The Lancaster Mathematics and Statistics PhD Programme

Academic year 2017/18

DEPARTMENT OF MATHEMATICS AND STATISTICS

http://www.lancaster.ac.uk/maths

Postgraduate Tutors:
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Introduction to the University and the Department

Lancaster University (LU) is a campus-style university, established in the early 1960’s on a partly wooded, landscaped site at Bailrigg, about three miles south of Lancaster city centre. The campus includes laboratories and offices, student residences, shops, banks, bars, and indoor and outdoor sports facilities on a single site.

Lancaster itself is a small city, with a rich history going back to Roman times. Relative to its size (population approximately 50,000) it has good shopping centres and very lively entertainment. The surrounding countryside varies between pleasant and superb, including the National Parks of the Yorkshire Dales to the east and the Lake District to the north. The much larger cities of Manchester and Liverpool are about 60 miles to the south.

The Department of Mathematics and Statistics is based in Fylde College. It boasts one of the UK’s leading research groups in statistics, and a vibrant pure mathematics research group. Our department was ranked 5th jointly in the 2014 Research Excellence Framework (REF) and it is one of the UK’s top departments for research in mathematics and statistics.

Full details of the research in the department can be found from the list of staff research interests or the research group pages on the web

http://www.lancaster.ac.uk/maths/research/
Research in Statistics

Statistics at Lancaster is a large and vibrant research community. Much of our research has a strong applied emphasis with research typically being focused at the interface between methodology and applications. Our research has three distinctive but complementary strengths: the development of advanced probabilistic and statistical theory; a well-defined methodological focus based upon statistical modelling; and extensive collaborative links with colleagues throughout the university and researchers elsewhere.

Broadly, our statistics research is classified into the following research groups.

- Modelling and Inference
- Statistical Learning
- Statistical Methods in Health and Social Science
- Statistical Methods in Medicine

There are also (overlapping) smaller subgroups, most of which have their own research activities (such as reading groups, specialised seminar series, etc). Some examples are

- Stochastic modelling
- Computationally intensive methods
- Design and analysis of clinical trials
- Quantitative criminology and forensic statistics
- Health and social measurement

Much of our research involves the development of new statistical methodology motivated by applied problems arising in the natural, social and biomedical sciences. This position at the interface between theory and application gives Lancaster’s statistical research a distinctive flavour and involves frequent and close collaboration with colleagues in other university departments and in local research institutes and hospitals. We currently have particularly close links with the Lancaster Environment Centre (LEC), Sociology and The Management School, as well as individual contacts with many other departments.

The department has a number of active seminar series in statistics: the main Statistics seminars, at which visiting researchers present their work are on Wednesday afternoons and there are also Royal Statistical Society local group meetings (usually on Thursday afternoons). In addition, there are various specialist seminar series in areas such as computational statistics, extreme value methods, changepoint, nonlinear and nonstationary time series and medical statistics.

As well as a strong reputation for the international standard of research in statistics, the department has a proven record in terms of the provision of Masters and Postgraduate level courses and teaching. In conjunction with the Department of Management Science, we run STOR-i, one of a select number of UK EPSRC doctoral training centres in the mathematical sciences. The department also forms part of the ESRC-funded North West Doctoral Training Centre, leading on the Social Statistics pathway.
Research in Mathematics

The Department has a lively and large group of research mathematicians in various areas of modern mathematical analysis and algebra. Our mathematics research is broadly classified into the following research groups, although there is significant overlap in terms of shared interests.

- *Algebra and Geometry*
- *Analysis and Probability*
- *Geometric Rigidity Theory*

Here is an indication of some of the specialist research areas:

- *Operator algebras and operator theory*
- *Combinatorial rigidity*
- *Homotopical algebra and deformation theory*
- *Noncommutative probability*
- *Random matrices and stochastic analysis*
- *Banach algebras and abstract harmonic analysis*
- *Operators on Banach spaces*
- *Partial differential equations*
- *Graph limits and approximate algebraic structures*
- *Lie theory and noncommutative algebra*
- *Algebraic groups and algebraic geometry*
- *Representation theory of finite groups and related topics*

We are members of various networks supported by the London Mathematical Society, including NBFAS (the *North British Functional Analysis Seminar*) and ARTIN (*Algebra and Representation Theory in the North*).
**Introduction to the PhD Programme**

There are currently three types of PhD within the Department:

1) The *traditional PhD* where formal assessment is wholly by submission and oral examination of a thesis.

