

The Centre for Bioscience has recently published the third guide in our Teaching Bioscience: Enhancing Learning series, entitled *Student Research Projects: Guidance on Practice in the Biosciences*. During the day's event at the University of Nottingham, delegates had the opportunity to hear firsthand from its author, Martin Luck (University of Nottingham) and several of the bioscience case study contributors. The afternoon involved consideration of broader aspects of final year projects and student research, with additional contributions and swapshop talks. One of the key aims of the day was allowing networking and practice sharing around the theme of undergraduate research projects.



Report back to colleagues who could not attend, who also supervise projects.

Really enjoyed the different examples, really exciting! Lots of useful tips exchanged in discussion and integrated into the talks.

Very interesting to hear all the different kind of things that are done and organised for students.

Welcome and introduction to the day

Jackie Wilson, Centre for Bioscience, opened the day's event by sharing the intentions of the day as a follow up to previous final year project events and the launch of the Final Year Projects Guide. She shared the overall layout and format of the Centre's Teaching Bioscience: Enhancing Learning series. Jackie also acknowledged the Centre's gratitude to Martin Luck for his authorship of the guide.

Plenary - Student research projects: What's in it for them? What's in it for us?

Martin Luck, University of Nottingham



Martin expressed his excitement about the group being brought together to share and learn about practice relating to student research projects across the UK. Martin's talk examined the philosophical implications of two main points: 'What's in it for them?' and 'What's in it for us?'. He shared his belief that undergraduate research experiences are a crucial point in the undergraduate experience. The discussion highlighted educational skills and standards, motivators, and additional reasons why researchers open up their laboratories to undergraduates. Additionally he ventured to say that these reasons did not provide the motivation needed by students as reasons to participate. Martin discussed the reasons he felt students did participate and why it can be a rewarding, satisfying experience for students. The outcomes of such experiences for both the researcher and the student were shared uniting the initial questions as 'What is in it for both of us?'. Ultimately he sees his participation as a student supervisor as a privilege.

Commercial projects for final year bioscience students

Anne Tierney, University of Glasgow

Anne shared her experiences of working with final year students in relation to commercial projects and *Business in the Biosciences* - a two-week module (a prerequisite for the projects) involving a variety of teaching methods and an emphasis on enquiry-based learning. This intensive programme quickly and effectively introduces students to the world of business. Additionally Anne highlighted another unique aspect of the programme where students design and implement an event to promote science. The intake of students has risen since 2005 but realistically the upper limit for this type of activity is probably about forty students. In the presentation she shared ways that the students are assessed, arrangement of placements in industry, employment opportunities, business project development, and student reactions to this learning opportunity.



A student's perspective on the commercial projects

Ashley Rowatt, University of Glasgow

Ashley, a Microbiology student, shared her views on participating in the University of Glasgow Business and Bioscience programme – a prerequisite to the commercial projects. She saw the course as a way forward which opened her eyes up to greater options beyond the biosciences and that with determination anything is possible. She addressed her own experiences with managing both an event and developing a commercial product during her experience.

Final year research projects in communicating science: why and how?

Dan Lloyd, University of Kent



Dan's experiences with final year projects over the past five years have been in the context of embedding an appreciation of science communication within degrees in the School of Biosciences. He shared the timetable and details of the activities which comprise the yearlong course: a dissertation based on in-depth literature review, oral presentations typically in a school, and

communicating science in different media. During the oral presentations the students are encouraged to find ways to present the bioscience in a way that better explains the underlying scientific concepts rather than the social or ethical implications. He has observed that different students find different benefits from the programme. As well as benefits for the students there has also been an increase in local profile for the university (and increased UCAS applications).

