Welcome to WestBio

WestBio is the West of Scotland Bioscience Doctoral Training Partnership (DTP). It was established in 2012, in response to a funding call from the Biotechnology and Biological Sciences Research Council (BBSRC) for new Doctoral Partnerships. We formed our partnership in the West of Scotland, a key region for life sciences in the UK for academic excellence and industrial support and investment. Our primary aim is to deliver high quality, collaborative training for our PhD students in the strategically significant areas required to feed and grow UK bioscience. We see this partnership as a way to establish enhanced training opportunities for our students, whilst building collaboration and research capacity in key domains across the universities of the West of Scotland.

The WestBio academic partners are:
University of Glasgow
University of Strathclyde

We also work closely with The Pirbright Institute (formerly Institute of Animal Health); Moredun Research Institute; and SULSA (Scottish Universities Life Sciences Alliance).
Studentships

We offered 17 fully funded studentships in 2012, with 16 commencing in 2013 and 17 studentships due to start in the autumn of 2014. Core funding was provided by the BBSRC with additional funding from each of the partner universities.

Research Themes

WestBio student projects are designed around the following key research themes:

**Basic Bioscience Underpinning Health**
A new and developing area where the training programme focuses on the neuropsychology of ageing. The aims are to obtain a deeper understanding of the cognitive, structural and physiological correlates of healthy ageing, and underpinning tool development to allow development of novel cell engineered therapies for normal ageing. In addition, researchers study the influence of environmental conditions during growth and development on ageing in birds.

**Bioenergy and Industrial Biotechnology**
Our vision, based on strengths in photosynthesis, synthetic biology and process engineering, is to provide interdisciplinary training in artificial photosynthesis, aiming at making ‘solar fuels’, and microbial fuel cells.

Projects will be offered that examine biochemical structural biology, photosynthesis, biophysics, synthetic chemistry and electrochemical biology, microbial fuel cells, plant molecular biology and ion transport plant molecular biology and nanoengineering.

**Food Security: Crop Science**
The major research themes that we offer studentships in are: increasing crop production and efficiency in the face of the changing global environment; minimizing negative impacts on the environment; and developing pre-competitive research for translation.

**Food Security: Animal Health**
Our particular strengths in animal health are in endemic and exotic diseases; zoonotic pathogens; and their epidemiology and evolutionary ecology is studied through integrated programs of field studies, advanced statistical analysis and mathematical modelling. The close and unusual alignment of research on biodiversity and animal health within the University of Glasgow also presents unique training opportunities in developing country food security and conservation.

Our broad base of expertise in this area is strengthened by our collaborations with the Moredun Research Institute and The Pirbright Institute (formerly Institute of Animal Health).

**World Class Underpinning Bioscience**
This theme seeks to promote strength in core, underpinning disciplines such as molecular, chemical, cellular and synthetic biology.

Our aim is to develop researchers trained in both the rigorous methodologies of laboratory science and also the application of cutting edge mathematical and computational methods to help solve fundamental questions in the biosciences today.

We offer training in metabolomics; transcriptomics; proteomics; cell signalling networks; synthetic biology; cell engineering; bionanotechnology; stem cell biology; novel gene in vivo transfer techniques; and cellular processes. We also offer training in whole animal and human imaging as well as in whole animal research techniques.
The Partnership

WestBio is a partnership of two universities – Glasgow and Strathclyde – and each of you will be registered in a host school/institute within your university. You will be following the local training and assessment programme of your host institution. Through WestBio you will access additional enhanced training opportunities. These include: interactive discussion groups run across the partnership based on our research themes; a chance to build your own collaborations with researchers working in your field across the West of Scotland; generic skills and personal development training; high level research skills training in areas such as systems biology and ‘omics; an annual ‘WestBio Event’ where you will be able to share your research and develop its impact on the world around us; an exciting new scheme of Professional Internships for PhD Students scheme (PIPS) where you will have the opportunity to learn valuable transferable skills.

We ask that all our students take a proactive approach to building their own training programme with the support of your local convenors, supervisors and Graduate School. You will be required to complete a skills training record each year and we will monitor your progress to help ensure that you complete your PhD within four years, and graduate with a set of skills that will enable you to progress successfully on to your chosen future career.

