date by which it must be submitted.
- Mark coursework in adequate time for students to reflect on the feedback received. Students should either have the opportunity to examine marked coursework or to receive feedback on their performance. For coursework due near the end of the semester, it may not be possible to provide individual feedback before the examination.

Student responsibilities

- Submit work before the specified deadline.
- Read and digest the feedback given.

Formative assessment

Every unit where the sole form of assessment is a final examination (i.e. most units in Mathematical Sciences) will have regular formative assessments in a form appropriate to the material.

Staff responsibilities

- Provide problem sheets, exercises and other tutorial material suitable to the unit on a regular basis.
- Provide solutions to items of formative assessment. The solutions may be provided on paper, online or demonstrated within tutorials
- Ensure formative assessments are marked and returned in a timely manner for the student to benefit from the feedback received. Typically this will occur about one week after submission but no longer than three semester weeks after submission.

Student responsibilities

- Attempt problem sheets provided and hand them in before the stated deadline
- Attend and participate in tutorials
- Collect marked work and reflect upon the feedback provided

5.6 External Examiners

An External Examiner is someone from another University or a professional organisation who is suitably qualified and experienced in the relevant field of study. At least one External Examiner is appointed for each taught programme or group of programmes. The role of External Examiner is an important one in assuring that assessment processes are fair and academic standards are appropriate, and in supporting the development of your programme. External Examiners look at draft examination papers and samples of assessed work, and attend Boards of Examiners.

Once a year, External Examiners provide a written report on each taught programme. University staff look at these reports and respond to the External Examiner's comments. Staff-Student Liaison Committees (SSLCs) also discuss External Examiner reports as part of annual monitoring activity. You can read the latest External Examiner report for your programme, and the University's response to it, at:

www.bath.ac.uk/quality/externalinput/external-examiners-reports.bho

It is not appropriate for students to make direct contact with External Examiners. If you are dissatisfied with the process or outcome of an assessment, and are considering whether to raise this either informally or formally, see the sections of this handbook on **Procedures for Academic Appeals** and **Dealing with a problem involving the University: Complaints**. The section on **Student representation** sets out how students can engage with the quality management process through which the University considers and responds to External Examiners' comments and suggestions.

5.7 Word or page counts

Written coursework tasks will normally have a word or page range or limit. This is in order to give an indication of the depth and detail of work required, and to ensure that students' submitted work is comparable. You will be required to declare the word or page count for your work when submitting it for assessment.

If you do not observe the given word or page limit for the coursework task, then a penalty will be applied. The penalty that would apply should be stated in writing when the assignment task is distributed. You should take note of what is included when calculating the count (e.g. whether or not contents pages, appendices, footnotes, bibliographies and other elements that are not part of the main text are included).

5.8 Late submission of coursework

You will be expected to hand in all assessed coursework and dissertations/projects by a specified date and time. This is to ensure fairness to all students who are submitting work. Please note that:

- if you submit a piece of work after the submission date, and no extension has been granted, the maximum mark possible will be the pass mark
- if you submit work more than five working days after the submission date, you will normally receive a mark of zero, unless you have been granted an extension.

It is important that you speak to your Director of Studies as soon as possible if you become concerned about your submission deadlines. If there are valid circumstances preventing you from meeting a deadline, your Director of Studies may grant you an extension to the specified submission date. You will need to provide a description of the circumstances which you feel support your request. Your Director of Studies may ask you to produce supporting evidence.

5.9 Individual Mitigating Circumstances

Individual Mitigating Circumstances (IMCs) are the conditions which temporarily prevent you from undertaking assessment or significantly impair your performance in assessment. As such, the measure of their severity is not about impact on you, but the impact on your affected assessment. Full information and guidance on Individual Mitigating Circumstances and Assessment (including definitions of IMCs, in the document "What are Individual Mitigating Circumstances?") is available at: www.bath.ac.uk/registry/imc/imc-students.html You should make yourself familiar with these documents, and support and guidance offered through the Disability Service (www.bath.ac.uk/groups/disability-service) or the Students' Union Advice and Support Service (thesubath.com/support). Your Director of Studies can help you to understand the potential implications of your IMC claim on your overall progress and/or award, in light of your academic achievement to date and the assessment regulations for your programme.

Should you wish any IMCs to be taken into account by the Board of Examiners for Programmes when considering your progression or award classification, notify your Director of Studies no more than three days after the affected assessment by completing the IMC report form available at: www.bath.ac.uk/registry/imc/imc-students.html. You will also need to submit evidence of how your circumstances affected the relevant assessment(s), for example, a medical certificate in the case of illness or injury. If you know of a potential IMC that may affect your assessment before you begin an assessment period, it is important that you notify your Director of Studies in advance. After speaking to your Director of Studies, if you do intend to submit a formal IMC claim for the affected assessment(s), you will still need to complete the form and follow procedures.

