Research Postgraduate Programme Guidelines

School of Chemistry
University of St Andrews
March 2017

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1 General Information

1.1 Supervision and Assessment of research postgraduate students

The Director of Postgraduate Affairs Professor Nicholas Westwood coordinates PG admissions and has overall responsibility for the administration of postgraduate matters in the School. Postgraduate teaching, assessment and progression are coordinated by Dr Petr Kilian (Convener of PG Studies). The School Postgraduate Secretary Ms Suzanne Duff supports postgraduate administration.

Their contacts are:
Prof Nick Westwood: Purdie Building, Room 159, Tel: 3816, Email: njw3@st-andrews.ac.uk
Dr Petr Kilian: Purdie Building, Room 341, Tel: 7304, Email: pk7@st-andrews.ac.uk
Ms Suzanne Duff: Purdie Building, General Office, Room 211, Tel: 3801, Email: Chem-pg@st-andrews.ac.uk

Other members of the postgraduate committee are Dr Andrew D Smith (recruitment) and Professor Paul A Wright.

In addition to the First (and if applicable, joint) Supervisor(s), each research postgraduate student in the School of Chemistry is allocated two Academic Assessors (Reviewers), and two Pastoral Advisors (also called Second Supervisors). The two Reviewers will be assigned shortly before the first assessment due date.

The role of Reviewers is:
1. To assess annual report(s) and carry out a viva voce examination/annual progress review meetings.
2. To make a recommendation on the degree for which the Student should be registered.
3. To provide constructive feedback to Student and their Supervisor(s) on their progress.
4. To check that agreed training programme is followed by the Student.

At each annual progress review meeting the Reviewers will check that the student has made satisfactory progress and that they have a clear plan for timely completion of the thesis.

The role of the Pastoral Advisors (Second Supervisors) is mainly to support students. This is to provide a person to whom students can turn, confidentially, if there are problems with supervision or progress within the School or on a personal level. Currently the Pastoral Advisors (Second Supervisors) are Dr Matt Clarke (mc28@st-andrews.ac.uk) and Prof Alexandra Slawin (amzs@st-andrews.ac.uk). Students may contact either of these at any time.

In addition to this, students can get help from Student Services staff, see http://www.st-andrews.ac.uk/studentservices/ for further information.

1.2 Responsibilities of research postgraduate students

It is your responsibility to:
• Complete the necessary preparations for your Progress Review
• Attend your Postgraduate Review meetings
• Complete your agreed training requirements
This document is an addition to the University’s Policy for supervisors and students in research postgraduate programmes available here, which covers all aspects of PGRs regulations other than those that are school-specific, including for example extension policy and thesis submission policy. All current policies (including Policy on parental leave for postgraduate research students) can be found here.

## 2 Progress Review of PhD Students

### 2.1 Progress Review Timetable for PhD Students

The annual progress review serves to ensure that all research postgraduates are successfully progressing towards timely completion. It enables both Schools and the wider university to offer advice and assistance to any students who may be struggling, whilst also providing valuable intellectual feedback to those with few or no problems with their progress. Finally, it serves as an important opportunity for students to reflect upon their progress and to raise any concerns which they might have. The university policy regarding the annual progress review can be found online.

Review of your progress is implemented by a series of deadlines and meetings, as outlined in the following timetable.

<table>
<thead>
<tr>
<th>Year</th>
<th>Deadline</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>End of month 4</td>
<td>Submit 4 month Report to your Supervisor</td>
</tr>
<tr>
<td>1st</td>
<td>End of month 10</td>
<td>Submit 10 month Report to Reviewers</td>
</tr>
<tr>
<td>1st</td>
<td>End of month 11</td>
<td>First year Review Meeting completed</td>
</tr>
<tr>
<td>2nd</td>
<td>End of month 22</td>
<td>Submit 2nd year Report to Reviewers</td>
</tr>
<tr>
<td>2nd</td>
<td>End of month 23</td>
<td>Second year Review Meeting completed</td>
</tr>
<tr>
<td>3rd</td>
<td>End of month 35</td>
<td>Third year Review Meeting completed</td>
</tr>
</tbody>
</table>