2) The *integrated PhD*, where the first 12 months consists of formally assessed taught postgraduate level courses and projects, which if successfully completed will be followed by essentially a traditional PhD (see Appendix C for full details of the scheme).

3) The STOR-i programme, details of which can be obtained from [http://www.stor-i.lancs.ac.uk/About-Us](http://www.stor-i.lancs.ac.uk/About-Us)

The following notes are particularly relevant for traditional PhD students; or Integrated PhD students when they enter their second year. In their first year, Integrated PhD students will find the department’s booklets for the MSc programmes invaluable.

There are a number of people who will be a source of information, advice and help during your PhD. These are:

**Your Supervisor:**

Your supervisor(s) will be your primary source of help and advice during your PhD. We pride ourselves in delivering high-quality, *accessible* supervision. You should expect to have a regular, weekly meeting with your supervisor and feel able to approach them informally at other times and arrange additional meetings as necessary - subject, of course, to the fact that there are only so many hours in the week and your supervisor does have other responsibilities!

Some students will have joint supervision, usually with different supervisors having different expertise and focusing on different parts of the research plan. A joint supervisor may be in another department.

**Your Peer Mentor:**

Each new PhD student is assigned an individual peer mentor. Your mentor will be a current senior PhD student, who you can approach for guidance regarding university-related concerns that you may encounter during the first year.

**Postgraduate Coordinator:**

This is Sharon Bryan (B57; s.bryan@lancaster.ac.uk). Sharon is responsible for the administration side of the PhD course within the department. She is also your first point of contact for any general enquires within the department.

**Postgraduate Research Tutors:**

There are two PGR tutors. The PGR tutor for Statistics is Kanchan Mukherjee (k.mukherjee@lancaster.ac.uk) who takes responsibility for PhD students studying for the Statistics and Applied Social Statistics degree schemes. The PGR Tutor for Mathematics is Yemon Choi (y.choi1@lancaster.ac.uk).
Each Postgraduate Tutor oversees the progress of all PhD students in their area, and you should contact the tutor if you are having problems (particularly if they cannot be discussed with your supervisor). If you are supervised by the Postgraduate Tutor, then you can discuss any problems with your head of section instead.

**Department Administrative Assistant:**
Julia Brewer monitors and administers all financial aspects relating to research grants/projects and postgraduate studentships. She is the first point of call for general enquiries related to studentship and travel.

**Postgraduate Representative:**
The postgraduate representatives attend various departmental and faculty committee meetings, such as the departmental meeting, and computing committee and the staff-student committees. They should be contacted if you have any general suggestions about the department's provision for PhD students.

The Postgraduate Representative for this year (2017-18) is Ben Norwood.

*You should feel able to speak freely with any of the above people about any relevant issues that concern you.*

**Appraisal procedures**

(The following applies to traditional PhDs. The Integrated PhD can, roughly, be thought of as 1 year of training followed by a standard 3 year PhD; as such, this section applies to Integrated PhD students entering their second year, and 1 year should be added to all the timings given. Timings also assume full-time study for a PhD.)

The university regulations state the following:

*Within the first six months all research students must fulfil the following, or an equivalent, process:*  
(a) attend an approved induction programme  
(b) carry out an approved development needs analysis (DNA) or equivalent in consultation with their supervisors, and keep a record of agreed follow-up to the DNA  
(c) take the appropriate research training activities, informed by the DNA as guided by their supervisors  
(d) complete a research proposal or plan of work which the supervisors approve as appropriate and viable  
(e) agree a projected completion timetable with their supervisors  
(f) any additional requirements to meet the particular needs of the individual awards.
Any research student who does not demonstrate satisfactory progress during the first six months full-time should be: carefully monitored and supported, informed about any reasons for concern, set objectives, and their progress reviewed before the 12 month deadline.

The department's usual system for appraisals is via a Higher Degree Committee (HDC) for each student: see Appendix A for further details on the composition and purpose of this committee. The relevant forms for HDC meetings will be emailed to you or your supervisor by the relevant Postgraduate Tutor at the appropriate times.

Shortly after registration (usually within 1 month) it is recommended that a formal meeting be held with your Higher Degree Committee. The first formal assessment of your progress will take place 4 months after your official entry into the PhD program. In addition, all PhD students will undertake the equivalent of 10 days training per year; see below.