5.10 Academic integrity: Referencing and plagiarism

Plagiarism is the use of any published or unpublished work without proper acknowledgement in your references. Plagiarism occurs when a student 'borrows' or copies information, data, or results from an unacknowledged source, without quotation marks or any indication that the presenter is not the original author or researcher.

Another form of plagiarism (and hence cheating) is auto-plagiarism or self-plagiarism. This occurs when a student submits work (whether a whole piece or part of a piece) without acknowledging that they have used this material for a previous assessment.

If you use someone else's work – say, by summarising it or quoting from it – you must reference the original author. This applies to all types of material: not only text, but also diagrams, maps, tables, charts, and so on. Be sure to use quotation marks when quoting from any source (whether original or secondary). Fully reference not only quotations, but also paraphrases and summaries. Such references should then be included in a bibliography or reference list at the end of the piece of work. Note that the need for referencing also applies to web-based material; appropriate references according to the type of work or image should always be given.

Guidance on referencing and plagiarism is available through skills training run by the University and the Students' Union, as well as online resources. Referencing guides are also available in print in the library, and your Subject Librarian will be able to help with any questions.

Further information
For further information on all our skills and development opportunities see: http://go.bath.ac.uk/skills
Academic integrity: www.bath.ac.uk/asc/study-skills/academic-integrity.html
Library resources: www.bath.ac.uk/library/infoskills/referencing-plagiarism

Students' Union Skills Training: thesubath.com/skills-training

5.11 Academic integrity: Penalties

Any student who is found to have used unfair means in an examination or assessment procedure will be penalised. 'Unfair means' here include:

- cheating - for example, unauthorised use of notes or course material in an examination
- fabrication - for example, reporting on experiments that were never performed
- falsification - for example, misrepresentation of the results of experimentation
- plagiarism, including self-plagiarism (see above)
- unfair collaboration or collusion - representation of work produced in collaboration with another person or persons as the work of a single candidate.

The University's Quality Assurance Code of Practice, QA53 Examination and Assessment Offences, sets out the consequences of committing an offence and the penalties that might be applied.

Penalties for unfair practice will be determined by the Department or by the Faculty/School Board of Studies in line with the procedures set out in QA53. They may include failure of the assessment unit or part of a degree, with no provision for reassessment or retrieval of that failure. Proven cases of plagiarism or cheating can also lead to disciplinary proceedings. Claims of inadvertence or ignorance will not be accepted as a basis for mitigation of a penalty. If you are accused of an offence, the Students' Union's welfare services are available to support you.

Further information
Examination and assessment offences: www.bath.ac.uk/quality/documents/QA53.pdf
Students' Union advice and support: thesubath.com/support

5.12 Academic integrity: training and test

As a student registered on a University of Bath award, you are required to undertake the academic integrity training and pass the associated test. The academic integrity training aims to provide all students with a basic knowledge and understanding of good academic practice. This includes an understanding of plagiarism and other assessment offences, and skills necessary to reference your work appropriately. The training and test are accessed from Moodle by clicking on the link entitled **'Academic Integrity Initiative'**: http://moodle.bath.ac.uk

When you have completed the training tutorial and are confident that you have understood it, you should undertake the test. To pass the test you need to achieve a mark of 85%. You can take the test as many times as necessary until you pass. If you do not pass the test, you will need to re-visit the training and/or look at the other guidance available to you (see: www.bath.ac.uk/asc/study-skills/academic-integrity.html) or as required by your Director of Studies, and then take the test again.

You will not be able to progress beyond the next progression point in your studies, irrespective of your programme marks, until you pass this test. Ultimately this means that, if you have not passed the test, you will not be able to receive your award. Your Director of Studies will be able to confirm when the next progression point occurs for your stage of your programme.

Further information
Academic integrity: www.bath.ac.uk/asc/study-skills/academic-integrity.html
Regulation 3.7: www.bath.ac.uk/regulations/Regulation3.pdf

5.13 Plagiarism detection and personal data

When you hand in a piece of assessed coursework, you will be expected to make a declaration that the work is your own and, where you have re-used your own work and/or used other sources of information, that you have referenced the material appropriately.

The University uses the plagiarism detection service, Turnitin. This service checks electronic, text-based submissions against a large database of material from other sources and, for each submission, produces an 'originality report'. It makes no judgement on the intention behind the inclusion of unoriginal work; it simply highlights its presence and links to the original source.