The requirements for each of these are given below. **It is a student’s responsibility to arrange the meetings with their Reviewers to meet the deadlines.**

Remember that these meetings are a supplement and not an alternative to the regular meetings you will have with your Supervisor, plus any meeting you may like with your Pastoral Advisor. The timings (and names of Reviewers) for individual students are listed in the “Assignment of Postgraduate Reviewers” document on the School’s website under [http://www.st-andrews.ac.uk/chemistry/students/pg/](http://www.st-andrews.ac.uk/chemistry/students/pg/) in the section “Forms Guidelines Timetables” (log in using your normal university login/password).

### 2.2 First Year Deadlines and Meetings

The first year of your PhD is an important and busy time. This section gives you details of your review requirements and deadlines; with which you must comply. During your first year, you need to prepare and submit two reports, the first after 4 months of study, and the second after 10 months. It is your responsibility to ensure that your reports are submitted before the deadlines. Relaxation of deadlines is possible only in exceptional circumstances and has to be approved by Reviewers and by PG Convenor.

#### 4 Month Report

The 4 Month Report is to be seen by your Supervisor only. The aim of this is to confirm to yourself and your Supervisor that you understand the basis of your project, the techniques to be used, have read the relevant background literature and can write succinctly and coherently about it. Your 4 Month Report should consist of:
a) A review of relevant literature in the scientific field (about 4000 words);

b) A brief (1-2 sides A4) research plan giving:

- The overall goals of your project
- Planned experimental approaches. It may be appropriate to describe some of the preliminary progress you have made at this stage. This will be up to the Supervisor, whom you should consult as to the exact requirements in your research group
- Anticipated experimental outcomes

**10 Month Report**

Your 10 Month Report should be based on laboratory work completed to date. **It should not normally be longer than about 7000 words (~50 A4 pages)**, plus appropriate figures and tables. It should be written in the style and format of a PhD thesis, but correspondingly shorter. Ask your Supervisor for more detailed information on a suitable format. Previous year’s reports from your research group can be consulted for this. The Report will be approved by your Supervisor and then form the focus of the following first year Review meeting. Two printed copies of the report should be submitted to the Reviewers, and practice suggests that it is useful for the student to bring another copy to the review meeting. After the review meeting all copies of the report are returned to the student, there is no need to deposit these with the secretary.

Note that all 10 month reports will be examined with plagiarism prevention software Urkund. The submission of the electronic version of the report is performed via Module Management System (MMS) and is compulsory for all 1st year students. Please note it is your responsibility to upload an electronic copy of your report to MMS (in addition to submitting two printed copies to your Reviewers by the deadline).

To submit your report to MMS follow the instructions below:

To log in to MMS use the link [https://www.st-andrews.ac.uk/mms/](https://www.st-andrews.ac.uk/mms/) or, go to University of St Andrews website, Postgraduates (top ribbon), MMS (on red ribbon).

Enter MMS using your university login and password.

To submit your report to Urkund (once you are logged in to MMS)

Click the link “First Year Report”

You should see a table, containing (amongst other things) a button “Browse” (“Choose File” in Macs). Select the path to your file in the usual way and then press “Upload”. This concludes your electronic submission. Ignore all other parts of the table (including due date etc.), these have no meaning for PGR students.

A few explanatory notes: The report may be submitted in pdf or MS Word format. **Maximum file size is 15 MB.** You may need to delete any high resolution pictures to decrease size below this threshold.

Electronic version (which should be identical to the printed version) should be uploaded to MMS at the same time your two printed copies are submitted to your Reviewers, so that the Urkund similarity score is known and can be communicated to your Reviewers (if there is a problem) before your review meeting.

Email PG secretary (chem-pg) or PG convener (pk7) if you encounter problems with the upload.

Students should note that material submitted during the progress review does not confer credit, and as such does not fall under the university policy regarding multiple submission. As such, any relevant material (e.g. literature reviews, methodological discussions) may be incorporated into the dissertation if desirable.