You are initially registered as a Probationary PhD student, a status which is upgraded after 10 months of study by a procedure called confirmation. Confirmation is based on evidence of progress, and evidence of being able to submit a PhD thesis within 4 years of initial registration. Thus confirmation is an important step, and requires substantial written evidence of progress and potential for completing a PhD within a reasonable time-scale. (Details of the current procedures for confirmation are given in Appendix B).

In addition to the 10 month appraisal, your progress will also be appraised in your other years of study by the HDC. The aim of these appraisals is to allow you to take time with your supervisor to discuss progress and plan for your work for the coming years. The focus will be on planning your work to be able to finish and submit your PhD within a suitable timescale. Further details may be found in Appendix A.

While a traditional PhD is in theory a three year degree, it is usual for students to take anywhere between 3 and 4 years to complete a PhD. Furthermore 4 years should be viewed as a ‘deadline’ for your studies; so without any unforeseen problems all students should be able to submit a thesis within 4 years. If you find you need to take longer than 4 years to submit, you will need to apply for an extension (obtaining an extension should not be seen as a formality!) and this can be granted only in exceptional circumstances.

Training Opportunities

The Research Councils are placing an increasing emphasis on the training aspects of PhDs. There is a now an expectation that all PhD students will undertake the equivalent of 10 days training (roughly 75 hours) per year. This training should be directed through discussions with your supervisor and should be recorded in your Initial HDC form.
There are numerous possibilities for training and learning beyond the specific remit of your PhD project:

**Masters Courses:**
Even if you are not required to take courses as a formal part of your PhD training, you can undoubtedly benefit by attending selected courses offered in the masters programs, either to give you the background you need specifically for your research topic, to broaden your general statistical or mathematical knowledge, or to develop transferable skills.

**APTS and MAGIC:**
The department is a founder member of UK schemes for providing training in Statistics (APTS) and Mathematics (MAGIC). These will provide opportunities for subject-relevant training for your PhD.

APTS put on week-long residential training courses. All statistics PhD students are expected to attend the APTS courses during their first year; as a rule of thumb, you could attend at least one APTS week consisting of two courses. Your supervisor can offer you some suggestions on this. The research council or department will cover the cost of attending these courses.

MAGIC, to which Lancaster is contributing courses, makes available a diverse range of postgraduate courses in mathematics from other UK universities through the interactive access grid node room in our PSC building. As a rule of thumb, mathematics students should attend at least two ten-week MAGIC courses. Derek Kitson is the MAGIC co-ordinator and can give you further information.

As well as being of direct use for your PhD, these courses will help give you a strong background and overview of the general subject area. Such background will be of particular importance if you are interested in an academic career.

**Department Courses:** Possibilities within the Department are 4th year undergraduate level courses in Pure Mathematics and the MSc courses in Statistics and Data Science.

There are also specialist short courses run by the Department throughout the year, see


**University and Faculty courses:**
There are also university-wide and faculty-wide courses, covering topics such as oral presentations, writing skills, and various aspects of studying for a PhD and thesis preparation. You can get details of these courses from the relevant websites and also from various notice boards as well as departmental emails and should discuss the possibilities with your supervisor. Existing PhD students will also be able to give you advice on what courses are particularly useful.
See the following on the Faculty of Science and Technology Graduate Courses and a variety of Research Development Program courses from the FST Graduate School website:
http://www.lancaster.ac.uk/sci-tech/postgraduate/graduate-school/research-training/

Seminars:
Seminars, in contrast to courses, are one-off lectures - usually on the speaker's current research. In statistics we run a seminar series with external speakers on Wednesday afternoons. In pure mathematics there is a series of seminars run weekly on a Wednesday afternoon. These are a mix of internal and external speakers.

There are also specialist seminar series and reading groups - your supervisor will let you have details of these if they are appropriate for you.

At busy times, you may wonder whether attending all of these is really a good use of your time; particularly as when you start your PhD you may find it difficult to understand much of each seminar. Our expectation is that you routinely attend seminars as they are invaluable for developing a broad knowledge of either pure mathematics or statistics; and in particular for learning about cutting-edge research both within and outside the Department.

We also expect PhD students to contribute to the seminar program; on average students will give two talks during their PhD, normally one each before and after the 16 month appraisal. This is invaluable experience for presenting your work, and good practice for the possibility of giving talks at conferences. You should also feel free to contact the seminar organisers with suggestions for speakers or topics which you would like to see on the programme.