The service complies with European Data Protection legislation. When you registered with the University, you gave it permission to process your personal data for a variety of legitimate purposes. This includes allowing the University to disclose such data to third parties for purposes relating to your studies. The University, at its sole discretion, may submit the work of any student to the plagiarism detection service (in accordance with

Regulation 15.3e – see below) and may make, or authorise third parties to make, copies of any such work for the purposes of:

1. assessment of the work
2. comparison with databases of earlier work or previously available works to confirm the work is original
3. addition to databases of works used to ensure that future works submitted at this institution and others do not contain content from the work submitted.

The University will not make any more copies of your work than are necessary, and will only retain these for so long as remains necessary, for these purposes.

Please note that, if at any time the University submits any of your work to the plagiarism detection service, the service will be provided with, and will retain, certain personal data relating to you – for example, your name, email address, programme details and the work submitted. Such data may be transferred by the plagiarism detection service to countries worldwide (some of which may not be governed by EU data legislation) in order for the work to be checked and an originality report generated in accordance with the proper workings of the plagiarism detection service. Personal data is retained indefinitely by the plagiarism detection service upon submission of work. You may ask for your personal data to be removed by contacting the University's Data Protection Officer.

Further information
The University's procedures on Examination and Assessment Offences (QA53) are described at:
www.bath.ac.uk/quality/documents/QA53.pdf
Regulation 15, Assessment of undergraduate and taught postgraduate programmes:
www.bath.ac.uk/regulations/Regulation15.pdf
University's Data Protection Officer: dataprotection-queries@lists.bath.ac.uk

5.14 Procedures for Academic Appeals

Students wishing to submit a request for an academic appeal should refer to Regulation 17 (Conduct of Student Academic Appeals and Reviews): www.bath.ac.uk/regulations /Regulation17.pdf. Academic Appeals guidance is available at: www.bath.ac.uk/registry/appeals. Independent advice about Academic Appeals is offered by the Students' Union Advice and Representation Centre: www.bathstudent.com/advice. Regulation 17.16 outlines how students may appeal against formal Board of Studies decisions in respect of one or more of the following:

i) the student's suitability to progress from one stage of the programme of studies to the next
ii) the student's suitability to remain on the programme of study
iii) the marks/grades, degrees, certificates or diplomas, and the classifications/grades awarded to the student.

The regulation also sets out the grounds on which an appeal can be based. Please note that:

- dissatisfaction with a mark or set of marks, or any other aspect of the properly exercised academic judgement of the examiners, will not of itself be acceptable as a valid ground for an academic appeal (Regulation 17.1)
- students who have concerns about assessment outcomes that have not yet been approved by a Board of Studies should seek advice in the first instance from their Director of Studies. This may include matters such as suspecting errors in the totalling or transcription of marks/grades, or wishing to seek clarification about the marking process (Regulation 17.2).

Student complaints are dealt with under separate procedures: www.bath.ac.uk/regulations/Appendix1.pdf
If you are uncertain as to whether your concerns are a potential Academic Appeal or a student complaint, please refer to the guidance at: www.bath.ac.uk/students/support/complaints/index.html

5.15 How your programme is reviewed and monitored

The University has a number of mechanisms for ensuring that programmes remain up-to-date, issues are dealt with and improvements made. All programmes and units are monitored annually, looking at what is working well and identifying any actions that need to be taken. Student feedback, including feedback given through unit evaluation and other student surveys, is a key part of unit and programme monitoring.

Further information
Annual Monitoring of Units and Programmes: www.bath.ac.uk/quality/documents/QA51.pdf
Degree Scheme Reviews: www.bath.ac.uk/quality/documents/QA13.pdf

6 Study and support: Getting the most out of your studies

6.1 Moodle

Moodle is the Virtual Learning Environment (VLE) used at the University of Bath. It is used by academic departments to support learning and teaching at programme and unit level. It provides a platform for the delivery of resources and online activities, and can also support student interaction and collaboration. http://moodle.bath.ac.uk

6.2 Personal tutor system

On entry to the University, you will be assigned a Personal Tutor who can help you to get the best out of your university experience by supporting your academic progress and personal development, discussing programme choices and career plans, guiding you to sources of expert help with any personal/welfare issues. If you wish to change your Personal Tutor please contact your Director of Studies to discuss the matter.

Further information
www.bath.ac.uk/students/support/academic/personal-tutors

6.3 Academic study skills support and development

To help you get the best out of your studies and your future employability, we offer all our students a comprehensive range of free, year-round skills and personal development opportunities designed to complement your academic programme.

