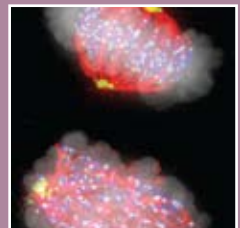
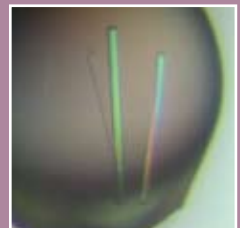
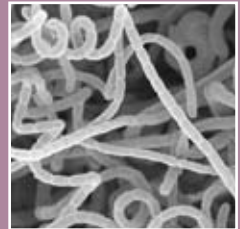


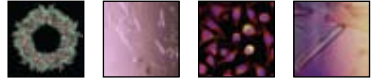


Postgraduate Study Generic Skills

2010 - 2011

College of Life Sciences





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Message from the Director of Postgraduate Studies

Generic Skills training is a compulsory part of our postgraduate programme established in response to the Government report 'SET for Success' and the UK Research Councils Joint Skills statement on Postgraduate Research student training requirements. This requires all postgraduate students to undertake 10 days (60 hrs) of generic skills training each year (pro-rata for part-time students) for the first 3 years of study. This requirement has subsequently been adopted for all University of Dundee postgraduate students.

The College of Life Sciences has worked closely with its Postgraduate Coordinators, its students and supervisors and with Generic Skills Dundee (see page 7) to develop a extensive programme of compulsory and optional elements and these are detailed in this booklet. The depth and breadth of this programme allow you as a student to tailor the training you undertake to your own specific requirements. This is very important in today's culture where future employers expect students to be equipped with an appropriate range of transferable skills. The required 60 hrs training can be spread between training from the Generic Skills Dundee unit, College based activities, and individually organised training.

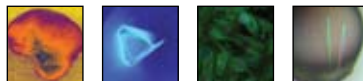
The College of Life Sciences will monitor your level of activity as this is required for studentship returns to Research Councils and for your Thesis Monitoring Committees. Activities that may be considered part of your transferable skills training time include:

- Time on Generic Skills Dundee/College Workshops
- Time spent on demonstrating to undergraduate students (up to 3 days per year)
- Time spent organising a symposium/conference where support is given
- Time spent preparing for a presentation when feedback is given from your supervisor/ senior lab members as to the delivery
- Outreach/Public Engagement activities and training for these (e.g. Researchers in Residence activities)

Please take full advantage of the range of programmes available to you.

Professor Paul Crocker
Associate Dean and Director of Postgraduate Studies

June 2010



Compulsory Elements of Generic Skills Training in the College of Life Sciences

The elements outlined in the table below are compulsory and you are expected to attend as part of your PhD programme studies. Please note that records of attendance will be taken.

The number of hours of generics skills training is indicated in brackets next to the title.

| Year | Month | Description |
|------|----------|--|
| 1 | October | <p>Postgraduate Induction (3 hrs): This event is designed to provide information on the process of doctoral research and give new researchers essential information to start their research with a clearer view of:</p> <ul style="list-style-type: none"> • What is expected of research students • The role of the supervisor • Maintaining motivation • Potential problems and strategies to avoid them • Sources of additional support <p>There will also be an introductory talk about the Programme by the Postgraduate Course Organisers.</p> |
| 1 | November | <p>Writing Skills (Kathleen McMillan) (4 hrs): Students should write a Research Plan (2 sides of A4), briefly describing the background and subject area of their project, what you expect to do, and generally how you expect to do it. Although this will require discussion with your Supervisor, he/she should not alter the writing since this will be looked at by Kathleen McMillan, writing skills specialist, to help you with grammatical and other aspects of writing. Gail Guild will notify you of the deadline for submission.</p> <p>Following the writing skills workshop with Kathleen McMillan, your edited 2-page research plan (approved and signed by the Supervisor), together with a completed questionnaire, should be submitted to Mrs G Guild by the end of this month. (Specimen copies of the questionnaires are included at the back of the Thesis and Transfer Committees booklet).</p> |
| 1 | December | <p>Modern Techniques in Biomedical Research (30 mins each session)</p> <p>Planning and Designing Experiments (Arno Muller): General introduction into the planning and designing of experimental approaches in biomedical sciences. Structure of hypothesis-driven experimental design using good experimental practices and time-management.</p> <p>Proteomics and Mass Spectrometry (Doug Lamont): To improve our ability to identify proteins, elucidate structure and function, new technologies such as proteomics and mass spectrometry have been developed and advanced over the last few decades. These technologies have and are being used to solve a wide range of problems in biochemical research from confirmation of protein identity, through detailed analysis of chemical modifications on proteins, to measurements in relative expression differences between protein populations.</p> |

Topics covered will include an overview of proteomics and mass spectrometry, ms theory and instrumentation, types of ms analysis including uses and limitations and quantitative proteomics methods. The presentation will also include details of who to contact, how to prepare samples and what services are available from the proteomics facility within the College of Life Sciences.

