Abstracts

Developing a research methods, data analysis and statistics course (RMDAS): pedagogical, technical and student considerations

Drs Louise Connelly and Jessica Martin, University of Edinburgh

Category: Workshop

The Royal (Dick) School of Veterinary Studies is developing a number of research methods, data analysis and statistics courses (RMDAS) for postgraduate online distance learners, in order to standardise and optimise this teaching across the MSc programmes. This funded research project aims to ensure that as educators, we can design and deliver RMDAS courses which are less daunting; ensure that the student academic needs are met; potentially contribute to lowering attrition rates; and increase student self-efficacy. The project has enabled an exploration of students' needs, anxieties, and learning preferences via a questionnaire (n=32 responses), interviews (n=6), and testing of an RMDAS course. The findings indicate students lack confidence, as 65% of those surveyed were not/somewhat confident about data analysis; and 72% were not/somewhat confident about statistics. This paper provides an insight into the student perspective, as well as presenting a list of recommendations when designing an online RMDAS course. The presentation will be followed by a workshop (30 mins) which will provide an opportunity to discuss and review the pedagogical and technological approaches for designing and delivering RMDAS courses to different cohorts (online and on-campus). In groups, we will develop and discuss a framework for RMDAS course development.

Outreach opportunities: How can us professionals get involved?

Mr Jonathan Love, University of Strathclyde

Category: 30-minute talk

In recent years, the importance of empowering teachers of Statistics to engage with non-specialists has become a prominent feature of further and higher education institution strategies. Statistics plays a key role in society and is a major component of future economic growth. In this talk, I will highlight opportunities for professionals to get involved in developing and delivering outreach engagement activities. I will also share from personal experience how some of the outreach activities I have been involved in with the Faculty of Science at the University of Strathclyde have become successful, despite the obstacles. I will in turn discuss how such experience can aid in the context of organizing outreach projects specific to the promotion of statistical literacy.

Adapting the Cornell method for teaching statistics

Dr Vikki O'Neill, Queen's University Belfast
Category: Workshop

Although not often taught by teachers, note-taking is considered to be one of the most useful study skills a student can cultivate. Note-taking enhances the organizational processing of lecture information amongst students. It also acts as a permanent record of the learning, therefore providing a vital resource for revising.

Several studies have found that where students were directed to follow the Cornell note-taking method the class average scores were higher. Students were found to outperform when required to synthesise, apply or evaluate information. The Cornell method requires students to initially record their lecture

notes in brief, then after the class begin to identify key points or questions, recite the notes and reflect on the class material.

The workshop will begin with a comparison between different lecture note styles. Group discussions will follow, focussing on the pros and cons of note taking techniques, highlighting specific issues that affect teaching statistics. A demonstration will be given on adapting the Cornell note-taking method for teaching introductory statistics, where examples from both undergraduate dental and mathematics students will be given.

Career development for statisticians working in medical schools: Approaches to overcoming the obstacles

Dr Gill Price (University of East Anglia) and Prof Steff Lewis (University of Edinburgh)

Category: Workshop

Many teachers of statistics in medicine and allied health sciences encounter obstacles to their professional recognition and career development. Others experience these less, or have devised ways of overcoming them. This interactive workshop follows a session at 'Burwalls' 2017 in which challenges in their teaching, research or overall role were highlighted by participants as limiting their professional recognition or progression as a statistician. We now wish to draw on participants' experience or ideas on overcoming obstacles, and to highlight 'good practice' – personal or organisational. Sharing positive approaches should help reduce the variability in experience across institutions.

