Workshop summaries

Scientific research is more complicated a field than most undergraduates imagine it to be, and the usual courses often leave students unprepared for the issues that they will face in their careers as researchers. This course featured workshop sessions covering various aspects of science that are not traditionally elaborated upon in standard degree programs. Workshops touched on a wide range of topics and were taught in an informal fashion.

Workshop 1: Posing questions (self-directed)
Science is a habit as much as a career. Observing one's surroundings and asking questions are habits of scientists, and all questions are important. However, answering is as important as asking; if a scientist asks a question, they should also have created a hypothesis and be thinking of ways to test it. Useful hypotheses are focused and clear, and a null hypothesis is essential. In this workshop, the surrounding environment was important in inspiring questions.

Workshop 2: Experimental design and data handling (Adrienne Nicotra)
Field experiments sometimes offer less control over environmental factors, but good experimental design can go a long way towards ensuring that the data acquired is valid. This workshop showed how, once data is acquired, proper data handling is also useful for maintaining data integrity throughout the analysis process.

Workshop 3: Introduction to collaboration (Xénia Weber and Michael Whitehead)
The vast majority of modern science is intensely collaborative. A successful researcher in today's world will be one who is capable of working well with other scientists. In order to work well with others, a researcher must have a functional understanding of group dynamics, as well as the self-awareness to recognise their failings and their strengths. To that end, this workshop covered standard reflective practices and the basics of self-categorisation.
Workshop 4: More on collaboration (Xénia Weber and Michael Whitehead)

As a continuation of the content covered in Workshop 3, this workshop took knowledge of self-categorisation and moved the emphasis from the self on to the delicate dynamics of the research team. People in established situations often see themselves in specific roles, and the arrival of a new member can be upsetting. This workshop helped students to understand how the newcomer, the established workers and the managers all might respond to make the situation easier.

Workshop 5: Statistical analyses bootcamp (Adrienne Nicotra)

Field research is often seen as largely spending time out in the wild, taking measurements and watching behaviour. However, statistical analysis is one of the more important steps in coming to useful conclusions. In this workshop, different types of data, statistical tests for various types of hypotheses and data visualisation were covered, in the context of exploratory data analysis.

Workshop 6: Presentations (Sonya Geange)

Communication in research is more important than ever. Often, this communication comes in the form of giving presentations. In this workshop, practical elements of presenting were applied through a brief presentation.

Workshop 7: Even more on collaboration (Xénia Weber and Michael Whitehead)

Set late in the course, after students had experienced a range of difficulties in research collaboration, this final teamwork workshop refined the social identity concepts introduced previously. Workshop 7 focused on understanding peers, their behaviour and better ways to ensure that groups worked smoothly together.

Workshop 8: Research integrity (Hannah Windley)

Academic integrity is often presented only in terms of ethics. While that is a significant component, many other issues in research integrity can often affect the quality of research done itself. Keeping good records and using appropriate statistical tests can often affect research conclusions inasmuch
as they are important for maintaining integrity. In this workshop, several of the usually less considered topics in research integrity were covered through a series of case studies.

**Workshop 9: Scientific storytelling (Michael Whitehead)**

The papers published in scientific journals are often all that the world sees of a particular research project. Rarely do they explain the journey to discovery, often vital to the scientific process and giving an incomplete view of the scientific process. In this workshop, the components of a typical scientific paper and the writing of a scientific narrative are discussed.
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