Guidance on good academic practice can be found at [http://www.st-andrews.ac.uk/students/rules/academicpractice/](http://www.st-andrews.ac.uk/students/rules/academicpractice/)
First Year Review Meeting

The First Year meeting serves as an important opportunity for students to reflect upon their progress and to raise any concerns which they might have. This is done via self-assessment form on MMS, which you are asked to fill in prior to the meeting. Please bring a paper copy with you to the meeting.

The meeting is very important. As well as generally assessing progress and giving you the opportunity to raise any issues of concern, the meeting is at the end of your probationary period. The Reviewers will recommend whether you should stay registered for your intended degree or whether any changes are needed. Although a recommendation to remain registered as a PhD student is the norm for students who are planning to do a PhD, it is not automatic, and recommendation to re-register to MPhil or other outcome may result. In some instances, revision of the report and/or re-examination will be required prior to the final recommendation being issued.

Transfer to a PhD programme will depend upon:
- Meeting deadlines for the submission of reports;
- Satisfactory assessment of report and performance in the laboratory;
- Satisfactory understanding demonstrated in meetings with your Supervisor and the Review meeting at the end of Year 1;
- Satisfactory completion of your Training Programme.

Details on the requirements of your training programme are given below.

2.3 Second Year Deadlines and Meetings

Your second year is typically a time of data collection, experimentation, processing and analysis. Towards the end of the year, you will have a review meeting with your Reviewers, at which you will discuss your progress to date, and requirements prior to a satisfactory completion of your PhD research. By the end of year 2 you should have completed at least the minimum requirements of School’s Training Programme, regarding the number of credits collected. More details on the requirements of School’s Training Programme are given below.

It is student’s responsibility to arrange the meetings with their Reviewers to meet the deadlines.

2nd Year Report

Your 2nd Year Report should be based on laboratory work completed to date. It should not normally be longer than about 3 A4 pages, including appropriate figures and tables. The Report should contain the following:
- summary of your experimental results, indicating their significance
- preliminary thesis plan
- brief workplan for your third year

Attach your publications (including drafts) to your report if you have any. The Report should be approved by your Supervisor and then form the focus of the following second year Review meeting. Two printed copies of the report, together with self-assessment form should be submitted to Reviewers.

Second Year Review Meeting
Arrange the Second Year Review meeting with your Reviewers. Prior to the meeting, fill the self-assessment form on MMS. At the meeting, be prepared to demonstrate that you have made satisfactory progress and that you have a clear plan for satisfactory completion of your PhD.

The outcome of this meeting will be forwarded to the PG Convenor. In case problems with progression or any other aspect of your work are identified, this meeting will be augmented by a further meeting with Reviewers or a member of the Postgraduate Committee.

2.4 Third Year Deadlines and Meetings

In your third year the emphasis should be on the completion of practical work and data analysis, and on planning and writing your thesis. PhD funded period can last either 3, 3.5 or 4 years, depending on the sponsor. You should check the length of your funding and respective deadlines with your Supervisor.

It is the policy of the School that all PhD students should aim to complete their theses within three and a half years, but it is recognised that many students will need some extra time for writing up. The University allows you a continuation period for this purpose (up to your expected end date, which is your start date + 4 years) but you are strongly encouraged to complete your thesis within three and a half years or as soon as possible thereafter.

Towards the end of your third year, you need to arrange a meeting with your Reviewers to discuss the anticipated submission of your PhD thesis. No formal report is required but you should have available at the meeting a detailed thesis plan, agreed with your Supervisor, indicating the completion status of each chapter, deadlines for completing unfinished chapters and a target date for submission. Two printed copies of your thesis plan, together with your self-assessment form should be brought to the meeting. Prior to the meeting, fill the self-assessment form on MMS as in previous years.

2.5 Expected End Date

Please note that the University of St Andrews takes the position that all students should be near to completion at the end of three years of full-time equivalent study. At the start of the fourth full-time-equivalent year, regardless of sponsor, the student should formulate with the principal supervisor a plan for completion within twelve months. The period of time after the end of funding is regarded as a continuation period, and all students must submit their thesis by the end of year 4 (i.e. by their expected end date).