We look forward to meeting you in person at our induction day which is hosted by the University of Glasgow on Wednesday, 1 October 2014 at the Gilmorehill Campus and Thursday, 2 October 2014 at University of Strathclyde. You are also encouraged to meet the other new WestBio students and supervisors at our annual ‘WestBio Event’ and networking events. The first of these will take place on Thursday, 2 October 2014.

Wishing you an excellent start to your studies,

Professor Jeremy Mottram, MVLS Dean of Graduate Studies,
University of Glasgow
Dr Paul Hoskisson, Director of SIPBS Graduate School,
University of Strathclyde
Table of Contents

Introduction to the Training Programme 1
Skills Training 1
Personal Development Log 1
Training Development 2
Induction 2
Mini-Projects 2
Annual WestBio Event 2
Professional Internships for PhD Students (PIPS) 3
SysMIC 5

WestBio Contacts

WestBio – Glasgow
Room 362, Wolfson Link Building
University of Glasgow
University Avenue
Glasgow
G12 8QQ
Email: mvls-gradschool@glasgow.ac.uk

Administrator:
Alexis Merry
Tel: +44 (0)141 330 2905
Email: alexis.merry@glasgow.ac.uk

WestBio – Strathclyde
The Hamnett Wing (HW316)
Strathclyde Institute for Pharmacy & Biomedical Sciences
University of Strathclyde
161 Cathedral Street
Glasgow
G4 0RE
Email: sipbs-postgrad@strath.ac.uk

Coordinator:
Hazel Cadenhead
Tel: +44 (0)141 330 3043
Email: mvls-pips@glasgow.ac.uk
Introduction to the Training Programme

All WestBio students are registered in a host department within their university, and we expect you to comply with the local induction and training requirements of your research group and host department. If you are unclear about these requirements, please contact your local administrative manager using the contacts in this handbook.

The WestBio DTP aims to provide you with enhanced training opportunities that will supplement local institutional provision, and ensure that you are trained to the highest possible level. This will allow you to make the best of your time as a research student, and move smoothly into your chosen career at the end of your studies.

In order to gain laboratory experience prior to choosing your PhD, students will participate in two mini-projects/lab placements in the first six months of their studies prior to embarking on their core degree programme.

Skills Training

The skills training programme at the University of Glasgow is founded on the attributes set out for researchers in the Researcher Development Framework. Each course listed within our programme of skills training has a defined number of credits attached. Full time students undertaking a PhD should gain 20 credits and aim for at least 12 credits in the first year.

Further information on the Researcher Development Framework can be found at the following web-link: www.glasgow.ac.uk/students/researcherdevelopment.

Personal Development Log

You can download the Personal Development Log from the Skills Training section of the Graduate School website: www.glasgow.ac.uk/colleges/mvls/graduateschool/currentstudents/skillstraining.

This document maps directly onto the development areas highlighted in the skills audit. You should update this log regularly to record when and what type of training you have undertaken. It is expected that you will have recorded training and/or practical experience in each of the four areas of the Researcher Development Framework by the time you complete your studies. A copy of your Personal Development Log should be sent to your local WestBio administrator annually.
Training Development

One of the main aims of the WestBio DTP is to collaborate by sharing existing training provision across the partnership, and to develop new training in response to the needs of you and your supervisors. If you cannot find the training you need, contact your local WestBio administrator; they will have a good overview of the training offered across the two partner institutions and through SULSA and SUPA. If you still see a gap in provision, please contact mvls-gradschool@glasgow.ac.uk with an outline of the training needs that are not being met.

All WestBio students must take part in the following compulsory components of the training programme:
• Induction in year 1;
• Participation in two mini-projects/lab placements in the first six months of year 1;
• Generic skills training courses and activities;
• Annual 'WestBio Event';
• A three month professional internship (PIPS) to be reported on within two months of the placement ending;
• Research Integrity Training;
• Introduction to omic;
• SysMIC.

