Durham University, United Kingdom
Department of Mathematical Sciences

MSc Programme in Mathematical Sciences

2017–2018

Science Laboratories
South Road
Durham
DH1 3LE

Email: maths.office@durham.ac.uk
Web: http://www.maths.dur.ac.uk

Contents

1   Introduction

Welcome to the taught MSc in Mathematical Sciences! The aim of the course is to bring you in twelve months to a position where you can start with confidence on a wide range of careers in a mathematical or mathematics related discipline, including a PhD in a wide range of mathematical or physical sciences. You can look forward to an enjoyable year.

This booklet is specific to the MSc in Mathematical Sciences. For information concerning general University regulations, examination procedures etc. you should consult the Faculty Handbooks and the University Calendar, which provide the definitive versions of University policy.

If at any time you would like to discuss aspects of your course, or if there are any questions about the Department which this booklet leaves unanswered, please contact the MSc Course Director (Dr Pavel Tumarkin, Room CM 110) or the Supervisor of your MSc dissertation.

Much information about the Department may be found on the web starting from the Mathematics Department Homepage `http://www.dur.ac.uk/mathematical.sciences`.

2   Getting Started

There will be an informal meeting with the MSc Course Director Dr Pavel Tumarkin on **Thursday 5th October 2017 at 10.00** at the Department of Mathematical Sciences, CM 105. This will be a chance to pick up information on the postgraduate lecture courses and other matters.

There are several administrative matters that must be sorted out at the beginning of the academic year which it would be wise to complete before lectures begin on **Monday 9th October 2017** .

- You will need to complete your registration form and obtain your campus card (which will be needed to gain access to the University Library and a number of other University buildings, and

to borrow books from the University Library.) At the same time you should be given your user name and password for a computer account with the University's CIS.

- You should go to the departmental office (CM 201) where you will be informed about the arrangements for a work-space.

- There is a pigeon-hole in the Coffee Room (CM 211) for mail.

- You should register for departmental computing facilities (see below).

2.1   Useful contacts

The first point of contact for issues referring to a particular lecture course should be the relevant lecturer - either immediately after a lecture, or by visiting the office of the lecturer, or by e-mail. For more general questions or difficulties you are welcome to consult the Course Director.
Course Director: Dr Pavel Tumarkin, CM 110, pavel.tumarkin@durham.ac.uk
Registration and timetabling: Miss Susan Bates and Ms Beverly Forster, CM 201,
maths.teaching@durham.ac.uk
Department computing officers: CM 125, ma-help@durham.ac.uk
Department postgraduate secretary: Mrs Fiona Giblin, CM 201, maths.postgraduate@durham.ac.uk

2.2   Library and computing facilities

The main university library is located on the Science Site close to the Department of Mathematical Sciences. It contains a large selection of books and journals of interest to mathematical scientists. To borrow books you will require a campus card. The main bookshop in Durham is Waterstones on Saddler St. which carries a limited selection of appropriate texts; other titles are generally available by order. The department has a research library (the Collingwood Library) in CM217.

2.3   Computing facilities

The main university computing facilities are run by the Computing and Information Services (CIS). You should have been registered automatically for a CIS account when completing your University Registration and obtaining your campus card (see above). In case of any problems or if you need any further information about the University's computing facilities, you should visit the CIS helpdesk which is situated in the Bill Bryson Library. The University maintains a number of clusters of PCs and Unix machines. One such cluster is located in CM 131 on the ground floor of the Mathematics Department.

In addition, once you have obtained an CIS account, please **see the departmental computing officers** (CM125) and arrange to be registered on the department network, and send an email to pavel.tumarkin@durham.ac.uk from your Durham email account to make Dr Pavel Tumarkin know

your email address. Also, please send to Dr Pavel Tumarkin the list of your preferred modules to make sure you have an access to all course materials.

The department has some CIS computers in CM 217 which you are welcome to use. Section 6.3 contains further details about our computing facilities.

3   The MSc Degree

This is a full-year degree course that starts on Monday 9th October 2017 and finishes in the first half of September 2018 .

