

# CUQM Annual Report

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## CAMBRIDGE UNDERGRADUATE QUANTITATIVE METHODS CENTRE

**Address:** Free School Lane

Cambridge

CB2 3RQ

**Tel:** 01223 768216

**Email:** [cuqm-enquiries@cshss.cam.ac.uk](mailto:cuqm-enquiries@cshss.cam.ac.uk)

**Web:** <http://www.cuqm.cshss.cam.ac.uk>

**Twitter:** @CamQuantMethods

**Facebook:** <https://www.facebook.com/pages/CUQM/951030344912848?ref=hl>

## GOVERNANCE OF CUQM

CUQM consists of three core members of staff and a steering committee.

### Staff



Director

Dr Brendan Burchell, Department of Sociology



Teaching Associate

Dr Matthew Sparks, Department of Sociology



Administrator

Ms Casey Mein

### Steering Committee

Dr Brendan Burchell (Chair)	Department of Sociology
Dr Michelle Ellefson	Faculty of Education
Dr Henriette Hendriks	Department of Linguistics
Dr Pieter van Houten	Department of POLIS
Mrs Isobel Humphrey	School of Humanities and Social Sciences
Dr Maria Iacovou	Social Science Research Methods Centre
Dr Sian Lazar	Division of Social Anthropology
Ms Casey Mein	Administrator
Dr Cameron Petrie	Division of Archaeology
Dr Pedro Ramos Pinto	Department of History
Dr Alice Reid	Department of Geography
Dr Elisabete da Silva	Department of Land Economy
Mr Matthew Sparkes	Teaching Associate
Professor Anna Vignoles	Faculty of Education

## **BRIEF REVIEW FROM THE DIRECTOR OF CUQM**

Cambridge Undergraduate Quantitative Methods was set up in parallel to the Q-Step programme in other universities. Q-Step acknowledged the growing importance of quantitative methods skills and the lack of international competitiveness of UK universities in the statistical and methodological training provided for most social sciences. Following the Q-Step philosophy, we are prioritising the teaching of more ambitious quantitative methods training for a proportion of undergraduates, rather than trying to force all students to reach a minimum threshold. The founding departments and divisions of CUQM were Archaeology, Education, Land Economy, Linguistics, Politics, Social Anthropology and Sociology. True to the original plan, CUQM has already grown to include three new disciplines: Biological Anthropology, Geography and History.

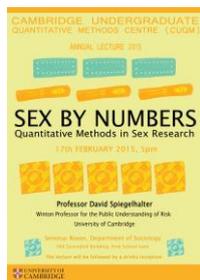
There have been many activities in the first year which are listed in more detail in this report. Perhaps the most important achievement in the past year has been the establishment of the new statistics and methods paper in the HSPS Tripos, SOC5 -- a paper that is the flagship of the whole enterprise for several Triposes. In the old PPS Tripos an average of five sociology students and practically no Politics students took the statistics and methods paper. We set the target of doubling the number of social scientists who are competent in quantitative methods graduating from these disciplines. In the first year we easily exceeded this target, achieving a total of 28 students on the course, including 4 from the Education Tripos. Even more importantly, the feedback from the students taking that course was excellent, and much higher than the feedback that was typical of the course's predecessor in PPS. Another excellent piece of news is that Politics and International Studies will be teaching their own statistics and methods course from October 2015 (POL6), sharing core components with the Sociology paper, but tailoring it for the Politics Tripos.

Some things have not gone so smoothly. We were hoping to gain affiliated status with Q-Step programmes in other universities, coordinated by the Nuffield Foundation, but failed to convince them of the capacity for rapid change at the University of Cambridge (which is paradoxical, as we have already seen much more rapid strides forward than many of the Q-Step centres). And there is a grain of truth in their scepticism about change at Cambridge; the provision of additional quantitative methods courses for students who do not have access to any QM courses in their own Tripos has been delayed temporarily by incongruities between the University and the colleges. There is much demand for such courses; the first one will take place just before the start of the Michaelmas term, and has been heavily over-subscribed. All 25 places were filled very quickly, with every CUQM department/division being represented by the students who have signed up. There are also 28 students on a waiting list for a place.

There is still much to be done, and we have an ambitious programme to build on last year's innovations. The rate of change in 2015-16 will be facilitated by additional labour-power; Matthew Sparkes has now submitted his PhD, so from October 2015 he will be employed for a day per week on CUQM in addition to his two days a week in Sociology. Increasing the number of final-year undergraduates who complete a dissertation using quantitative methods is a particularly important target, as well as increasing the take-up of the courses, placements and other CUQM events.

## CUQM EVENTS

17<sup>th</sup> February 2015



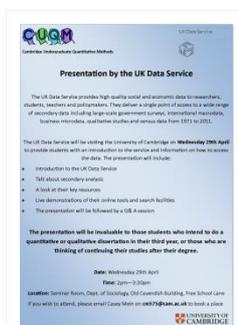
CUQM was delighted to host Professor David Spiegelhalter, Winton Professor for the Public Understanding of Risk, University of Cambridge, for the first of the CUQM Annual Lectures on the 17<sup>th</sup> February 2015. The lecture was titled '*Sex by Numbers: Quantitative Methods in Sex Research*' and provided a perfect template for future CUQM Annual Lectures – discussing statistics and data in a fun and engaging way. The lecture was well attended and was followed by a Q& A session and a wine reception for attendees.