These opportunities have been designed to give you choice and flexibility to help you get the support and development you need at the time you most need it. You can choose from classes, tutorials, drop-in sessions, workshops and online resources to develop your academic skills, for example to:

- create well-written, clearly structured essays, reports and dissertations
- think critically in order to enhance your writing
- manage information sources and literature effectively
- give polished and effective academic presentations
- manage and analyse numbers, data and statistics
- enhance your existing language proficiency, or learn a new language
- use IT tools and resources effectively.

There are many other opportunities also available to you through the Careers Service and Students' Union to help you develop your skills and prepare for the workplace. For example:

- writing an effective job application and CV
- succeeding at interview or assessment centres
- leading and managing projects
- chairing meetings
- running a club or society.

Further information
Find out more about the skills support and development opportunities available here:
http://go.bath.ac.uk/skills

6.4 Recognition for extra-curricular activities: The Bath Award

The Bath Award recognises and accredits the skills and achievements of students engaged in all types of extra-curricular activities. It operates alongside your degree programme and aims to capture the extra-curricular achievements at University that you will find valuable in your future life and career.

Further information
thesubath.com/bathaward

6.5 The library

The library is open 24 hours a day. It provides print and electronic materials and information services to support study and research across the University. It houses over 520 PCs, with wireless networking throughout, and provides areas for quiet individual study and group work. Alongside 340,000 printed books, it

offers over 22,000 electronic journals, 425,000 electronic books, 90 databases and digital versions of the University's academic publications, all available across the University and beyond. The library's copy and print service includes black and white and colour photocopying, laser printing and scanning.

Information specialists, known as Subject Librarians (see the department's library resources page below), are responsible for services to individual Departments. They provide individual help to students and staff, as well as teaching information skills in Department programmes and through general University skills provision. All new students receive library introduction sessions during the induction period.

Further information
This Department's library resources page is: http://www.bath.ac.uk/library/subjects/math-sci/index.html
For information on all library services and resources: www.bath.ac.uk/library

6.6 Computing facilities and IT skills

With your username and password, you will be able to access one of over 1,000 workstations across campus. These enable you to use email, the internet, file storage, Office applications such as Word and Excel, and often give access to the more complex software used on your programme. All computers print to photocopiers in the library and around the campus, for which there is a charge per page.

With your username and password you can also register your own laptop, smartphone or tablet for connection to the campus wireless network (which covers spaces such as communal areas, the Library and cafés) or to around 150 student docking ports. You can use your own device to access many University applications using the UniDesk or UniApps services. Support is available from the IT Service Desk on Level 2 of the Library or online at: www.bath.ac.uk/computing-services Tutorials and Frequently Asked Questions (FAQs) are provided in the help section.

If you have a disability or require learning assistance, Computing Services can support you with your computing needs. An Assistive Technologist is available to provide advice and support. Additional resources available include a purpose-built room, specialist software and computer hardware - including laptops for loan.

The IT shop in the Library stocks popular products such as academic software, DVDs, network cables and headsets. You can order many further IT products through the shop. Prices are often lower than in high street shops. You can also borrow technology from the Service Desk in support of your studies, for example audio recorders, video cameras and projectors.

Further information
Computing Services: www.bath.ac.uk/computing-services
Information for new users: http://go.bath.ac.uk/newusers
Information for users with a disability or requiring learning assistance: http://go.bath.ac.uk/assistive-technologies
IT shop: http://go.bath.ac.uk/ITshop
Computing Services Twitter feed: @UniofBathIT

6.9 Accessing university email

The University will often communicate with you about a range of important matters including registration, unit-enrolment, assessment, and degree ceremonies, and matters such as tuition fees, via your University email account. So that you do not miss out on (and as a consequence fail to act on) important information, it is a University requirement (Regulation 1.3) that you access your University email account regularly, even if you are out on placement or study abroad. **You therefore have a responsibility to ensure that your University email account can receive incoming mail and that you read your email regularly.**

Further information
Email guidance: www.bath.ac.uk/bucs/email
Regulation 1.3: www.bath.ac.uk/regulations/Regulation1.pdf

6.10 Recording of Lectures

'Lecture capture' technology is widely used on campus to record lectures. Lecturers on your units will inform you if lectures will be recorded and the recordings made available for you to view again online. Where provided, lecture recordings are made available as an additional resource for personal study and revision purposes, and you can pause and rewind recordings when you re-watch them. The University cannot

guarantee recordings (for example in the event of a technical fault) and recordings are not made available indefinitely.