PhD students in mathematics are also encouraged to participate in the Postgraduate Forum: this is a seminar series run by the postgraduate students in mathematics for each other, and can be useful as a warm-up for a seminar in the main series.

Conferences, Workshops, and Travel Funds

The Department encourages you to attend and speak at suitable conferences. If you are funded through a grant for a specific project, then that grant should have sufficient funds to cover appropriate travel, and your supervisor will have details about what funds are available. Students funded through research councils such as EPSRC, ESRC or MRC usually have travel funds. The information about such funds should be available in the offer letter and should be used for this purpose.
In addition, Faculty of Science and Technology offer partial travel grants to postgraduate students (depending on availability). See details at (http://www.lancaster.ac.uk/sci-tech/about-us/faculty-grants/travel-grants/)

It is a good idea to apply early in the academic year. For some conferences, separate travel grants can be applied for and these possibilities should be explored from the particular conference websites.

For self-funded or Faculty-funded students, some limited departmental support is available, in the form of an allowance for the duration of his or her PhD. The amount available depends on the level of funding that the Department receives from the University, and this may fluctuate. As a rule of thumb: at current levels we expect that the allowance should permit funding for one international conference and one national conference during the lifetime of the studentship; obviously some common sense and consultation should be used.

**Before** booking travel or accommodation, all applications for funds should be made on the appropriate form (copy attached in the Appendix), including estimated costs, and should be discussed and agreed with the supervisor beforehand. Please note that requests for funding cannot be approved if the corresponding conference takes place during the writing-up stage.

For all students, travel arrangements (i.e. rail/ air travel) **MUST** be made through the Travel Office at http://www.lancaster.ac.uk/procurement/

Incidental expenses (such as taxis, bus fares) should be claimed back using the form AP130314, available online from the Finance website: http://www.lancaster.ac.uk/depts/finance/home/forms.html

After completing the form and attaching all valid receipts, the form should be submitted to the Departmental Administrative Assistant (Julia Brewer) for processing.

**Teaching and Teaching Assistance**

Postgraduate students are under no obligation to help with teaching in the Department - unless they are being funded by the Faculty studentship - but you almost always have the opportunity to undertake some teaching-related work if you wish, paid on an hourly basis. The person to consult if you would like to do some teaching in the Department is Julia Tawn, who will be able to provide information on the current rates of pay offered for this work.

Most likely, your assigned teaching duties will consist of running tutorials or example classes for undergraduates, and marking the associated homework. The experience of doing work of this kind is of obvious value if you intend a career which will include teaching responsibilities. You may also find that it helps you to gain the confidence in making presentations which is an essential part of many career paths.
In the event that you wish to teach a class, we will require you to attend a departmental briefing session on UG teaching practices. There are other appropriate training courses put on by the university which you may need to attend, unless you have a recognized equivalent qualification.

**Ethical Approval of Research Project**

All research projects that involve the primary collection of data on people or animals, or the secondary analysis of administrative, commercial or survey data collected by someone else will need to gain ethical approval for their research from the Faculty Ethics committee. This meets monthly. At the first meeting of your HDC committee, you will be asked about ethical approval of your project and whether you or your supervisor(s) have considered the issue.

The ethics approval form is available on the FST ethics web pages,

http://www.lancaster.ac.uk/sci-tech/research/ethics/

together with the timetable for meetings. If you are unsure whether to apply for ethical approval, or need help filling in the form, please contact the departmental ethics officer, Professor Brian Francis.  
(b.francis@Lancaster.ac.uk).

**Department Facilities**

**Offices and working base**

You should have received a key to one of the student offices - probably sharing with a number of other PhD students. Please feel free to make it as homely as possible - posters, plants, whatever you can to make your office pleasant.

You may use the internal University mail and telephone system freely, external mail, fax (in B4a) and telephone facilities for official business. Incoming mail will be placed in a pigeon hole for you in the post Room B62, where there are also trays for outgoing mail. Both of these have security locks and you will be given security codes to access them.

Academic material can be photocopied free of charge on the machine opposite B33 using a Mathematics and Statistics account number which you will be given. The Department will supply seminar or teaching materials (available in B4a) but otherwise we ask that you provide your own stationery.

We strongly advise that you make the Department your working base, since you are then more likely to develop good working and collegial relationships with your fellow students and with staff in the Department. This makes it easier to share ideas and to seek informal help when you need it; research is often a collaborative, rather than a solitary, activity.
Of course, there will be times when you do need to work alone, and when you honestly feel that you can work more effectively at home than in the Department. Ultimately, it is for you to decide what works best for you - but give your departmental office a fair trial and if there is anything about the working environment in the Department which you find unhelpful, please do let one of the Postgraduate Tutors know. Within our resources, we will do whatever we can to deal with any problems.