Three months before your expected end date you should meet with your supervisor to discuss whether your thesis will be ready for submission by your expected end date. If your thesis will not be ready for submission by the expected end date, an extension may be requested from the Pro-Provost. There is no guarantee that your request will be granted as extensions are only given in exceptional circumstances. A substantial fee is charged for Extensions; it is the usually student’s responsibility to cover this fee. For more details on extensions and periods of study see here.
3 Progress Review of CRITICAT Students (St Andrews students only)

Students enrolled on the CRITICAT programme begin their PhD with an intensive six-month programme and are subject to a different progress review procedure. The main features of the progress review process for CRITICAT students are outlined below. Dr Kevin Jones (CRITICAT Project Manager) is to be contacted for detailed information.

As for all other PhD students, CRITICAT students are required to undergo a progress review at least once in each year of registration.

3.1 First Year Deadlines and Meetings
- For the first six months of their PhD, CRITICAT students are enrolled in a formal taught course.
- After 10 months (4 months research time), students produce a short (three-page) report describing the background/motivation behind their research and any key results obtained to date (see 4 month report section below).
- In month 11, students will take part in an oral exam that assesses their knowledge of the CDT taught course and their research. These meetings will be conducted by Dr Kevin Jones and Prof Andrew Smith. A summary of the meeting will be produced that will form a basis of an annual report to the University. Both students and supervisors will be provided with an opportunity to raise any concerns at this time.

3.2 Second Year Deadlines and Meetings
After 20 months, students will produce a substantial formal report on their research to date (analogous to the 10 Month Report produced by “traditional” PhD students – see 10 Month Report section above) and take part in a progress viva. The oral examination will be conducted by two Reviewers assigned by the school, who will assess the student’s progress and provide the opportunity to raise any issues of concern.

3.3 Third and Fourth Year Deadlines and Meetings
In subsequent years progress meetings will take place with the Reviewers. At these meetings progress of experimental work and writing up of thesis will be discussed. Brief report and preliminary thesis plan are to be produced for these meetings (see 2nd and 3rd year sections above).

**Postgraduate Credits:**
Traditional PhD students are required to obtain credits (4-8 depending on background) within the first two years by attending taught courses. In light of the six-month taught course, PhD students enrolled in the CRITICAT programme are considered to have met this requirement.

**Research Colloquia:**
CRITICAT students will be expected to attend a minimum of eight research colloquia in year 2.

**Progress Review Timetable for CRITICAT Students**

<table>
<thead>
<tr>
<th>Year</th>
<th>Deadline</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Months 1 – 6</td>
<td>CDT taught Course</td>
</tr>
<tr>
<td>1st</td>
<td>End of month 10</td>
<td>Submit 10 month Report to KMJ and ADS</td>
</tr>
<tr>
<td>1st</td>
<td>End of month 11</td>
<td>Review meeting with KMJ and ADS completed</td>
</tr>
<tr>
<td>2nd</td>
<td>End of month 20</td>
<td>Submit 2nd year report to Reviewers 1 &amp; 2</td>
</tr>
<tr>
<td>2nd</td>
<td>End of month 21</td>
<td>Second year review meeting completed</td>
</tr>
<tr>
<td>3rd</td>
<td>End of month 33</td>
<td>Third year review meeting completed</td>
</tr>
<tr>
<td>4th</td>
<td>End of month 40</td>
<td>Fourth year review meeting completed</td>
</tr>
</tbody>
</table>
Note Third year CRITICAT review meeting is equivalent to second year traditional PhD meeting, and the Fourth year CRITICAT meeting is equivalent to third year traditional PhD meeting and will require the same preparation (short report and thesis plan, respectively).
4 Progress Review of MSc(Res) Students

Progress review is implemented by a series of deadlines and meetings, as outlined in the following timetable:

<table>
<thead>
<tr>
<th>Deadline</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of month 4</td>
<td>Submit 4 Month Report to your Reviewer</td>
</tr>
<tr>
<td>End of month 5</td>
<td>4 Month Review Meeting with Reviewer completed</td>
</tr>
<tr>
<td>End of month 10</td>
<td>10 Month Presentation followed by a discussion with Reviewers completed</td>
</tr>
<tr>
<td>End of month 12</td>
<td>Submit thesis</td>
</tr>
</tbody>
</table>

The requirements for the review meetings are given below. It is a student’s responsibility to arrange the meetings with their Reviewers to meet the deadline.