Induction

The initial Induction Session which is a mandatory requirement for all new students to attend will take place on Wednesday, 1 October 2014. This event will provide you with the opportunity to meet fellow postgraduates from across the College and beyond before starting your formal specialised training. A programme of talks and activities across a broad range of subjects has been designed to introduce you to the University, your doctoral research programme, key staff and fellow students, and to understand the expectations we have of you and what you have of us.

Mini-Projects

A major component of the first year for WestBio is a series of two mini-projects in different laboratories, selected to give experience of different experimental approaches and working environments across a range of disciplines. Each mini-project will last for 12 weeks, at the end of which students must prepare a written report for formal assessment and feedback.

The aims of the rotations are:
• to gain experience a cross-section of research in different laboratories;
• to give training in a variety of technical approaches; and
• to develop skills in leadership, data presentation, etc.

Students will choose the project they wish to pursue for their PhD half way through their first year, following detailed discussion with prospective supervisors. The mini-projects will be offered in all four of the research areas and conducted in the labs of potential PhD supervisors and you are free to pick two in any field. Whilst most students will then chose a PhD in one of these laboratories, this is not compulsory. The supervisors will also have the opportunity to showcase their projects and laboratories to you during the ‘WestBio Event’.

Annual WestBio Event

We will also include a specially designed annual ‘WestBio Event’ which will be a great chance to meet up with your fellow WestBio students and supervisors, discover more about the research areas, learn more about PIPS and the opportunities / support available, and develop additional generic skills. The 2014 ‘WestBio Event’ will take place on Thursday, 6 November 2014.
Professional Internships for PhD Students (PIPS)

Introducing PIPS
A PIPS is a three-month professional internship in a non-academic setting. It is a compulsory part of the WestBio training programme. The PIPS will provide you with work experience in a professional setting giving you opportunity to develop additional skills.

The introduction of PIPS has been recommended by the Bioscience Skills and Careers strategy panel, which advises BBSRC on its strategy for investment in bioscience skills and careers. Wider professional experience for PhD students was identified by the panel as an area of high priority for action by BBSRC. A wide variety of career paths are open to researchers and the ability to move between different roles and sectors can be key to maximising the impact from your PhD training, as well as to achieving a successful and fulfilling career.

The current cohorts of WestBio students have secured placements in science communication; public engagement; television programme production; government policy; microscopy management; customer service and training; marketing and e-commerce; clinical development; scientific communication and Next Generation Sequencing.

Some advantages of the PIPS:
• It will give you opportunities for professional development.
• It will allow you to do work-based learning in a non-higher education environment and to manage career expectations.
• It will build your confidence in the workplace and make you more employable.
• It will expose you to a range of opportunities that are available to you after your PhD graduation – not all students go on to be post-docs and professors!
• It will make you a more rounded individual by broadening your horizons.
• It will allow you, and possibly your research group, to build new relationships with a range of organisations that could lead to career opportunities and long-term collaborations.
• It will also give you experience of job-application processes and requirements. (Job searching, CV writing, interviews, etc.)
• It can help you to understand the wider context of your research – appreciate the ‘bigger picture’ – and may make you a better researcher as a result.
What type of internship makes a suitable PIPS?
A PIPS is a defined project with tangible outcomes that can be carried out in any organisation, as long as it gives you a professional experience outside your immediate research-related environment. You cannot work in an area directly related to your PhD project.

It can be carried out in different sectors: industry, teaching, policy, media, consultancy, knowledge exchange. These are just a few examples:
• A defined and applied research project in industry.
• Managing a non-research project.
• Administering a research project or grant.
• Developing policy for a research council or government.
• Carrying out a marketing project for a company or organisation.
• Communicating science to the public or younger pupils through an outreach programme.
• Developing or helping to develop a new product or service for a company.

This is a chance to think creatively about the types of experience you would like to gain.

It is important that you think about what you would like to do, and how the PIPS will enhance your research and transferable skills and benefit your training and career in the long term. This is valuable life experience.

Planning your PIPS
Your PIPS should be planned cooperatively with your PhD supervisor and the PIPS host organisation; support is provided by the PIPS Coordinator. Flexibility should be a key factor to ensure compatibility of your internship with your PhD project and the internship host-organisation.