We will:

1) start with a collective brainstorm, inviting all participants to list significant challenges to progression, focussing on but not limited to teaching statistics in applied medical/health settings; (15 minutes)

2) break into groups of approx. 6 to discuss ways to address or circumvent those obstacles – collecting ideas on existing good practice   (20 minutes)

and

3) wrap up with a whole-room sharing of hints, tips and strategies for 'How to navigate the minefield'. (20 minutes)

Contributing to teaching innovations in medicine and allied health sciences: a student perspective

Contributing to teaching innovations in medicine and allied health sciences: A student perspective (Ms Sandra Sam, Nuffield Research Placement student and Dr Margaret MacDougall, University of Edinburgh)

Category: Interview with student

Progression towards open access environments in the teaching of statistics to non-specialists within medicine and allied health sciences

Dr Margaret MacDougall, University of Edinburgh

Category: Workshop

Firstly, I shall provide an update on the project *Statistics in Medicine: A risky business?* which was previously funded by the HEA (now Advance HE) and which, through further funding, has now expanded to facilitate the provision of open access statistics resources for non-specialist learners in statistics and the health sciences. Secondly, I shall seek to reach out to the community of non-specialist teachers of statistics in higher education with a view to identifying opportunities for making best use of my online resources within their courses and forming useful partnerships to support future funding bids. I shall offer a 20-minute overview of project deliverables. This will be followed by a 40-minute structured consultancy session inviting recommendations on a) resource design features for different user cases

and b) opportunities for cross-institutional collaboration. You will have pre-session access to online resources, including relevant published papers. This will support your provision of feedback during the session. In addition to offering recommendations relating to a range of pre-specified types of student user cases, you will have the freedom to offer your individualized suggestions in relation to other student user cases and to provide contact details for post-session follow-up discussions.

Maximising use of NHS data: development of bespoke training to increase statistical capacity

Professor Sarah Lewis, University of Nottingham

Category: 30-minute talk

Statistical analysis is critical to issues facing the UK NHS. Improving quality and efficiency of health care depends on measuring and identifying problems, and evaluating alternative solutions. The NHS has many data analysts with excellent data manipulation skills but most lack appropriate skills in statistics and research methods. We have developed bespoke training for this workforce, delivered and evaluated it. Central to the development of the content and style of this training was relevance and immediacy achieved through collaboration with intended learners. We focussed on using data, analyses, and contexts encountered by this workforce, on providing practical skills using free software, and on immediate application, with support, to real service improvement projects. This talk will focus on the learning acquired, not only for development of bespoke training, but on how this informs training for other health professionals to maximise the use of NHS data to improve health service delivery.

Learning statistics: The wonders and limitations of statistical software!

Dr Renata Medeiros, Cardiff University

Category: Workshop

This talk evaluates the importance of the choice of statistical software packages in the process of

learning statistics, exploring the perceptions and attitudes to learning through different software

packages of undergraduates and post-graduate students. This topic has been the focus of interesting

research showing, for example, that technology-based statistics teaching is perceived as more

engaging, but the understanding of concepts does not improve and those who learn through

technology often report failing to grasp the underlying theory behind the computer activity.

Preliminary data from a UK-wide questionnaire will be presented, revealing how statistics is taught

across the UK and it is perceived, particularly in relation to software choice. The talk will also include

personal reflections on teaching statistics in life-sciences and medical contexts, using different

software packages, including R statistical software, often distrusted as a useful teaching tool at

undergraduate level, but perhaps having more potential than initially expected.

Personal experiences of using statistical software for teaching students of medicine and allied health

sciences

Proposed by Dr Margaret MacDougall, University of Edinburgh

Chair: Mr Dean Langan, University College London

Category: Open forum

All delegates should come prepared to share their personal experiences of using statistical software for

teaching students of medicine and allied health sciences. Ideas from this informal session will be

collated for writing up after the conference.

Q-Step for medical statistics?

Professor John MacInnes, University of Edinburgh

Category: 30-minute talk

University social science in the UK has always been poor at using or teaching statistics, with regular official reports stretching back to 1946 lamenting the situation but failing to remedy it. However, in 2014 a new initiative was launched, 'Q-Step'- with the aim of creating a 'step change' in the volume and quality of statistics teaching on social science degree programmes in 18 universities. Results so far suggest considerable success. I will look at what might explain this focussing on

- Staff skills;

- Curriculum space, or repetition, repetition, repetition;

- Embedding statistics into substantive courses;

- Buddies, peer learning and PGTAs;

  and

- Dealing with anxiety.

I will then discuss how far this might be transferrable to medical degree programmes.