Remember that these meetings are a supplement and not an alternative to the regular meetings you will have with your Supervisor, plus any meeting you may like with your Pastoral Advisor. The timings (and names of Reviewers) for individual students are listed in the “Assignment of Postgraduate Reviewers” document on the School’s website under [http://www.st-andrews.ac.uk/chemistry/students/pg/](http://www.st-andrews.ac.uk/chemistry/students/pg/), go to the section “Forms Guidelines Timetables” (log in using your normal university login/password).

4.1 4 Month Report

The aim of 4 month Report is to confirm to yourself, your Supervisor and Reviewer that you understand the basis of your project, the techniques to be used, have read the relevant background literature and can write succinctly and coherently about it. In addition, the initial practical progress you have made at this stage should be described.

Your 4 Month Report should consist of:

a) A review of relevant literature in the scientific field (about 4000 words);

b) A brief research plan giving:
   - The overall goals of your project
   - Planned experimental approaches
   - Description of the progress you have made at this stage
   - Anticipated experimental outcomes

The Report will form the focus of the following Review Meeting. Printed copy of the report should be submitted to the Reviewer, and practice suggests that it is useful for the student to bring another copy to the review meeting. After the review meeting reports are returned to the student, there is no need to deposit these with the secretary.

Note that all 4 month Reports will be examined with plagiarism prevention software Urkund. The submission of the electronic version of the report is performed via Module Management System (MMS) and is compulsory for all students. Please note it is your responsibility to upload an electronic copy of your report to MMS (in addition to submitting two printed copies to your Reviewers by the deadline).

To submit your report to MMS follow the instructions below:

To log in to MMS use the link [https://www.st-andrews.ac.uk/mms/](https://www.st-andrews.ac.uk/mms/)
or go to University of St Andrews website, Current Postgraduates (top ribbon), MMS (on red ribbon).
Enter MMS using your university login and password.
To submit your report to Urkund (once you are logged in to MMS)
Click the link “First Year Report”

You should see a table, containing (amongst other things) a button “Browse” (“Choose File” in Macs). Select the path to your file in the usual way and then press “Upload”. This concludes your electronic submission. Ignore all other parts of the table (including due date etc.), these have no meaning for PGR students.

A few explanatory notes: The report may be submitted in pdf or MS Word format. **Maximum file size is 15 MB.** You may need to delete any high resolution pictures to decrease size below this threshold.

Electronic version (which should be identical to the printed version) should be uploaded to MMS at the same time your printed copy is submitted to your Reviewer, so that the Urkund similarity score is known and can be communicated to your Reviewer (if there is a problem) before your viva.

Email PG secretary (chem-pg) or PG convener (pk7) if you encounter problems with the upload.

Students should note that material submitted during the progress review does not confer credit, and as such does not fall under the university policy regarding multiple submission. As such, any relevant material (e.g. literature reviews, methodological discussions) may be incorporated into the dissertation if desirable.

Guidance on good academic practice can be found at [http://www.st-andrews.ac.uk/students/rules/academicpractice/](http://www.st-andrews.ac.uk/students/rules/academicpractice/)

### 4.2 4 Month Review Meeting

The 4 month Review meeting is in place to generally assess progress and to give you the opportunity to raise any issues of concern. The Reviewer will recommend whether you should stay registered for your intended degree or whether any changes are needed. In some instances, revision of the report and/or re-examination will be required prior to the final recommendation being issued.