**Working hours and holidays**

You are expected to treat your PhD studies as a full time job; this equates to approximately 37.5 hours per week over 48 weeks with 4 weeks holiday which would include Christmas shut down and Easter shutdown. **Any holidays must be agreed with your supervisor.**

If you are absent due to illness for a short period (such as two weeks or so), as such the university does not need any medical certificate. However, you should keep your supervisors informed in case you miss any meeting or appointment etc. due to illness. If your illness persists for a longer period, you need to request for an intercalation.

For EU and overseas students taking up tutoring or other part-time job, we suggest you to have a look at the university’s pre-arrival guide from [http://www.lancaster.ac.uk/sbs/international/](http://www.lancaster.ac.uk/sbs/international/)

**Postgraduate Statistics Centre (PSC)**

Apart from being the place where we hold many of our seminars, the PSC social area provides an invaluable opportunity to chat with colleagues about anything at all - including but absolutely not restricted to statistics or mathematics! It's a great way to get to know people better, unwind for a few minutes, and to be aware of the unofficial departmental gossip.

**Computing**

All traditional route PhD students will be given a departmental laptop to use during their study (either with Linux or Windows). This will be arranged during the first weeks of your course. Integrated PhD students will be given a departmental laptop at the start of their second year.

Computing support is offered by Cyrus Gaviri and David Sole. Please contact them with any computer issues by emailing to support@helpdesk.maths.lancs.ac.uk

Students currently have access to the departmental printers in room B62 (the post room)- there is a fast colour printer and a fast monochrome printer. Please use the monochrome printer for all print jobs that do not need colour.

You may also ask around if you encounter any problem on computing. Usually other graduate students or staff will be pleased to help.
We welcome your views on how computing is resourced and organised within the Department. Please feedback please to the chair of the computing committee or to the postgraduate representative.

Web Pages
Your web profile on the departmental web pages is linked to the PURE system. To obtain a listing on the departmental research students page http://www.lancaster.ac.uk/maths/about-us/people/?category=students, you will need to login to PURE http://pure.lancs.ac.uk/ and make your profile visible. In the PURE system you can also add a photo, add your publications, make your achievements public and add a research profile. We recommend you do all of these things, as part of starting to build your own public research profile, but we also emphasise that it is your choice as to whether you have a public profile or not.

A guide to using PURE for research students is available at http://www.lancaster.ac.uk/pure/docs/guides/students-profiles.pdf

Students may also have their own personal web space, which is stored locally on the departmental server. URLs on this server will look like http://www.lancaster.ac.uk/maths/about-us/people/myusername

Ask Cyrus Gaviri or David Sole to set this up for you if you want this facility through departmental computing support.

Computing within the Department
In the department there are a number of PC labs which can be used by staff, students and registered visitors to the department. These are:

- Lab 1 and Lab 2, Postgraduate Statistics Centre
- Lab A1, Engineering

For information on other computer labs that can be used all over campus, please see http://www.lancs.ac.uk/iss/services/pclabs/

Connecting Laptops to the network
There are a number of network terminals available within the social areas in the Postgraduate Statics Centre building.

If you have a personal laptop that you wish to connect to the Lancaster University network, please contact the computer support staff: support@helpdesk.maths.lancs.ac.uk.
**Journals on the Web**

You will undoubtedly need to search for and read relevant journal articles during your PhD. You can have online access for many journals; see [http://libweb.lancs.ac.uk/](http://libweb.lancs.ac.uk/) for details of what is available. If a particular journal is unavailable at the university library, papers can be obtained through the inter-library loan system.

Other useful sites for searching for relevant papers are MathSciNet and Web of Science. If you are on campus you have free access to them through the library’s database list

[http://www.lancaster.ac.uk/library/resources/databases/](http://www.lancaster.ac.uk/library/resources/databases/).

If you are working off campus, you will need to log in or use the VPN – more information here: [http://libweb.lancs.ac.uk/offcampus.htm](http://libweb.lancs.ac.uk/offcampus.htm)

Information about the support for FST Library can be found from here.