As set out in Ordinance 22.4, students are not permitted to copy or redistribute lecture recordings, or to make their own recordings of lectures. However, the University may permit students with a disability to record lectures where this is a reasonable adjustment under the provisions of the Equality Act, in order to give these students equal access to educational opportunities. In such circumstances the lecturer will be informed that the lecture is being recorded and the student may use the recording for their own personal study purposes only. Students with a disability should contact the Disability Service for further advice.

Further information
Ordinance 22: www.bath.ac.uk/ordinances/22.pdf
Disability Service: www.bath.ac.uk/groups/disability-service

7 Student Representation

7.1 Feeding back your views to the University

The University is committed to reviewing and continually improving its practice. The main ways in which we seek feedback are through:

(a) Staff-Student Liaison Committees (SSLCs)
(b) surveys
(c) the Students' Union.

We also use focus groups, departmental working parties, and various kinds of feedback session. You can get actively involved in determining how your educational and student experiences are organised by becoming active in the Students' Union or by letting your Department know that you are interested in contributing.

Every Department has a formal system so that all students can comment routinely, in confidence and anonymously on the learning experience they have received. Such comments help us to check that:

- you have a clear idea of the aims and requirements of each unit you study
- our teaching is effective and stimulating
- the advice and feedback we provide on your work is helpful
- our resources are suitable.

You will be asked to complete a short online unit evaluation for units you have studied. You will also be asked to complete surveys periodically on your experience of the programme as a whole. Please complete each evaluation fully, thoughtfully, and candidly. In particular, please tell us not only your opinion but also the *reasons* behind your opinion.

When we receive responses to evaluations, we analyse them – especially the positive suggestions for change and concerns that are voiced. Student feedback and the resulting actions are taken into consideration in annual monitoring of units and programmes. Survey results are discussed at committees where student representatives have the opportunity to input to any action plans developed in response to the issues raised.

Your feedback is important to both the University and the Students' Union. Please keep telling us what is going well and what needs to get better. We will communicate how feedback on units and programmes, and the wider student experience, has been acted upon.

7.2 Student representatives

As a student of the University you are automatically a member of the Students' Union (although you have a right to opt out - see section below on Students' Union membership). Officers of the Students' Union represent students' interests on University decision-making bodies. In addition, numerous elected student representatives play important roles on various Departmental, Faculty/School and University committees. All student representatives are elected through Students' Union online elections.

There are many opportunities for elected student representatives. If you are elected by fellow students to serve on Departmental, Faculty/School or University committees you will be expected to represent the views of your fellow students and provide feedback following meetings.

Departmental level:	Each Department has at least one Departmental SSLC. These comprise six or more elected student members, known as Academic Reps, and an equal or smaller number of staff members. Academic Reps are elected at the beginning of every year through online elections. Their role involves collecting the views of the students on their programme and attending SSLCs where they represent these views to their Department. There is also provision for student membership of the Department Learning, Teaching and Quality Committee: normally one undergraduate and one postgraduate (taught) representative. Academic Reps attend the Academic Council. These take place every three weeks during semester time in order to: • keep Students' Union Officers and fellow Academic Reps informed of academic developments throughout the University • discuss common problems and interests affecting Departments • gather student opinions and views to be used by the University and the Students' Union • update Academic Reps on key issues.

	Feel free to approach your student Academic Reps at any time to inform them of good practice or areas for enhancement in your units and programme. This is normally the person who represents your year or degree scheme on the Departmental SSLC.
Faculty/ School level:	Student representatives are also elected as Faculty Reps to sit on a number of Faculty/School level committees such as the Faculty/School Board of Studies and the Faculty/School Learning, Teaching and Quality Committee. Faculty Reps are also members of the Students' Union Academic Exec Committee.
University level:	University committees with student representation include the Council/Senate/Students' Union, the University Learning, Teaching and Quality Committee, the Programmes and Partnerships Approval Committee, and Senate.

If you are interested in representing student views at Faculty/School or University level, please contact the Students' Union: academicreps@bath.ac.uk

The Students' Union runs a full training programme for student representatives including an online course in Moodle, a conference and additional sessions through the Skills Training programme.

If you need to raise a concern, remember there are various routes open to you. You can discuss issues directly with a lecturer, your Personal Tutor, or Director of Studies. Individual problems are often more readily resolved in this way. The Students' Union Advice and Support Service, described below, also provides students with information and confidential advice.