3.1   The general form of the degree

There are two taught triple modules, Mathematical Sciences I (MSI, module code MATH51860) and Mathematical Sciences II (MSII, module code MATH51760), and a Dissertation Module (module code MATH51460). Each module is worth 60 credits, which combine to give the 180 credits required for successful completion of the MSc degree.

The work during the first two terms (the Michaelmas and Epiphany Terms) is mainly the study of the six units which make up the two taught modules, three units in each module. The main part of this booklet provides descriptions of these units. The units are examined in May/June 2018 , and, subject to satisfactory performance, work on the Dissertation Module becomes full-time after these examinations until the beginning of September 2018 .

All units for MSc in Mathematical Sciences are founded on lecture courses, though some of the units involve reading extra material which goes beyond what is covered in the lectures. If the unit involves extra reading, this will be mentioned in the unit descriptions later in this booklet, and may be delineated further by the lecturer(s) at suitable points in their courses.

All the lecture courses coincide with courses from our large MMath programme. They have two lectures per week and four problems classes in each of the first two terms with 2-4 revision lectures at the beginning of the third term. The times of the MMath lectures can be found on the 3H and 4H noticeboards, and on the Web:
`http://www.maths.dur.ac.uk/users/maths.teaching/tt/module_checker.html.`

3.2   Set work, handing in and help

You should attempt all the work set for the units you are taking. In particular, you should attempt and hand in all work set for handing in. If you are having difficulty with a particular unit you can and should, in the first instance, ask the lecturer concerned for help as soon as possible. You could do this immediately after a lecture, by calling on the lecturer concerned in his or her

office or by email. You can also ask your supervisor for guidance. Please refer to Section 7.2 for the minimum requirements for the University's 'keeping of term' regulations.

3.3 Exams: passing the course, distinction

Each taught unit is assessed by a single examination in May/June. Your dissertation is marked independently by two members of staff, and the final mark arrived at by a moderating process. All examination marks are subject to confirmation by the External Examiner, and approval by the Board of Examiners.

What follows is an overview. (For the official version of the regulations please see the "Core regulations for modular taught masters degrees, postgraduate diplomas and postgraduate certificates" (`http://www.dur.ac.uk/university.calendar/volumeii/postgraduate.programmes/.`)

Each of the three modules must be passed (50%) to achieve a pass in the MSc. Students who achieve an average mark of less than 50% in any taught module at the first attempt are allowed one further attempt to pass the module. The total number of taught modules which a student may resit must total no more than half the total credit value of their programmes taught modules.

You can resit failed units only in **August 2018** and can start your dissertation **only after you have passed the resits**, the new deadline is **mid-December 2018** . It is also possible to resubmit a failed dissertation. The maximum mark that you can be awarded for a resit or resubmission is 50%.

A Merit is awarded for an overall average of 60% or higher, plus 60% or higher in the dissertation. A Distinction is awarded for an overall average of 70% or higher, plus 70% or higher in the dissertation.

3.4 Formative assessment

You are required to give a 15-min presentation on your dissertation topic. While the presentation does not contribute towards the mark of the dissertation, it presents a unique opportunity to enhance your communication skills. The presentations of MSc students who passed their taught modules will be 2-3 weeks before the deadline for submitting the MSc dissertation. (For advice on presentations, see `http://www.maths.dur.ac.uk/Ug/projects/resources/.`)

3.5 Department research seminars

The department runs an extensive programme of research seminars. These do not form part of your course, but you are very welcome to attend any of them. Details of the talks may be found by following the links from `http://www.dur.ac.uk/mathematical.sciences/events/`. On the day they are being given, talks are advertised on the department homepage (`http://www.dur.ac.uk/mathematical.sciences/`).