[http://www.lancaster.ac.uk/library/academic-services/](http://www.lancaster.ac.uk/library/academic-services/)
Appendix A: Monitoring of PhD students

Higher Degree Committees

In order to monitor the progress of PhD students in the Department of Mathematics and Statistics, each new student will have a Higher Degree Committee (HDC). The committee will comprise

- the supervisor(s);
- another member of the Department who knows something of the topic, who will act as the Chair and a representative of the Postgraduate Research Committee;
- sometimes, a representative of a company or institute that is associated with the project, who will be invited to join.

The system will apply to all students who are solely registered in this Department. It should be considered for students who are jointly registered in more than one Department, but should not be used if the other Department has conflicting monitoring requirements of their own.

The composition of each HDC is determined upon the arrival of the student by the relevant PGR Tutor, in consultation with the supervisor(s). Students on 1+3 Integrated PhD schemes will have an HDC formed at the time when they begin the research component of their degree.

The Postgraduate Tutor and the Postgraduate Co-ordinator will remind the student and supervisor to schedule these meetings at appropriate time points. The HDC should meet

- soon after the student starts, to discuss the initial programme and project plans;
- at 4 months (first official appraisal);
- at 10 months (official upgrade point);
- at 16 months (further official appraisal).

This schedule will be extended appropriately in the case of part-time students.

Since 2015-16, the Faculty of Science and Technology has been encouraging departments to use Moodle to log their appraisals of PhD students. Students and supervisors will thus receive emails at the 4 month mark and every 6 months afterwards, reminding them of this. Details of how this works are given below.

Apart from the introductory session, at each meeting the supervisor will provide a short half page report on progress; the student will produce a longer report which is mostly a technical account of research progress, and may be a draft chapter or paper. These reports should be made available to the Chair in reasonable time prior to the meeting.

For the 4 month meeting, the student’s document needs to demonstrate that work has begun and a page covering progress made, training gained, future plans and issues would suffice.
Additional meetings may be held if the research lasts for a longer time (official appraisals are needed at 10 and 16 months and at 6 monthly intervals thereafter, but not all of them would need to be a full HDC meeting). A simple form would be completed at the end of each meeting.

The role of the Chair

During the HDC meetings, the student will be questioned about the report by the Chair. In case there is any concern about the student’s progress, the Chair in consultation with the supervisor may set targets for the student to achieve before the next meeting.

At the end of each meeting, the student should communicate to the Chair in confidence if he or she has not received satisfactory supervision during the period prior to the meeting, or if there is any issue. Those comments should be made available to the Postgraduate Tutor.

Timeline (overview)

The time points for monitoring and appraisal procedures are summarised below, assuming that the starting date is 1st October; for other starting dates, the time points are shifted by an appropriate constant. If progress is not adequate, the Department may initiate more frequent reviews.

4 months (January/February)
- Supervisor and student to complete progress sections of the appraisal form, taking note of the ethics checklist (where applicable).
- The HDC meets and considers reports, with possible discussion with students and supervisors.

10 months (July) Confirmation to PhD program
All students are initially registered as probationary PhDs; the decision to confirm the PhD will be made at this time.
- The student submits a written report covering progress made, training gained, future plans and issues as well as a brief PhD proposal. Student to also produce written evidence of progress and plans for future research to the HDC prior to this meeting.
- The HDC meets to discuss progress. Student and the HDC complete appraisal form.
- The Chair of the HDC acts as an independent referee, to review the progress made, and communicates his or her recommendation on upgrade (along with a referee’s report) to the Postgraduate Research Tutor within four weeks of the deadline for submitting this HDC report.
- The supervisor, HDC chair and Postgraduate Research Tutor will recommend confirmation or otherwise. The decision is communicated to the student.
Students who fail to be confirmed will have one further opportunity to submit written evidence of progress and plans for future research in order to be reconsidered for confirmation. Details of the requirements of this will be given to the student by the HDC and Postgraduate Research Committee, though the resubmission will normally be expected prior to 16 months. If this second attempt is unsuccessful, then the student will be transferred to MPhil status.

16 months and every 6 months thereafter

- Student is normally required to give a talk on their work, usually during the term prior to their 16 month appraisal. This will either be in the Statistics Forum series or in the Pure Maths Seminar Series, or the Postgraduate Pure Maths Forum in the presence of some academic staff of the department.
- Supervisor and student to complete progress sections of the appraisal forms. Student to include a provisional date for the submission of the thesis.
- The HDC will review progress against the expected submission date, and agree remedial action if appropriate.
- Feedback given to students.