Further information
Your SSLC: https://www.thesubath.com/login/?redirect=/academicreps/departments/mathematical-sciences/
Students' Union Academic Representation including contact details for Academic Reps: thesubath.com/academic
Election of Academic Reps: thesubath.com/elections
Students' Union Skills Training programme: thesubath.com/skills-training
Outline election procedures are included in QA48 Student Engagement with Quality Assurance and Enhancement, Annex A: Staff/Student Liaison Committees: www.bath.ac.uk/quality/documents/QA48_Annex_A.pdf

7.3 Students' Union membership

All students registered with the University are automatically given membership of the Students' Union, however you have the right not to be a member. For further information on opting out of this membership, please go to the Code of Practice for the Students' Union: www.bath.ac.uk/corporate-information/code-of-practice-for-the-students-union-su.

7.4 Student support

Most students find there are occasions when it can help to talk to someone about a personal problem or issue. In many cases your Personal Tutor, Director of Studies, or Wellbeing Adviser (see the **Residential life and Wellbeing Service** section below) will be able to help. However, sometimes more specialist help is needed. The University has a range of professional support services that you can approach directly. Your two main contact points are Student Services at the Roper Centre in 4 West and the Advice and Support Service in the Students' Union.

Student Services
Student Services can provide advice and support on a range of issues including:

- counselling and mental health
- disability issues
- money and funding
- residential life and wellbeing.

You can make an individual appointment or just pop in to a daily drop-in sessions. The Roper Student Services Centre in 4 West is open from 9.30am to 4.30pm throughout the year (tel: 01225 385538). Services are also available from the Virgil Building in Bath city centre. For the full range of Student Services, see: http://go.bath.ac.uk/student-services or email: studentservices@bath.ac.uk

Student Services can also provide letters confirming student status for a variety of purposes, which can be requested by logging on to SAMIS: https://samis.bath.ac.uk .

The Students' Union Advice and Representation Centre

The Students' Union Advice and Support Service provides information for students on a range of topics affecting their education and welfare, including advice for students wanting to submit Individual Mitigating Circumstances claims (see the section in this handbook on **Assessment**), to change their programme, or experiencing problems with their programme. The staff in the Advice and Support Service also offer support, information and representation at academic appeals, academic misconduct and disciplinary hearings, and information and advice on a wide range of issues which affect students including housing and welfare issues.

The Students' Union Advice and Support Service is open Monday to Friday 9.00am to 5.00pm in term time (from 10.00am on Fridays) and 10.00am to 4.00pm during vacations (tel: 01225 386906, email: suadvice@bath.ac.uk). The Advice and Support Service also supports the Diversity and Support groups – details of which can be found at: thesubath.com/diversity-support. The Students' Union webpage provides the facility for students to report incidents of harassment, discrimination or bullying. Incidents can be reported anonymously if preferred. Details of how to report an incident are available at: thesubath.com/report-an-incident

For the full range of services see: thesubath.com/support

Further information
A guide to the wide variety of support and information available to students can be found at: www.bath.ac.uk/students and the Students' Union website: thesubath.com

Residential life and Wellbeing Service

The University's professionally qualified Wellbeing Advisers provide a welfare and wellbeing service to all our students. You can talk to a Wellbeing Adviser about anything. There are daily drop-in sessions on campus, including weekends and University vacations. There are also drop-in sessions at the Virgil Building in Bath city centre and activities during vacations for students who remain in Bath.

Further information
www.bath.ac.uk/groups/residential-life-and-wellbeing-service

7.5 Advice for International Students

The Student Immigration Service provides a tailored pre-arrival and induction programme and advice and support for all international students, including a 'check and send' service if you need to send a Tier 4 visa application to the Home Office. The Service offers workshops, a drop-in service, advice via email, phone and web-based platforms, or individual appointments can be made through the Helpdesk in The Roper Student Services Centre, 4 West.

Further information
www.bath.ac.uk/topics/visas

University-wide induction and welcome events are organised for incoming exchange students in the first week of each semester.

Further information
www.bath.ac.uk/campaigns/studying-at-bath-as-an-erasmus-exchange-or-visiting-student

For students who join outside of the standard semester dates, induction and welcome events are organised by the relevant Department.

8 General information

8.1 The Academic year 2018-19

Semester 1

Semester 1	Dates	Weeks
New student arrivals	Saturday 22 September 2018 - Sunday 23 September 2018	
Welcome Week	Monday 24 September 2018 - Sunday 30 September 2018	0
Semester 1 Teaching	Monday 1 October 2018 - Friday 14 December 2018	1-11
Semester 1 Christmas vacation	Monday 17 December 2018 - Friday 4 January 2019	12-14
Semester 1 revision/ assessment period	Monday 7 January 2019 - Friday 25 January 2019	15-17

Semester 2

Semester 2	Dates	Weeks
Inter-semester break	Monday 28 January 2018 - Friday 1 February 2018	18
Semester 2	Monday 4 February 2019 - Friday 19 April 2019	19-29
Semester 2 Easter vacation	Monday 22 April 2019 - Friday 3 May 2019	30-31
Semester 2 revision/ assessment period	Monday 6 May 2019 - Friday 31 May 2019	32-35

Please note: Friday 19th April is Good Friday and Monday 6th May is a Bank holiday and so no teaching will occur on these dates.

