Promoting best practice in research student supervision (PhD & MSc)

Our intake of PhD students are all well qualified and capable of acquiring a PhD. However research is often a new experience to them and one in which they can easily flounder without suitable guidance and encouragement. It is the job of the supervisors to not only define suitable research projects but to provide the environment that will enable the student to succeed.

Below we set out various practices that should, together with departmental guidelines[1], help provide the supportive environment that is beneficial to research students.

General guidelines:

- Each student is supervised by a supervisory team. At a minimum this is composed of the two official supervisors. (see Physics PG handbook for the various roles they can have.)
- Regular (e.g. weekly or fortnightly) individual supervision meetings should be scheduled (during normal working hours and avoiding clashes with seminars and other scheduled activities) with each student. When appropriate these can involve both supervisors. It is good to getpostdocs involved in student supervision. Postdocs, as they have more research time available, may meet more frequently with the student, but such meetings should not take the place of the regular meetings with the official supervisor(s).
- First year students are required to attend the Postgraduate Astronomy course. This is important in giving them a more rounded research background. Supervisors should make sure the students know this is valued, by occasionally discussing what they have covered in their PG lectures and workshops. This shows we care about their involvement, development and enagagement with the course material.
- Assessment of submitted work (e.g. the research critique and the first year report) and attendance at associated presentations should be given a high priority by the supervisors. Note that student attendance at astronomy seminars is compulsory for first year students (excluding non-astronomy CfAI students) and should be strongly encouraged by supervisors in subsequent years.
- Quarterly reviews and annual reports on the database and Banner should be completed promptly by the student and primary supervisor. If there are concerns these should be flagged. The supervisors should encourage the student to fill them in promptly and it would be considered as good practice to fill in some parts together with the student.

Recommendations for supervisory teams:

- The supervisory team should periodically review privately how they each think the student/project is progressing and address any concerns they might have.
- Supervisors should make themselves aware of what travel funding budgets can be tapped by their student (it will vary depending whether they are STFC, in certain collaborations etc, ...) and encourage them to apply to relevant conferences and workshops after gaining authorisation from the appropriate budget holder. Supervisors should be proactive in promoting students and encouraging to give presentations and posters.
- Careers advice: as supervisors, one should give students realistic expectations, explain timescales, comment and suggest improvements to their applications inside or outside academia. It might sometimes be beneficial for the student to complete their thesis earlier.
- Welfare: The student's welfare in the work environment should be the supervisors' responsibility. One should make sure you and the student are aware of the various support mechanisms available in the Department (e.g. the mechanisms listed on the "Respect at Work" poster and optional pastoral meeting with a member of the PG

[1]

1. Physics PG FAQ: https://www.dur.ac.uk/physics/postgraduate/currentstudents/faq/
2. Physics PG handbook: https://www.dur.ac.uk/resources/local/physics/postgraduate/PostgraduatePhysicsHandbook201617.pdf
3. University rules and regulations: https://www.dur.ac.uk/learningandteaching.handbook/ (see section 8 for PG rules)

committee). If one takes some action e.g. recommending the student to take a break for health reasons, then it is essential that you let the Physics PG administrators[2] know.

- Overly large supervisory teams can be intimidating and supervisors need to make sure such meeting remains student focused.
- Make sure students are happy with their desktop/laptop computing provision and that it is adequate for their research needs. The supervisors should also make sure the students are aware of the computing opportunities and support in the department.

Good practice for supervisions:

- Regularly keep track of the student's welfare.
- Teaching students how to write papers is an important part of supervision. Supervisors should avoid rewriting student-led papers and instead put in sufficient time to give detailed feedback (for them it is better to have an imperfect paper that is theirs than a perfect one which is yours).
- Make criticism constructive.
- It is good to regularly suggest arXiv papers the student should read and to ask them to discuss with you papers they have recently read.
- Try to keep track of students progress in each meeting - e.g. documenting each meeting may help evaluate progress and spot problems earlier.
- Encourage your students to discuss interests beyond their current project. Including seminars they may have attended or conversations with other staff/visitors they interact with.
- Supervisor's should seek reasons if they notice that their student is regularly missing supervisions, seminars and/or classes.

Work/life balance:

- Supervisors should encourage students to take regular breaks as attempting to work continuously for long hours can be counter productive and regular breaks from screen and keyboard working are advised for health reasons.
- Encourage students to attend the coffee breaks as a time to take a break and have the opportunity to discuss problems with others benefit from different perspectives.
- Make sure your student knows their holiday entitlement (usually 30 days per year [3]) and makes use of it.

Spotting Warning Signs:

It is important to look for signs that indicate that something is affecting the student's progress. It could be directly related to the project, e.g. the student may appear stressed or disillusioned with their current project and the associated progress. They may suggest canceling or postponing supervision meetings, turn up with little sign of work since the previous week, or not engage and fully interact in the supervision meeting. It could also be totally unrelated to the project itself, such as an external factor influencing their ability to work as normal and make reasonable progress.

In such circumstances it may be easy to do negative things (e.g. cancel the supervision meeting; tell the student not to come back until they have completed what you asked them to do; get cross with the student; lose interest in the student's progress), instead **one should**:

- try and find out what is troubling the student and why by asking open but not confrontational questions. To be aware of the existence of a problem is key.
- make sure the supervision meeting takes place by perhaps suggesting to review and take stock of the broader aspects and aims of the project.
- reassess goals to better exploit the skills and interests of the student.
- make sure the supervisors are kept informed of the situation and whenever possible both should attend the meetings.

Additional Advice:

Some further reading on good practice in mentoring in supervision.

- `http://www.nature.com/nature/journal/v447/n7146/full/447791a.html`

[2] physics.pg-admissions@durham.ac.uk

[3] See point 10 of `https://www.dur.ac.uk/graduate.school/finance/awardholders/pgr_terms_and_conditions/`