Online appraisal system

At the appropriate points in the timeline (4, 10, 16, 22 months and so on), students should receive a notification from the University reminding them that an appraisal is due. Through Moodle, students are able to upload any relevant notes or documents which they should then `submit' as part of the appraisal. Once this is done, the supervisor will then receive an electronic notification. After the appraisal has taken place, the supervisor is then able to record his or her approval on Moodle. **It is important to note** that without this step, the system will not allow submissions at the next point in the timeline. Likewise, if students do not upload material before the appraisal, the system will not allow supervisors to `approve' the result of the appraisal online.

Further details are available from the PGR tutors, in separate briefing notes.

Part-Time Students

Part-time students will be appraised at 4, 10, 16, 22 months and so on. The PhD confirmation takes place at 22 months. Written feedback will be given by the HDC and Postgraduate Tutor in all cases. Students will have the opportunity to meet with the Postgraduate Tutor in person to discuss progress. The Postgraduate Tutor will make informal checks of PhD students’ progress throughout the year and be available to discuss any problems with students as they arise. Students who are supervised by the Postgraduate Tutor will have the opportunity to discuss progress with the relevant Head of Section.
Appendix B: 10 month confirmation of PhD status

After 10 months of study a decision will be made whether to confirm your registration of PhD. Before the review you need to prepare two documents:

A: Evidence of progress to date

B: An outline for future research

Document A can be one of several formats and need not be written solely for the confirmation review. For instance: a literature review, good summary and drafts of thesis chapters, a draft paper etc would all be acceptable.

For Statistics students, Document B should describe in some detail your plans for the remainder of the thesis: the questions to be considered, why they are important and how you intend to approach the solutions. A proposed list of contents without discussion is not adequate for review. It is accepted that plans may change as the work progresses.

For Mathematics students, Document B can be somewhat looser and less detailed, but evidence should be given of concrete future plans. Please consult your supervisor or the Postgraduate Research Tutor in Mathematics if you are unsure what is required here.

After the review, you will be informed of the decision, including comments on progress where appropriate. If you are unhappy with the decision you may request a meeting with the Review Panel, and of course there are formal University appeal procedures available to you.

Students who fail to be confirmed will have one further opportunity to submit written evidence of progress and plans for future research in order to be reconsidered for upgrade. Details of the requirements of this will be given to the student by the Review Panel and the resubmission will normally be expected prior to 16 months. If this second attempt is unsuccessful, then the student will be transferred to MPhil status.
Appendix C: Integrated PhD details

The Integrated PhD is a 4 year PhD programme which involves students taking postgraduate level courses and a dissertation during their first year before progressing onto standard PhD research and all students get an MRes if they progress to the second year of PhD. It is similar to spending one year studying for a Statistics Masters followed by three years on a PhD.

Progression to year 2 of the programme is dependent on students performing well during their first year (based on the minimum level of achievement we would expect from someone capable of obtaining a PhD). Students who fail to progress are nevertheless eligible for an MRes (subject to satisfactory performance).

Years 2, 3 and 4 of the Integrated PhD is similar to the normal PhD program and the Departmental research committee oversees the progress of the students from year 2 onwards. The PhD should be examined in the usual way and satisfy the normal criteria for the award.
Appendix D: Writing up fees, PhD thesis and viva

Rule for writing up fees

All full-time PhD students will automatically move onto writing up fees after completing the minimum registration period (3 years), subject to them having completed 12 months of active study from the date their PhD status was confirmed. However, those students who are funded by a 3.5 year Research Council award (such as EPSRC) will remain on full fees for a further 6 months before being transferred to writing-up.

The earliest that a part-time student can transfer to writing up is after 4 years of active study, subject to submission of a full first draft to the supervisor and at least a year having elapsed from the date of confirmation of PhD status. Subject to these conditions being met part-time students start paying writing up fees after completing 4 years of study.

Also if a student submits his thesis within 3 months of incurring the writing-up fee, it will automatically be cancelled and any payment will be refunded.

Thesis format

For those students studying for a PhD or Integrated PhD, your PhD thesis needs to be submitted and this will be examined during a PhD viva. The thesis will be written in English.