8.2 University regulations for students

All registered students of the University are subject to the University's Regulations for Students. The Regulations contain rules and other important information about being a student at the University of Bath, including regulations governing the payment of fees due to the University, student discipline, fitness to study and those governing attendance, conduct and progress in studies. They also form part of the formal contract between you and the University. You will find references to the requirements of the Regulations for Students throughout this Handbook. You are advised to download a copy of the Regulations and read them carefully as they contain a lot of important information.

Important information
The full Regulations for Students can be found at: www.bath.ac.uk/regulations

8.3 Registration status

Note that only registered students may use the University's facilities, such as email, Moodle and the library. You will be asked to register online at the start of your programme of study and then to re-register at the start of every academic year thereafter until you have completed your programme. It is a requirement that you register when asked to do so. Tuition fees for each academic year are payable at registration in full or in instalments. Regulation 1.1 explains the requirement to register: www.bath.ac.uk/regulations/Regulation1.pdf. Regulations 2.4 and 2.10 explain the consequences of non-payment of tuition fees: www.bath.ac.uk/regulations/Regulation2.pdf

8.4 Attendance monitoring

Guidance and requirements on attendance, including the University's Attendance Monitoring and Engagement Policy, are available at www.bath.ac.uk/students/visa-advice/attendance-monitoring/index.html. This page also sets out information on when and how to request an authorised absence.

8.5 Change in your circumstances

You must ensure that the University holds your correct, up-to-date, personal and academic details within SAMIS. If you change your address – either your semester-time or home address – please ensure that you update your details online at: www.bath.ac.uk/samis. If you change your name, you will need to provide valid proof of the change. Please speak to your Department or Faculty/School administration, or Student Services in the Roper Centre, for advice on how to do this.

If you are considering suspending your studies, transferring from one programme to another, or withdrawing from your programme, please discuss your situation with your Director of Studies. They will be able to advise you on an appropriate course of action. It is a University Regulation (3.1) that you attend regularly; if circumstances are such that you are not able to do so, then please contact your Director of Studies to discuss your situation and agree an appropriate course of action.

The financial implications of withdrawing from the University or suspending your studies can be significant. You will find general information at: www.bath.ac.uk/students/finance/funding-advice/changes-to-your-study

The Student Money Advice Team in Student Services and the Student Finance Office will be able to advise you on the implications for fees in your situation and on how to suspend any student funding you are receiving.

If you are an international student holding a Tier 4 visa, you should consult the advisers in the Student Immigration Service about the implications of suspending or withdrawing from your programme: www.bath.ac.uk/visa

You will need to register any change of academic circumstance, including a change of optional units, with the University. Please speak to your Department or Faculty/School administration who will advise you on how to do this.

8.6 Health and Safety

The University's Health and Safety Policy Statement and policies, standards, and guidance on specific topics are available at: www.bath.ac.uk/hr/stayingsafewell/hs-policy

The Policy Statement is also displayed throughout the campus. Staff within the University Health, Safety and Environment Service (Wessex House 3.12) provide professional advice on health and safety matters and monitor the health and safety performance of the University.

Further information
www.bath.ac.uk/hr/stayingsafewell or email: uhse@lists.bath.ac.uk
Current University guidance on fieldwork and on work placements:
www.bath.ac.uk/hr/stayingsafewell/working-off-site

8.7 Data protection

The University's Data Protection Policy and Guidelines may be accessed via the data protection website - http://www.bath.ac.uk/internal/data-protection/

8.8 Equalities and diversity

Everyone at the University of Bath has a responsibility for promoting equality and fostering good relations between all members of the community, students and staff, and also for eliminating unlawful discrimination, harassment and victimisation against anyone for reasons of age, disability, gender, pregnancy and maternity, race (this means colour, nationality including citizenship, ethnic or national origins), religion or belief, sexual orientation, or transgender status. The new equality duty also covers marriage and civil partnership with regards to eliminating discrimination in employment.

Further information
There is a range of information and resources available at www.bath.ac.uk/equalities or email: equalsdiv@bath.ac.uk

Accessibility
An access guide is available which outlines the disabled access features and route plans at the University of Bath:
www.disabledgo.com/organisations/university-of-bath/main-2

8.9 Advice for students with disabilities, long-term illness, and specific learning difficulties

If you have a disability and/or specific learning difficulty (such as dyslexia), we strongly advise you to speak to the Disability Service team, your Personal Tutor or Director of Studies as soon as possible and preferably before your programme begins. Referral to the Disability Service will enable us to assess your needs and make arrangements to support you.