Implementing the Undergraduate Ambassadors Scheme (UAS) as a final-year project option

Martin Broadley, University of Nottingham

Martin began with an overview of the School of Biosciences at Nottingham describing the geographical distribution, complexity of the school organisation, makeup of staff and students, and degree courses. He shared the background of the UAS programme and how it was adopted by his school in 2005. Implementation of UAS was found to help to alleviate the pressures of lab based projects. The placements, assessments, and testimonies of increasing numbers of participating students were discussed. Additional concerns and highlights were shared regarding the UAS programme.

Group discussion: Issues surrounding student research

Facilitated by Martin Luck, University of Nottingham, and Brian Martin, University of Birmingham

The discussion began by asking if each research project should do the following: benefit students in exposure to a/the scientific method?, develop a deep appreciation of how science works?, and become familiar with the language and discourse of the discipline?. Martin asked though 'Where is the fun?' since many times providing students with these exposures isn't necessarily bringing about the excitement that can/should be within the process. Discussions followed on how to best provide exposure to enquiry and at a level that is critical enough and includes the opportunity for student critique. Wet vs. dry based types of student research projects were talked about and weighed-up in terms of their relative value/rigour. A variety of different types of programmes were addressed as delegates shared variations that exist across the UK.

Some points of interest included:

Need for health and safety; Funding – how to support projects without any budget especially in teaching only institutions - interestingly Brian Martin shared the approach at Birmingham where dedicated funds have been set aside which most delegates were envious of; ways to work with assigning topics for projects – Ian Turner at Derby shared that they don't provide titles and students have to come up with their own project; issue of the amount of time needed to properly supervise UG students and application towards workload models; concern with training UGs – differs from university to university; how extensively can the contribution of an UG's work legitimately be used towards the research groups' outcomes; concerns of weighing student contribution/enthusiasm against involvement in a weak or strong project; and assessment of FYP – involving moderators to monitor both the researcher and the student.

Swapshops: sharing ideas and experience relating to student research projects in the biosciences/sciences

Chaired by Sheryl Meskin, Centre for Bioscience



Using internet-based resources to design a challenging informatics project for bioscience students, Carol Wagstaff, University of Reading, shared her experiences of running informatics projects, which have a low cost advantage. Through a case study she shared how students use the wide array of data available to develop a research plan and appropriately analyse the information. Additionally, Carol discussed the guidance that students will need throughout the projects.

A collaborative element to final year research; are students able to share ideas? Samantha Lane, Bath Spa University, wanted to receive feedback and ideas from the delegates on her existing programme. In large group tutorials students share their research results where Samantha wants the process to mirror lab meetings. She recently began using a reflective diary to help students with group tutorial sessions. She wanted to find out if others were using any collaborative techniques within the FYP process.

The School Research Day - a capstone experience for final year undergraduates, Frank Schubert, University of Portsmouth, discussed the transformation of taking the student's project results into a dissemination event. Frank highlighted the novel idea of providing a capstone experience (a more common concept in the US) for final year students, which led him to develop the School Research Day he described. External examiners participate in the day by attending the student's poster sessions. He talked about the positives, negatives, and future plans for building on the success of the day when organising further research days.

From Derby to Brussels ... a Project Success or otherwise known as, Promoting Undergraduate Student Conference Attendance, Has Benefits for All!, Ian Turner, University of Derby, shared a case study involving one very motivated student who took the idea of final project dissemination by student attendance at professional and/or student research conferences to international heights. In the course of her experience, the student concerned was also able to bring about a lot of media coverage and publish

her results. He discussed the process of promoting conference attendance/participation and the benefits it has for both the student and the researcher.

Reflections on the day

Dan Lloyd, University of Kent

Dan brought together the ideas and thoughts on the day. Throughout the examples provided in the day there existed a wide diversity in Final Year Projects (FYPs) across the UK. Evident in the talks and resulting discussions he recognised that the process of FYPs can go beyond the traditional educational boundaries, benefiting students possibly in a wider variety of career options. He appreciated inclusion of the student voice in the day's sessions wondering if the student appreciated or wondered about the coming together of a group of lecturers who were willing to give up a 'day' to learn more about FYP in the UK.