Accurate Quantitation in Proteomics (Sara Ten Have): In the rapidly developing field of proteomics, qualitative information about biological systems is no longer enough. We are now able, with the use of SILAC and various other labelling and label free methodologies, to quantify and even describe the rate of protein production and degradation, and the dynamics of post translational modification. Sara will describe some of the novel and exciting ways in which these techniques are being applied to proteomics in the College and how to apply these techniques to your research.

Bioinformatics (David Martin): Tools to understand data-rich biological research. Traditional sequence analysis. Structure bioinformatics. Data analysis from modern proteomics. Next generation sequencing.

Drug Discovery (Emma Shanks): The Drug Discovery Unit in the College of Life Sciences. Translational Research. Combining chemistry and biology. Development of assays to support automated high throughput screening of chemical libraries. The journey to turn a hit-molecule into a drug.

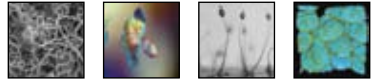
Biosecurity and Biological Services (Luke Newman)

Electron Microscopy Techniques for Molecular Cell Biology (Alan Prescott): Sample preparation for various electron microscopic techniques. Transmission electronic microscopy (TEM), immuno electron microscopy (IEM) and scanning electron microscopy (SEM). Principles and applications of electronic imaging.

Light Microscopy (Sam Swift): Topics include a brief history of the light microscope and the basic principles concerning its use in the modern research lab, followed by an overview of the equipment and support available to research staff within the College of Life Sciences.

Flow Cytometry (Rosie Clarke): Principles of flow cytometry and its application in cell biology and immunology. Flow cytometry equipment in the College of Life Sciences. Analysis of data from flow cytometry.

The OMX Super-Resolution Microscope (Markus Posch): In microscopy spatial resolution is restricted by the wavelength of the light used. Structures separated by less than 200nm can therefore not be resolved by fluorescence light microscopy. The Structured Illumination technique utilised in the OMX microscope allows resolving objects as little as 100nm apart. Furthermore the OMX microscope allows for Live Cell Imaging at unprecedented temporal resolution with up to 50 frames per second.



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- 1 January** Statistics (12 hrs): This 2 day training course has been developed by College of Life Science Academics to give all 1st year students a solid grounding in the statistical methods and software used in the College. Consisting of a mixture of lectures and hands-on practicals which incorporates students own data, the course will cover: use of SPSS and SigmaStat, Descriptive Statistics, Analysis of variance (ANOVA - interpretation, non-parametric ANOVA, two and three way designs, linear models, stacked and unstacked data), Regression (Correlation, linear and non-linear regression, Chi square and G tests), Which test is suitable for my data - how to decide before you collect it.
-
- 1 February** Image Processing Workshop (60 min each session):
 Photoshop for Scientists (Caroline Needham): Use of Adobe Photoshop for science disciplines. Difference between image enchantment and manipulation. Tracking changed data sets for evidential purposes. Tips and tricks using Adobe Photoshop.
 Image Processing in Cell and Molecular Biology (Sam Swift): What is an image? Digital Resolution, image enhancement, file formats and processing. Deconvolution and handling 3D and 4D data sets. Luminescence and fluorescence based imaging systems. Calibration and quantification. Preparation of images for publication - the do's and don'ts.
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- 1 March** Ethical Practice in Biological and Medical Research (2 hrs): Ethical dilemmas ethical considerations in medical research; the ethics of producing genetically modified plants ethical considerations in the use of experimental animals; ethical review of the use of animals in the University.
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- 1 April** Workshop (2 hours) (Geoff Barton and Mike Stark): to discuss the transfer report structure and the stylistic elements of scientific writing.
-
- 1 June/July** Demonstrating (3 hrs): - From 2010/11, all second year students will be required to attend a half-day College of Life Sciences specific workshop on Demonstrating (for 2009/10 all students entering their second/third year students as of 2009/10 will need to attend training). These sessions will provide essential information on what is expected of students during demonstrating in practical classes, including: Introducing participants to the role of a tutor or demonstrator, giving participants confidence in dealing with undergraduate students, examining the best way to encourage learning, boundaries between demonstrator/tutor and student, and techniques for handling difficult situations.
-
- 2 October** Poster Session (6 hrs): Each 2nd year PhD student entering 3rd year displays research poster in the WTB Complex. This forms the basis for discussion at their next Thesis Committee.
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- 2 October** Poster Presentation (1 hr)
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Optional Elements of Generic Skills Training in the College of Life Sciences

Writing Skills (Geoff Barton and David Gray) (3 hrs) - this workshop for 2nd year students is designed to help students to write up their first scientific research paper and their PhD thesis.