4 The Taught Modules and Dissertation

List of all taught units available for MSc in Mathematical Sciences in 2017–2018

Advanced Quantum Theory IV
Algebraic Topology IV
Analysis III/IV
Bayesian Statistics III/IV
Codes and Cryptography III
Continuum Mechanics III/IV
Decision Theory III
Differential Geometry III
Dynamical Systems III
Galois Theory III
General Relativity III/IV
Mathematical Biology III
Mathematical Finance III/IV
Operations Research III
Partial Differential Equations III/IV
Quantum Information III
Quantum Mechanics III
Representation Theory III/IV
Riemannian Geometry IV
Solitons III/IV
Statistical Methods III
Stochastic Processes III/IV
Topics in Algebra and Geometry
Topology III

Detailed descriptions of all the taught units above are available at `https://www.dur.ac.uk/ mathematical.sciences/teaching/2017modules/`.

Each unit description is followed by a list of recommended books and a syllabus. For units modules you are advised to buy a particular book, indicated by an asterisk; for others a choice of titles is offered or no specific recommendation is given. There are also suggestions for preliminary reading and some time spent on this during summer 2017 may well pay dividends in the coming year. The syllabi are intended as guides to the units. No guarantee is given that additional material will not be included and examined nor that all topics mentioned will be treated.

The choice of units above is subject to avoiding the following excluded combinations: Quantum Mechanics III cannot be taken with Advanced Quantum Theory IV, Differential Geometry III cannot be taken with Riemannian Geometry IV, Topology III cannot be taken with Algebraic Topology IV. Further, as an MSc student, for III/IV units you are supposed to take IV level option. University regulations also specify that you cannot take more than two units at level III.

You should make an initial choice of units before lectures start. You may, if you wish, attend the lectures for other units and make a final choice by the end of the second week of the first term. You

should get an approval of your choices from the Course Director. Your 6 taught units will be split into 2 triple modules MSI (module code MATH51860) and MSII (module code MATH51760).

5   The Dissertation Module

From about the middle of the second term (and certainly by the end of the second term) you choose a particular dissertation topic in consultation with the Dissertation Tutor Dr Anna Felikson and possible dissertation supervisors. Your supervisor will give you some suggested reading by the end of the second term. You should use this to get some idea of your topic before your examinations for MSI and MSII in May/June 2018 .

You must pass these examinations in order to continue with your dissertation, for which you study your topic in some depth. The dissertation has to be submitted to the Maths Office (CM 201) on or before Friday 7th September 2018 (date to be confirmed). You should obtain a receipt for this, and sign a declaration confirming the work is your own. Exceptionally, in borderline cases, you may be asked to attend an oral examination in October/November 2018 .

1. Objectives of the Dissertation.

To write a well-organised and readable account of material you have found and assimilated during investigation of an advanced topic.

2. Criteria for the assessment of the Dissertation.

The examiners will look for

- Evidence of advanced knowledge of the topic treated.

- Insight and critical thought in dealing with the material.

- A unified treatment and a good choice (and volume) of material.

- An independent exposition combining several sources.

- Evaluation and integration of relevant literature.

- Innovative work.

- Appropriate comment as to relations with other work and the possibilities for further research.

- An exposition aimed at students working at level IV.

- A good expository style with effort made to make the material intelligible and interesting.

- An appropriate Introduction and Conclusion.

- Helpful examples, illustrations, diagrams etc.

- Appropriate and uniform use of notation.

- Good organisation with accurate and precise internal and external references and an appropriate division into sections and subsections.

- A helpful table of contents and a reference list.

- Attention to spelling, correction of misprints, division into paragraphs, line breaks and appropriate display of formulae.

Please note that, regardless of other criteria, in order for a dissertation to be awarded a pass, its grammar, spelling and typography should be graded as at least a pass.

3. Choice of topic and approach.

You may consider topics for current level IV projects at `http://www.maths.dur.ac.uk/Ug/projects/db/topics.php?term_code=201500&crn=10514`. However, you may also discuss other topics with any available member of staff. From about the middle of the second term, with the help of the Dissertation Tutor Dr Anna Felikson , you should arrange your dissertation supervisor and the area of your dissertation. You should obtain approval for your choice from the Dissertation Tutor before the end of the second term. After working and reading in your chosen areas, you should agree with your dissertation supervisor the approximate approach to be used.