Any personal information you give when disclosing your disability will be treated in confidence and made available *only* to relevant members of staff and only *with your permission*. If you don't disclose your disability it may be difficult for the University to provide suitable support to help you during your studies. Disclosure will not disadvantage you in any way.

The Disability Service provides advice, guidance, information and support for a range of needs including:

- Autism Spectrum Disorders/Asperger's Syndrome
- dyslexia and other specific learning difficulties
- mental health
- mobility impairments
- sensory impairments
- health conditions such as epilepsy, HIV, diabetes or chronic fatigue.

A screening process is available if you think you may have a specific learning difficulty/dyslexia.

Disability Advisers are also responsible for making applications for alternative arrangements for exams and assessments. Therefore, if you think that, because of a disability, you need alternative exam arrangements (such as extra time or the use of a computer) please discuss this with a Disability Adviser without delay.

Further information
www.bath.ac.uk/groups/disability-service

8.10 Pregnancy and maternity

The University is committed to being as flexible as possible in supporting students who become pregnant, decide to terminate a pregnancy or have a very young child. You are not under any obligation to inform the University of these circumstances, but doing so will enable us to put in place arrangements that will assist you in applying for, starting, or successfully completing a programme of study.

You can seek advice, guidance and support via your Director of Studies, Personal Tutor and the University's Wellbeing Service.

Further information
www.bath.ac.uk/guides/getting-advice-if-you-are-pregnant-while-studying-or-have-a-young-child

8.11 Careers service

The University Careers Service can support you through the career planning process, whatever your career aspirations. In addition to providing support with developing your employability, and guidance on how to make informed career decisions, Careers Advisers will provide help with writing your CV, practising aptitude tests, and improving your interview skills. Being in regular contact with several hundred major employers, the Careers Service is also a fantastic source for graduate job vacancies for Bath students, as well as the organiser of several major careers fairs each year.

Further information
The Careers Service is open throughout the year, including the vacations.
Check the web site for opening times: www.bath.ac.uk/students/careers
The web site includes the *Myfuture* vacancies portal.

Contact careers@bath.ac.uk or 01225 386009 or follow the Careers Service on Twitter @CareersatBath or Facebook (search for BathUniCareers).

9 Dealing with a problem involving the University

We want to ensure that, if you have a problem concerning the University, it is resolved as quickly as possible. As described above, there are student representatives on all formal decision-making committees – at Departmental, Faculty/School and University level. Student representatives help to anticipate potential problems and, when problems occur, to raise them so that they can be dealt with promptly. As a result we can often resolve problems *before* they get to the stage where a formal complaint might be necessary.

The Students' Union offers advice for students on a range of issues through its Advice and Support Service. Its advice is independent of the University. See the section above on **Student Support.**

9.1 Complaints

If you do need to make a complaint, there are procedures in place to deal with it, outlined in the University's Student Complaints Procedure (see below).

These procedures are designed to ensure that your complaint will be dealt with in good faith and that you will not be penalised for complaining. When we receive a complaint, we will first seek to deal with it through informal discussion. If this fails to resolve the issue at hand, you can raise the complaint formally.

In addition, there are procedures for requesting a review of progression or award classification decisions, or of the level of attainment. For information on these procedures, please see the section in this Handbook on **Procedures for Academic Appeals**.

Further information
Student Complaints Procedure: www.bath.ac.uk/guides/student-complaints-procedure

9.2 Bullying, harassment and victimisation

We believe that all our students and employees are entitled to be treated with dignity and respect and to be free from unlawful discrimination, victimisation, bullying, or any form of harassment. This is set out in the University's policy, Dignity and Respect for Students and Staff of the University of Bath: Policy and Procedure for Dealing with Complaints (below).

This policy and procedure applies to all staff, students and third parties (e.g. contractors to the University).

Further information
www.bath.ac.uk/equalitiesOn reporting incidents of bullying or harassment, see also the section in this Handbook on **Student Support**.

9.3 Mediation

If you are involved in a disagreement or dispute, you can seek help from the University's Mediation Service. This service is impartial, non-judgemental, and confidential. Requests for mediation support should in the first instance be made either to the Mediation Service Manager, or the Students' Union Advice and Community Manager.

Further information and contacts
Mediation Service: www.bath.ac.uk/guides/mediation
Mediation Service Manager: 01225 383098 or equalsdiv@bath.ac.uk