

Care for PhD Students

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1. Introduction

This is a document prepared by the Research Policy Committee (RPC) of the London

2. Good practice for departments

2.1. Supervisors and graduate tutors

A central issue of PhD supervision includes meetings between supervisor and student (typically lasting between one and two hours), in which student and supervisor discuss mathematical sciences or mathematical research life. While previously these took place in person, it has now become easier and increasingly familiar for both parties (particularly in times of Covid-19 lockdowns) to conduct them virtually; in-person meetings are still, however, the ideal where possible. A common problem, however, is that the supervisor may be the only person with whom the student can have such a discussion, leading to possible feelings of isolation and a lack of cadg t thes02ib

2.2. Monitoring progress

Monitoring student progress is very important in all subjects but perhaps particularly so in the mathematical sciences, where it may not be completely clear as to how much has been achieved so far (in contrast to, say, a more empirical research subject where there may be a wealth of experimental data available). Given this, it is vital that the review process is taken seriously.

Annual review is probably appropriate in most instances but there may well be a need for more frequent reviews during the first year.

It is best if the department has a clear and consistent policy of whether the review is independent of the supervisor or not. The supervisor will be able to provide research context, and this may be easier verbally than in a written report. But it is also the case that it can be difficult to facilitate intellectual discussion between the student and supervisor.

The review should fit in naturally with the normal submission timetable, with appropriate material submitted at each stage (for example, an outline of the proposed area of research early on with a detailed thesis plan coming much later). The requirements on the students should be constructive (for example, helping to make sure that the students start writing down their results early on); we do not want the students gearing their work to producing material which will not be helpful in their progress to an eventual successful outcome.

It is particularly important to determine during the first year whether the student

Where possible and appropriate, students can be encouraged to work together (this usually makes most sense at the beginning of their studies).

A very important part of training is due consideration as to what the students need, as it can otherwise be at the wrong level or not perceived to be relevant by the students. It is important to remember that many students will have (and wish to have) highly successful careers outside of academia and training should reflect this.

With regards to general skills, some are obviously relevant (such as proficiency in LaTeX for most students) but others, particularly generic ones supplied at university- (as opposed to departmental-) level may be much less so. A particularly important generic skill, however, is learning to communicate with non-experts.

It will not be cost effective (nor, in most cases, possible) to supply all such training at departmental level, but a suitable balance as to what is supplied in the department and what is supplied centrally by the faculty or university should be achieved.

There are also subject-specific aspects, and these are sometimes supplied by suitable courses, either within the department or within a network of mathematical sciences departments from various universities. Examples include programming and ethics.

Also useful are opportunities to attend meetings and conferences, particularly those specific to the student's area of study. The LMS Scheme 3 grants are relevant here, for example.

For many students, particularly those who wish to pursue academic careers, it is very useful to acquire teaching skills.

Students should be encouraged to teach and be supported so that they become good at doing so.

While there will inevitably be a significant amount of comparatively routine work, such as marking, there should also be some more interesting and challenging work which involves direct interaction with undergraduate students.

For many students it is useful to see and contribute to the use of mathematical sciences outside of a mathematical science department.

Students should be encouraged and supported to take part in knowledge

2.6. Format of theses

Many universities have regulations about the format of theses which appear to come from humanities or social sciences; these often specify issues such as word counts and double spacing, which can be unhelpful for mathematical sciences.

Appropriate rules for mathematical sciences might include such stipulations as the fact that the thesis should normally be prepared using LaTeX.

Even if not required by university regulations, students should have a soft copy of their thesis available to send to their examiners (in addition to the hard copy being supplied through the official channels).

Given the nature of the subject, it may take examiners significantly more time to read a thesis in mathematical sciences compared with some other subjects. Notwithstanding this, an upper limit of 10 weeks or so would normally be reasonable.

A page limit can be appropriate, but examiners should be able to assess the thesis without relying on a detailed reading of the appendices (if any); this is to deter students from putting excess material in the appendices but making it necessary for the examiners to read them anyway.

2.7. Financial support

It is important in mathematical sciences that students have the opportunity to attend conferences and other meetings related to their work.

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3. Good practice for supervisors

Is the intention for these to be solo-authored by the student or joint-authored with the supervisor (and possibly others)? This will depend on the level of independence of the student (from one extreme of largely independent work by the student through to the other of a close collaboration with the supervisor), as well as the norms within the field of study.

Following on from this, if the student is intent on an academic career, do they need solo-authored publications? In addition, when the student starts applying for jobs (towards the end of their PhD studies), do they need publications to be already submitted (or even accepted)?

Most universities say that PhD theses must contain publishable material, but the timing of the publications could be very important to some students.

A related point is that it can be very helpful for the student to write down all of their material properly as they go along (even if the material is not submitted as publications at that stage); this should be checked thoroughly by the supervisor on an ongoing basis.

This has several advantages, including tracking the progress that has been made, getting an accurate estimation of what remains needs to be done, and boosting the student's confidence (in that they can see that they really have achieved something).