4. Details of how dissertation period is to be supervised.

You should meet your supervisor fairly frequently at first, say once per week (allowing for absences on vacation) and maybe less frequently once you are well embarked on the topic. But you should make contact at least fortnightly during the third term. As well as obtaining the supervisor's advice, as it becomes necessary, you should produce samples of work for your supervisor's comments. At a pre-agreed point near the end of the dissertation period, a draft dissertation should be given to the supervisor. It is not the supervisor's job to proof-read your draft, but to give feedback on actual and intended content. You will then produce and submit the finished dissertation.

5. Back-up your work.

The advice on backing-up and protecting your computer-based work is given by the CIS. Also, make sure to allow plenty of time for printing etc., in case of equipment failures. Ignoring elementary precautions is not a valid excuse.

6. Length of the dissertation.

The dissertation should be 40-60 A4 pages in length (with 1 inch margins, body text in 12pt non-condensed type and normal baseline spacing at 14.4pt). The pages before the Introduction (or first chapter) are not counted. Appendices and graphical illustrations may be discounted with permission of the Dissertation Tutor. An index, if present, need not be included in the page count.

7. Style and format for the dissertation.

The dissertation should be produced in a suitable LaTeX format or a suitable equivalent, see `http://www.maths.dur.ac.uk/Ug/projects/resources/`. The dissertation should have:

- a front page including: the title, a description (A dissertation submitted in partial fulfilment of the requirements for admission to the degree of MSc in Mathematical Sciences at Durham University), your full name and the month and year.

- a table of contents.

- a bibliography,

- a reference list.

(These last two could be combined if appropriate.)

8. Assertion of authorship.

You should assert that the dissertation is your own work except as acknowledged in the text. This is best done by including a page as follows: "This dissertation is my own work, except where explicitly acknowledged by the giving of a reference."

Name: Type your full name.

Signed and dated: Please put your usual signature, together with the date.

9. Plagiarism.

All sources must be acknowledged. Also, if you reproduce material word-for-word from another source, you must make a reference to the source at that point. Such reproduction should be limited to small sections (typically less than a page in each instance), and to gain marks you must demonstrate understanding of the duplicated material, for example, by discussion or example.

The following is an extract from Volume I of the University Calendar:

In formal examinations and all assessed work prescribed in degree, diploma and certificate regulations, candidates should take care to acknowledge the work and opinions of others and avoid any appearance of representing them as their own. Unacknowledged quotation or close paraphrasing of other people's writing, amounting to the presentation of other persons' thoughts or writings as one's own, is plagiarism and will be penalized. In extreme cases, plagiarism may be classed as a dishonest practice under Section IV2(a)(viii) of the General Regulations and may lead to expulsion.

10. Handing in.

One copy (spiral or comb bound so that it can be opened flat) of the dissertation should be handed in to the maths department office on or before the deadline. A receipt should be obtained. You must also submit an electronic copy of your report as a pdf file attached to an e-mail to the Dissertation

Tutor and your supervisor. You should consult your supervisor and the 4H projects page for further advice on printing your dissertation. The deadline for submission of the dissertation is 17.00 on Friday 7th September 2018 (date to be confirmed), which is the end of the course.

6   Further Learning and Teaching details

6.1   Sources of advice

You may discuss any problems with the Course Director (though difficulties with particular units are best discussed, in the first instance, with the lecturer concerned). Other people to turn to for help or information are Dr Jochen Einbeck (Director of Postgraduate Studies), and, in the departmental office, Mrs Fiona Giblin (Secretary for Postgraduate Studies) and Mrs Rachel Duke-Parker (Departmental Secretary). If you have a problem which cannot be solved by any of these people, the Head of Department (Prof Anne Taormina , Room CM 202, anne.taormina@durham.ac.uk) should be approached. There is also a formal University grievance procedure.