### 4.3 10 Month Review Meeting

Towards the end of your month 10, you will give a talk also attended by your supervisor and your Reviewers. This will be followed by a meeting with your Reviewers to discuss the anticipated submission of your thesis. No formal report is required but you should have available at the meeting a detailed thesis plan, agreed with your Supervisor, indicating the status of each chapter, deadlines for completing unfinished chapters and a target date for submission.

### 4.4 Thesis Submission, Period of Study

MSc(Res) students are expected to complete their degree within 12 months of full-time study, 24 months of part-time study or 48 months via distance learning. All students are expected to pay 12 months of full-time equivalent fees. In exceptional circumstances students may request an extension of up to three additional months. The relevant policy can be found [here](#). 

### 4.5 Postgraduate Credits

Postgraduate research students on longer programmes (PhD) are required to obtain credits within the first two years by attending taught courses. In light of the time constrained nature of the MSc(Res) degree, students on this programme are not required to achieve any set number of taught credits.
4.6 Research Colloquia
MSc(Res) students will be expected to attend a minimum of four research colloquia during their degree.
5 Postgraduate Training in the School of Chemistry

The School has a programme of training in place, which includes both formal taught elements, together with required attendance at certain departmental and other colloquia, and presentation by yourself to a suitable peer group. This will be in addition to required training elements required by the University (such as induction) and any other project-specific training. These training activities are designed to complement the specific research training you will receive through your own laboratory based project.

The funding agencies, prospective employers, and the University all expect that postgraduate students will be knowledgeable about a wide range of chemical topics by the end of their PhD. To achieve this, the School provides a range of taught courses and seminars to broaden and extend your postgraduate education. Successful completion of your training will require satisfactory participation in this programme. Your training will include Special PG Lecture Courses and modules from Honours courses provided within the School if appropriate. You must attain a set number of ‘credits’ from these courses in order to fulfil the requirements for a PhD or MPhil. Details of these courses and requirements are given below.

In addition, you are required to attend all appropriate School colloquia (Wednesday afternoons 3.25 pm in Th C). All PhD students are required to attend at least 16 school colloquia by the end of their 2nd year. To check that this has been complied with a register will be taken by the seminar organiser (Dr. E. Zysman-Colman) or person delegated by him. Make sure you sign the register when you attend the seminar. It is your responsibility to ensure you sign the register before or after the seminar. The sign in sheet will be available in the office after each seminar. Each section of the School runs a smaller scale seminar program which you are expected to attend and contribute to. Details of this will be given by the relevant section or your Supervisor. Attendance at school colloquia and any subject group meetings are a critical part of PhD training.

There will be a number of other training opportunities offered to students who need certain skills to carry out their PhD. These include training on certain instrumentation available within the school, and are additional to courses described here.

5.1 Taught Courses for PhD Students

The intention of taught courses is to broaden the knowledge background of graduate students, and to provide training in technical and theoretical skills that could impact on a student’s PhD project. It is not all about getting credits or ticking boxes.

The point of the courses is to broaden your knowledge of chemistry, and you should go to all courses that sound interesting or useful to you. The requirements set out below are a minimum that should be met by everyone. Please do not miss out on something important because you have got your credits.

The taught courses are 5-20 hours duration and are assessed by a method decided by the staff concerned on a 1-3 credit point scale. The minimum score required from the courses is 8 for those with BSc and 4 for those with MChem/MSci. You should obtain at least the minimum amount of credits within the first two years of your PhD.

The taught courses probably will be taken from the Postgraduate Courses Timetable (available on PGS section of School website, http://www.st-andrews.ac.uk/chemistry/students/pg/, click Forms Guidelines Timetables on the left). However, courses from other departments (Physics, Biology etc.) or given outside the University (such as summer schools or training camps) may be approved as alternatives after consultation with your Supervisor. If you attend such a course, please inform postgraduate secretary Ms Suzanne Duff (chem-pg) about your attendance, so that your credit record is updated accordingly.