Special seminars and workshops (1 hr each) will be organised during the course of your studies. These are organised both centrally (through Generic Skills Dundee; www.dundee.ac.uk/genericskills) and at CLS level.

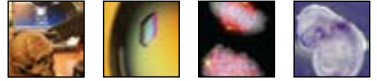
Retreat for all 2nd year students (6 hrs). This one-day retreat is co-ordinated and organised by PiCLS and takes place in September. It provides an excellent opportunity to meet up with other students in your year, present your work to your peers and interact socially in a relaxed environment.

College of Life Sciences Annual Symposium (12 hrs) - Crieff Hydro: This is an important event for all PhD students that is normally held in March each year. It gives you the opportunity to learn about other Division's research as well as meeting other PhD students within the College. There is also the opportunity to win a lucrative prize at the PhD poster session held during the 3 day symposium. Attendance costs for all first and second year PhD students are covered by the postgraduate programme.

Demonstrating (up to 18 hrs) - Following discussions with the School of Learning and Teaching and Generic Skills Dundee, there have been some major changes in the organisation and implementation of PhD student demonstrating in practical classes which will take effect from the beginning of the 2009/10 academic year.

Key points:

- Up to 3 days of demonstrating will now count towards the requirement of 10 days per year transferable skills training undertaken by PhD students in CLS.
- Additional demonstrating can be undertaken (with supervisors' consent) beyond the 3 days that count towards transferable skills training.
- Demonstrating will normally be restricted to students in their second and third years of PhD training.
- All PhD students will attend a compulsory half-day workshop on demonstrating, but demonstrating itself will be voluntary.
- Demonstrating will be remunerated at the rate of £10.50 per hour.
- All timetabling (pre-meetings, post-meetings and the demonstrating sessions themselves) will be coordinated via Gail Guild's office.



Generic Skills Dundee

Generic skills Dundee is the University of Dundee's transferable skills training unit for post-graduate research students and Early Career research staff. You will receive monthly emails from **Generic Skills Dundee** advertising courses for the up-coming month where there are spaces available, however all courses for the year can be viewed from their website (<http://www.dundee.ac.uk/genericskills/>), and it is recommended that bookings be made in advance as demand for courses can be fierce. It should be noted that the programme is not static, and additional courses will be run subject to demand (please put your name on the waiting list if a course is fully booked as you will be offered priority booking on additional dates), and subject to requests from students and staff (your suggestions are welcomed). Many **Generic Skills Dundee** training sessions are run for College of Life Science students only.

To book a place on a **Generic skills Dundee** training course, you will first need to register via a link on the webpage, and provide details such as your name, Department and matriculation code, you will then be able to book or cancel places as required via the website. **Generic Skills Dundee** recognises that all students have differing skills, and differing needs, and as such the decision of which training is appropriate should be made via discussions between the student and their supervisor. The College of Life Sciences has a number of mandatory training courses, and some of these are organised with administration support from **Generic Skills Dundee**. If a student is unable to attend a mandatory course, or feels that the course is inappropriate for their needs, this should be discussed with the College. **Generic Skills Dundee** are not able to offer exemptions on these College courses (see page 3).

You should consider taking training at appropriate times for your own needs, however below are some suggestions for courses relevant to particular years:

Year 1:

Referencing Made Easy - Endnote Essentials (CLS), Excel: Functions Tricks and Short Cuts, PhD Project Management (CLS), Introduction to Research Statistics (CLS), Teaching and Demonstrating/ Introduction to Teaching and Supporting Learning (CLS), Read at Speed, Map Your Mind, Maximising Impact at Conferences, Prepare for Posters, Practical Presentation Skills.

Year 2:

Word for Thesis Writing, Communicating Science to Non-Specialists, MS Access - The Right Tool for the Job, Web Page Creation series, Image Manipulation, IP and Commercialisation, Business Skills, Negotiating and Influencing.

Year 3:

Surviving Your Viva, CVs and Covering Letters, Post-graduate Career Development (within or outwith Academia), Project Management in the Real World, Winning Research Funding.

If you are unable to attend a place that you have booked on a **Generic skills Dundee** training course, you can cancel this via the website up to 48 hours before the course, otherwise please let the unit know by telephone (01382 386668) to ensure your place can be offered to students on the waiting list. For late cancellation of places, a valid reason is required as it is expected that you plan your time appropriately after placing a booking. Repeated late cancellation of places will be monitored by the College.





Photograph by David Martin

College of Life Sciences
University of Dundee
Dundee
DD1 5EH

Tel: 01382 385828
<http://www.lifesci.dundee.ac.uk/phd/>