6.2   Private study

Each of your taught units is an undergraduate module. According to the University, 'An undergraduate module with effect from October 1998 is defined as a study unit comprising 200 hours of SLAT (Student Learning Activity Time) per annum and lasts one academic year' (University of Durham Teaching and Learning Handbook). The total 'contact time' that a student spends in lectures, tutorials, etc. amounts to around 30% of the total SLAT. You would be wise to plan how best to use the remaining 70% (140 hours for a 20-credit module, i.e., 6.4 hours per week of a 22-week academic year per 20-credit module). This time is allocated within the module to be spent, not only in preparing submitted work, but in private study of the lecture course material and in revision. You are advised to organise your time in such a way that you are able to devote a number of hours each week to reviewing your lecture notes, reading around the subject and working through exercises extra to those which have been set by the lecturer. By so doing you will be developing your study and personal management skills and be giving yourself the best opportunity to gain a firm understanding of the topics as they unfold. By attending to any difficulties or misconceptions you have as the course progresses, you will be in an excellent position at the end of the course to make the most of your revision time. Planning and preparation often reduce examination stress.

6.3   Computers, CIS and DUO

You are expected to use the internet — i.e., e-mail and the World-Wide Web (WWW) — and facilities are provided by Computing and Information Services (CIS). You should take advantage of CIS instruction courses to make sure that you have a basic acquaintance with computers. The web-address is `http://www.dur.ac.uk/cis`.

The Maths Department web-address is `http://www.dur.ac.uk/mathematical.sciences/` and a valuable link is 'Teaching'. Here besides lecture and tutorial timetables you will find material provided by lecturers. For this they may use 'Durham University On-line' (DUO).

DUO is a virtual learning environment which is a collection of on-line resources including links to web pages, lecture notes and exercise sheets/solutions, communication tools like email and assessment features such as formative quizzes. Your login area on DUO is where you can access all on-line course materials offered by your lecturers.

Soon after your registration details have been entered onto the University's student records system (Banner), you will automatically be enrolled by the Learning Technologies Team at the IT Service on the DUO courses related to the mathematics modules that you are taking. Details of how to login to the DUO system are given at `https://duo.dur.ac.uk/webapps/portal/frameset.jsp`. Individual lecturers will inform you about its use for their courses from time to time during the year. The Department will also make use of the Announcements area in DUO to pass on important information to you so please get into the habit of logging in at least twice a week.

6.4 Timetabling and other information

Timetables giving details of places and times for your lectures are available on Departmental web pages and on noticeboards in the first floor corridor of the Department.

Teaching staff often send you important information by e-mail to your local `@durham.ac.uk` address, so you should scan your mailbox regularly.

6.5 Staff-Student consultation and feedback

The Department has several methods of Staff-Student consultation and feedback. At the end of each of the first two terms you will be asked to fill in a questionnaire on your taught units. Your responses will be considered initially by the Course Director and then by the Management Board for the MSc in Mathematical Sciences. Postgraduate students have two representatives on the department's Postgraduate Studies Committee, and one representative on the department's Board of Studies. They will be pleased to raise any issue that you bring to their attention.

The MSc in Mathematical Sciences has a representative on the Department's Staff-Student Consultative Committee, which meets once in each of the first two terms.

Over the Christmas vacation you will be asked to use a suitable mathematics typesetting program (preferably LaTeX) to produce up to two pages, including some mathematics, outlining your progress in the first term. This will also help you prepare for writing up your summer dissertation, see more on LaTeX at `http://www.maths.dur.ac.uk/Ug/projects/resources/`.

Over the Easter vacation you will be asked to produce a report of at most four pages (again, preferably using LaTeX) describing your progress, prior to a short supportive interview just after

the start of the third term with two members of the academic staff. If you have concerns about teaching which are not covered by these meetings and questionnaires, contact can be made directly with the Course Director.

6.6   Absence and illness

If you fail to hand in written work because of illness you **must** ask your College to inform the Department. If your academic performance is significantly affected by illness or other difficulties at any time, you should obtain documentary evidence as described in the Teaching and Learning Handbook. The relevant section is: `6.2.6 Student Absence, Illness and Adverse Circumstances` accessible on-line at `http://www.dur.ac.uk/learningandteaching.handbook/6/2/6/` and has links to downloadable self-certification forms and requests for a doctor's certificate.