A thesis shall not exceed 80,000 words (including any footnotes and appendices but excluding the bibliography). The text of the thesis shall be word processed in double spacing on one side only of good quality A4 paper (210 mm. x 297 mm.), leaving a left hand margin of 38 mm., and a margin of 25 mm. on the other three sides. Diagrams and illustrations shall be reproduced or mounted on similar paper. Candidates shall submit to the Postgraduate Studies Office copies of the thesis (one per examiner) in a secure adhesive binding. For information on the formatting, length, style and presentation, see

http://www.lancaster.ac.uk/sbs/registry/docs/ExternalExaminers/guidance-notes-research-degree.pdf

During the PhD viva, there will be an internal and an external examiner, and the viva will either have a chairperson or will be recorded. For more details see the above document.

As well as the standard PhD format, it is possible to submit a thesis in what is called the “alternative thesis format” where the main part of the thesis consists of a number of completed papers. Details are available in the University's Manual of Academic Regulations, which can be found at http://gap.lancs.ac.uk/ASQ/QAE/MARP/Pages/default.aspx

A form given at the end of this handbook needs to be filled in.
The process for submitting computer code along with a PhD thesis:

When a student submits the final version of the thesis via PURE (Research Outputs > Thesis), they add a copy of the PDF to the record. At the same time, they can add an additional file (or files) containing their code. When adding a file, you can also select the appropriate license you want it to be flagged with. The thing to note here is that the code and the thesis are submitted as part of the same output, not separate ones.

- as usual, there are options to limit access (embargo, restrict, etc.) if necessary.
- regarding licensing, there is advice here: [http://www.lancaster.ac.uk/library/open-access/licences/](http://www.lancaster.ac.uk/library/open-access/licences/)

Other options are to use Github or other software repository systems, and include a link to these in the thesis. Depending on what type of code it is, this might be more appropriate, or worth doing as well as the more formal local archiving process above.
Appendix E: Intercalation and Extension

An intercalation should be requested if the student is unable to undertake his/her studies during an extended period (greater than one month). This may be for personal reasons such as illness, finance, employment or family responsibilities. It may also be on account of external circumstances such as extended delays in obtaining access to study materials/resources, or changes in the environment in which the studies are to be undertaken.

During intercalation, students are not entitled to use the library, computer or other university facilities, or to receive supervision or tuition. No tuition fees are charged for this period and departments will not receive any funding for this student during the intercalation period. Periods of intercalation are subtracted from the student’s period of registration. Intercalation is not normally approved for periods greater than one year at a time, and usually for no more than a total of two years. Please note that intercalation is granted to assist the student, and that across the University successful completion of studies is the usual outcome after the return to studies.

Retrospective intercalation requests are not normally approved and will NOT be approved for a period more than three months prior to the date that the request is received in the Registry. For research council funded students retrospective intercalation requests cannot be considered under any circumstances.

An extension should be requested if a student is in need of additional time in order to complete his PhD study. It is important that, where possible, extension requests are submitted to the Registry well in advance of a student reaching their maximum completion date as they will immediately lose their library access when they reach their max date.

Note that the approval of extension and intercalation by the Student Registry is not routine and one needs to put forward convincing reasons based on which these requests are approved.
# Application for access to Departmental Travel Funds

**Student Name:**

**Date of Application:**

Note that we cannot approve your application if your conference takes place during the writing-up stage.

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<th>Details of Expenditure</th>
<th>Dates</th>
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<th>Rationale for Visit</th>
<th>Total spend to date:</th>
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<th>Supervisors’ Comments</th>
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**Agreed by Postgraduate Tutor(s)**

**Signed:**

**Date:**

Please note that there is a financial limit of £2000 (as a total amount over the duration of the PhD). A copy of this form shall be submitted to the Administrative Assistant once agreed and signed.

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**Department of Mathematics and Statistics**

**Lancaster University**
Postgraduate Research Degrees

PERMISSION TO SUBMIT A THESIS IN ALTERNATIVE FORMAT

Name of Candidate: ________________________________ (PLEASE PRINT)

Date of Registration: ________________________________

Registration Number: ________________________________

Division/Department and Faculty: ________________________________

Research Degree Title: ________________________________

Due date for submission: ________________________________

This is to confirm that the above named student has been granted permission to submit a PhD or MPhil thesis in Alternative Format.

Name(s) of Supervisor(s) (PLEASE PRINT): ________________________________

Signature(s): ________________________________

Signature of HoD, or Departmental Director of Postgraduate Research: ________________________________

DATE of FORM SUBMISSION: ________________________________

NB: A copy of this form must be held in the Postgraduate Office of the Department of Mathematics and Statistics; and a separate copy must be submitted with the thesis.