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1 Common assessment methods are open book exam, writing short essay, or practical assignment.
Times and venues for courses organised by the School of Chemistry will be arranged by the course co-ordinator concerned and advertised in advance by an email from the postgraduate secretary.

5.2 Safety training courses
Several safety courses take place in chemistry. All research workers must attend the general Safety Talk once. One of these is organised shortly after the normal starting date (27 September). In addition, students are strongly encouraged to attend two additional courses organised by Environmental, Health and Safety Services (EHSS). These are a Gas Cylinder and Cryogenics training course, which take place three times a year, and Fire Extinguisher Training, which takes place usually around September. All these are advertised through email.

5.3 Transferable skills training
In addition to taught courses, a range of activities, focused on transferable skills development, are taking place within the School. These are:

- **Induction Course for Chemists (compulsory for all year 1 PGRs).** Late September. Induction into PhD programme in School of Chemistry, provision of pastoral care and PG training.

- **IT Resources for Chemists (compulsory for all year 1 PGRs).** Late September. Induction course giving practical information on IT resources and policies relevant to chemistry postgraduate students.

- **Resources for Computational Chemistry.** Normally in October. Short induction course (3 lectures) on computational chemistry for students who consider using computational methods as part of their research.

- **PhD Thesis Writing Workshop for Chemists (EaStCHEM wide course).** Held annually at the University of Edinburgh in Jan/Feb (a single day course, transport provided, recommended for 3rd year PG students). Details of this course will be emailed by PG secretary closer to the date.

- **Academic Paper Writing for Chemists (EaStCHEM wide course).** Held annually in St Andrews, recommended for 2nd and 3rd year students). Details of this single day course will be emailed by PG secretary closer to the date.

- **Literature review and Academic report writing skills** are the focus of the 4 months and 10 months report mentioned above. You will receive ample guidance and feedback on your reports from your Supervisor, as well as from your Reviewers at the meetings with them.

- **Oral Presentation Skills** (students take part in some form of internal seminars / group meetings). Numerous opportunities to present will be available throughout years 1, 2 and 3. Internal seminars are organized along Synthesis, Biological, Computational chemistry, Surface Science and Magnetic Resonance groupings. After being given guidance and training by a member of academic staff, the student will then be required to present both their own research results, and those from an unrelated academic review/paper informally at some of these meetings, or group meeting. Furthermore, students are encouraged to give talks at external meetings, workshops and conferences nationally and internationally. School wide Postgraduate Symposium is organised annually, at which the final year students give talk summarising their research results.

Times and venues for talks/seminars will be arranged by the seminar co-ordinator concerned and advertised in advance by email. Opportunities to give talks at external conferences will be communicated by the Supervisor when appropriate.
Scientific poster presentations. All students should present their research in the form of a poster at least once during their PhD. There are a variety of opportunities to do this (e.g. internal conferences, St Andrews chemistry-industry forum, and at external conferences).

During the course of a PhD, there will be a number of other opportunities for students to receive training that is also useful for careers outside of their research specialisation. Identifying these will be up to the individual and their Supervisor. For example:

- Group problem solving and brainstorming, this will normally be part of individual research group’s regular meetings
- Demonstrating chemistry to junior students
- Industrial placement (only applicable to industry-funded students)
- Visit to an overseas collaborator
- Laboratory Supervisor for a summer student/short term visitor/undergraduate project students
- Chembus, Space school: demonstrating the joy of chemistry to schools

Centre for Academic, Professional and Organisational Development (CAPOD) also organise a variety of courses, see http://www.st-andrews.ac.uk/capod/students/pgresearch/. These will be useful to you if you or your Supervisor have identified an area which you need to improve on (e.g. giving presentations). It is probably more likely that this would be discovered over the course of time. Discuss your choice of these courses with your Supervisor.

Since we provide a balanced PhD training in chemistry and associated transferable skills as described above, there is no requirement for students to attend a set number of GRADskills courses. Attend to learn something new that will help your career.

University’s Career Centre website http://www.st-andrews.ac.uk/careers/ will be of interest to those looking for ways to further their transferable skills training to suit their chosen career path.