If you fail to hand in written work for the above, or any other, reasons you should contact the Course Director as soon as possible. If your academic performance is significantly affected by circumstances beyond your control — for instance, illness or bereavement — at any time during your course especially in the period leading up to or during an examination period, you might wish to bring these mitigating circumstances to the attention of the Board of Examiners. The Board of Examiners has discretion to take mitigating circumstances into account when making a final decision on a student's performance. You must inform the Board of Examiners before they meet, using the Mitigating Circumstances form, which can be obtained from your college. Supporting evidence such as a doctor's certificate, or other evidence from an independent professional such as a counsellor or members of DUSSD, should be submitted with the form if available and appropriate. Students considering claiming Mitigating Circumstances are advised to read Section 6 of the Teaching and Learning Handbook of the University of Durham. The most relevant section is 6.2.6 Student Absence and Illness. This is accessible on-line under the address `http://www.dur.ac.uk/learningandteaching.handbook/6/2/6/`, and contains links to downloadable self-certification forms and requests for a doctor's certificate.

6.7   Students with special needs

The University is committed to full compliance with the aims of the Special Educational Needs and Disability Act 2001. Once a student has been accepted for a course of study, the University accepts a responsibility to ensure appropriate provision for that student throughout his/her course. Students with disabilities can expect to be integrated into the normal University environment. They are encouraged to be responsible for their own learning and so achieve their full academic potential.

Durham University Service for Students with Disabilities (DUSSD) aims to provide appropriate care and support for all Durham students with a disability, dyslexia, medical or mental health condition which significantly affects study. DUSSD can advise you and organise special academic facilities if you have a disability and need some help. They will try to provide whatever support is necessary to enable you to study effectively and to make full use of your opportunities at University. This help will be specific and appropriate to you and relevant to the courses you choose.

Special arrangements and facilities may well be required by disabled students when taking examinations. These might include extra reading time or a separate quiet room and are intended to minimise the effects of disability, which are often exacerbated by examination conditions. DUSSD organises all the requisite examination concessions for hearing-impaired, visually-impaired and dyslexic students. DUSSD also makes recommendations to departments for students with other disabilities who have regular support from the Service.

For further advice, or to obtain a copy of the University's Disability Statement, please contact Durham University Service for Students with Disabilities (DUSSD), Pelaw House, Leazes Road, Durham, DH1 1TA, Tel: 0191 334 8115 (Voice and Minicom),
Email: disabilities.service@durham.ac.uk.

6.8 Smoking and Mobile Phones

Please note that smoking is forbidden by law in any building in the University. Also, mobiles must always be switched off in classrooms.

7 Examinations and Assessment

7.1 Regulations for the taught MSc

The General Regulations for the taught MSc and the special regulations for the course described in this booklet are printed in Volume II of the current version of the Durham University Calendar, which is available in the main library or in the Department of Mathematical Sciences Office. Full details of the University procedures for Examinations and Assessment are in the Teaching and Learning Handbook (`http://www.dur.ac.uk/teachingandlearning.handbook/`).

The Board of Examiners is responsible for all assessment of the taught MSc in Mathematical Sciences. The Chairman is Dr Jens Funke and the Secretary is Dr Anna Felikson .

7.2 Monitoring of work, calculators

Under the general regulations of the University with regard to the keeping of terms, you are required to complete written work to a standard satisfactory to the Chairman of the Board of Studies. In practice this means that you **must** hand in at least 75% of written work on time at a standard of grade C or better (see table below). To ensure this, your performance is monitored by the Course Director. You are required to submit work before the deadline for submission. No credit is given for late work unless there is a prior arrangement with the lecturer.