At the start of your PhD you should discuss your PIPS and the timing with PhD supervisor. Timing is important: you must ensure it fits in with your research.

Think of the following possible constraints:
1. The timing of your most important experiments;
2. Field-work seasons you may need to comply with;
3. Resource critical bottlenecks in your research project;
4. Conferences and meetings you may want to attend;
5. PhD thesis writing and your submission deadline;
6. Family commitments; and
7. Other training requirements and opportunities.

You are on a 4-year course, so it should be easy to organise your PIPS so that it does not clash with the research or any other training aspects of your PhD.

Planning ahead will give you more choice and maximise the chances of doing something you want to do. Please try to think laterally…. a PIPS can be a three-month continuous placement or can be carried out in tranches (periods of less than a month are not recommended).

We believe that you should lead on the choice of PIPS, so that it is most useful to your development, but the PIPS Coordinator will provide support and suggestions if you need them, so please do just get in touch.

Your PIPS placement should provide you with:
• a chance to explore another career interest, learning more about yourself and what you do and don’t like;
• interesting and challenging assignment(s)/project(s) that build on your skills and don’t be surprised if there is also some routine work;
• experience of using your transferable skills in a different work environment and an opportunity to gain new knowledge and skills; and
• new contacts and an insight into different careers.

You may also want to complete some relevant training in preparation for your PIPS, such as:
1. CV writing and interviewing skills;
2. time management;
3. communication skills; and
4. entrepreneurship.

You should discuss your placement ideas with your PhD supervisor and the PIPS Coordinator. When you have agreed a placement with your host organisation submit your completed PIPS plan to the PIPS Coordinator for approval by the WestBio DTP Committee.
PIPS Reporting Requirements

You must complete the PIPS Report and an A4 Case Study (guidelines are provided) of your experience and submit it to the PIPS Coordinator within 2 months of the completion of your PIPS placement.

PIPS: Summary of Requirements

A 3-month (or equivalent duration pro rata) PIPS is a compulsory element of the WestBio training programme and must be completed within 4 years of your PhD start date.

It should be planned by the student in consultation with their PhD supervisor and proposed PIPS host organisation.

Advice can be provided by the PIPS Coordinator email: (mvls-pips@glasgow.ac.uk).

Deadline for submission of:
• WestBio PIPS Report and Case Study to the PIPS Coordinator 2 months after completion of your PIPS placement
• BBSRC PIPS Report to the BBSRC (you will be provided with a unique link) 3 months after completion of your PIPS placement and within 4 years of your PhD start date.

SysMIC

The Systems training in Maths, Informatics and Computational Biology (SysMIC) training modules are online training courses developed by a consortium of UK Universities, funded by the BBSRC. The SysMIC programme will support the BBSRC’s aim of enhancing the uptake and application of systems approaches by the UK bioscience community.

SysMIC is composed of a series of modules to be studied part-time during your studentship. Students on the WestBio DTP will be automatically enrolled to participate in this programme.

The components of each module will be released progressively over approximately six months. It is expected that 4 to 7 hours study per week will be required to complete the reading and exercises in each component. At the end of each six month period students will be able to move on to the next module or they may choose to do this at some later date. Each module will be accredited, as will completion of the whole course of 3 modules.

SysMIC materials are delivered predominantly through the web, although there are opportunities to attend focused meetings and weekend schools (information will be circulated when dates are announced). Some support will also be provided by on-line tutors. There is also a dedicated SysMIC administrator who can offer guidance and support.

WestBio has set up a bespoke MATLAB programme, specifically tailored to meet the training needs of the WestBio students. This will run parallel with the SysMIC programme of study. A dedicated tutor will be on hand to support you throughout the SySMIC modules.

Further information can be viewed here: SysMIC: sysmic.ac.uk/home.html

Disclaimer: Every effort has been made to ensure that the information contained within this handbook is correct at the time of publication. WestBio training courses are subject to ongoing development which could necessitate cancellation of, or alteration to, the advertised courses. The WestBio DTP reserves the right to make changes at any time without prior notice. Should you notice any errors or inaccuracies on this or our website, please let us know by emailing mvls-gradschool@glasgow.ac.uk.