The purpose of the continuous assessment of coursework is to help you at each stage of the learning process. It is designed to encourage effort all year long and provides manageable milestones, in

preparation for the summative assessment of end of year examinations. Course lecturers provide problems of an appropriate standard and length to the students, as well as assessment templates (model solutions) to the markers. Each script will returned to you with the grade written on it. The interpretation of grades is as in the table below. The returned scripts should indicate clearly where errors and gaps in arguments occur, and the nature of errors. They should give brief indications as to the approach required, bearing in mind that model solutions for all set problems will be provided to students by lecturers shortly after the marking has occurred. The lecturer makes relevant model solutions available to students via the course web page or/and Durham On-Line (DUO) shortly after they have submitted their assignments.

Remark: *A grade C is deemed acceptable. D/E or a failure to hand in work is a demerit. If say 4 questions of equal standard are set and 2 are answered very well and 2 are not tackled at all then there is close to 50% attainment, resulting in grade C.*

In all cases, performance at marked written work can provide useful evidence for the Board of Examiners if examination performance is adversely affected by illness or other circumstances.

Grade	Equivalent Mark	Quality
A	$\geq 80\%$	*Essentially complete and correct work*
B	60%—79%	*Shows understanding, but contains a small number of errors or gaps*
C	40%—59%	*Clear evidence of a serious attempt at the work, showing some understanding, but with important gaps*
D	20%—39%	*Scrappy work, bare evidence of understanding or significant work omitted*
E	<20%	*No understanding or little real attempt made*

Generally, calculators may be needed or permitted in a number of Maths modules and in the corresponding examinations. In the interest of fairness, the Board of Studies in Mathematical Sciences has decided that only the simplest scientific types are allowed. In particular, you are not allowed to take to an examination any calculator which is programmable, can display graphics, has facilities for text storage or communications and can evaluate integrals or solve linear equations. For further information, see `https://www.dur.ac.uk/mathematical.sciences/teaching/handbook/assessment/examsinfo/`.

7.3 Plagiarism, cheating and collusion

Working with your fellow students is perfectly acceptable, but joint work should be declared as such. The University has a strict policy against plagiarism and other forms of cheating, a statement of which may be found in the Learning and Teaching Handbook. The relevant section is `6.2.4 University Guidance on Procedures in respect of Assessment Irregularities`. This is accessible at `http://www.dur.ac.uk/learningandteaching.handbook/6/2/4/`.

Plagiarism includes
• The verbatim copying of another's work without acknowledgement.
• The close paraphrasing of another's work by simply changing a few words, or altering the order of the presentation, without acknowledgement.
• Unacknowledged quotation of phrases from another's work.
• The deliberate and detailed presentation of another's concept as one's own.

Cheating includes
• Communication with or copying from any other student during an examination.
• Communication during an examination with any person other than a properly authorised invigilator or another authorised member of staff.
• Introducing any written or printed material into the examination room unless expressly permitted by the Board of Examiners in Mathematical Sciences or course regulations.
• Introducing any electronically stored information into the examination room, unless expressly permitted by the Board of Examiners in Mathematical Sciences or course regulations.
• Gaining access to unauthorised material during or before an examination.
• The provision or assistance in the provision of false evidence or knowledge in examinations.

Collusion includes
• The collaboration, without official approval, between two or more students in the preparation and production of work which is ultimately submitted by each in an identical, or substantially similar, form and/or represented by each to be the product of his or her individual efforts.
• The unauthorised co-operation between a student and another person in the preparation and production of work which is presented as the student's own.

7.4   Illness and Examinations

If your academic performance is *significantly* affected by circumstances beyond your control – for instance, illness or bereavement – at any time during your programme of study, and especially in the period leading up to or during the examination period, you might wish to bring these mitigating circumstances to the attention of the Board of Examiners.

The Board of Examiners has discretion to take mitigating circumstances into account when making a final decision on a student's class of degree. Students must inform the Board of Examiners before they meet, using the Mitigating Circumstances form, which can be obtained from Colleges. Supporting evidence such as a doctor's certificate, or other evidence from an independent professional such as a counsellor or members of DUSSD, should be submitted with the form if available and appropriate. Students considering claiming Mitigating Circumstances are advised to read Section 6 of the Teaching and Learning Handbook of the University of Durham, accessible on-line under the address http://www.dur.ac.uk/learningandteaching.handbook/6/.