17<sup>th</sup> March 2015



On the 17<sup>th</sup> March 2015, Brendan Burchell gave a lecture entitled '*Social Science by Numbers*' to a group of Year 12 students at Goodison Park (the home stadium of Everton football club). The theme of the lecture was why it is vital that some social science graduates have advanced mathematical or statistical skills in a world where an understanding of data is fundamental to making good decisions in both Government and Industry. The pupils were selected by their teachers as those most academically gifted amongst their cohort and came from a range of schools across the North West of England.

29<sup>th</sup> April 2015



The UK Data Service visited CUQM on the 29<sup>th</sup> April and provided undergraduate (and some postgraduate) students from all CUQM departments with a useful introduction to the service and information on how to access the data offered by the UKDS. The session included a general intro to the UK Data Service, a talk about secondary analysis, a look at their key resources and live demonstrations of their online tools and search facilities. This was followed by a Q&A session. A full video recording of the session can be found on the CUQM website and the University's streaming media service website and will be a useful resource for future cohorts of students intending to undertake third year dissertations.

16 July 2015



The Sutton Trust: Brendan Burchell delivered an interactive lecture on the importance of quantitative methods for social scientists. It was delivered to 15 Year 12 students who will be applying to University to study Social Anthropology or Sociology.



In May 2015 CUQM successfully applied to the ESRC to hold an 'ESRC Festival of Social Science' event. '*Social Science by Numbers*' will take place in November 2015 and is aimed at schoolchildren who are studying Maths A Level. The event will be an interactive and hands-on session, showing how working with numbers can be not only exciting, but also fundamental to understanding society and the world today. The aim is to show students who had perhaps not been thinking of pursuing Social

Sciences at University that having a good understanding of Maths can be a great advantage in areas of study other than traditional science subjects. Saffron Walden County High School, Hills Road Sixth Form College, Long Road Sixth Form College and St Ivo School have all confirmed that they would like to send pupils along to the event.

## **COURSES**

### **SOC5: Statistics and Methods**

2014 saw the launch of the new HSPS Tripos 'Statistics and Methods' paper (SOC5). Offered to Sociology, POLIS and Education students it has proved to be very successful in its first year. The paper comprises approximately 70% quantitative data analysis, 15% quantitative data collection skills and 15% qualitative data collection and analysis. The equivalent paper to have been offered in previous years generally attracted around 5 Sociology students, but 28 students were recruited onto SOC5 in 2014-15. Student feedback about the course was very positive:

*'Great course, great lectures/demonstrations. I will definitely encourage the education department to continue this exchange of papers'*

and the accompanying SPSS computer lab sessions (run by Matthew Sparkes) also proved to be very popular with the students:

*'incredibly clear and instructive. Highly recommended. Helped me through the most complicated elements of the course'*

The average level of examination marks was impressively high. The prize for the SOC5 paper went to Nadia O'Shaughnessy (Politics) with a mark of 75, narrowly beating Ed Hall (Sociology) with 74.5. The paper is going to be one of the key ways CUQM is able to improve the provision of quantitative methods teaching for social science undergraduates and the aim is to increase the number of students taking this paper year on year.

### **GIS Short Course on: An Introduction to Geographic Information Systems and Spatial Analysis**

In March 2015 the Department of Land Economy ran a short course on GIS and opened up places to students from all CUQM departments. The two days of lectures were held in the Titan teaching rooms and a total of 9 students from across POLIS, Archaeology, Social Anthropology and Sociology registered for this course.

### **Research Methods Workshop**

This two day workshop in June was designed by the Education Tripos to prepare second year Education students for their third year dissertations. This year, students from other Triposes within CUQM departments were also invited. The workshop included two full days of sessions on a variety of different types of methods used in for empirical and library-based research dissertations, including surveys and questionnaires, interviews, observations, experiments, ethics, international research and large data sets. Six students from Sociology and POLIS attended for the workshop.

## UCL Q-Step quantitative methods short courses

The UCL Q-Step centre organises four short courses on quantitative methods every June. They are open to undergraduate students from any UK university and are free of charge. CUQM has encouraged students from all CUQM departments to apply to attend these courses and offers a small bursary to help offset the cost of attending. In June 2014 three HSPS students were successful in getting places on the Survey Design, Stata Computing Skills, Impact Evaluation and Longitudinal Analysis courses. In June 2015 one student from the Faculty of Education has obtained a place on two of the courses: Survey Design and Longitudinal Analysis.

Feedback from one student who attend the Survey Design short course, June 2014:

*'I am very happy I attended the course and although I am not designing surveys myself, am confident it will help me in my readings and research involving information collected by surveys as I begin my third year dissertation'.*

## EMBEDDING QM IN SUBSTANTIVE COURSES

CUQM is keen to encourage the use of more data and quantitative material in existing papers offered by CUQM departments and is providing help to 'embed' QM material into courses. Embedding quantitative material has two components. First, it involves embedding substantive material into quantitative methods teaching. Second, it involves embedding quantitative methods and research into substantive modules.

In the current academic year, a large part of the focus has been on incorporating substantive material (such as real world datasets) into the content of lectures and workshops on the SOC5 Statistics and Methods paper, because they form the bulk of quantitative methods teaching across the HSPS Tripos. It was assumed that embedding substantive material into the practical teaching of quantitative methods would lead to greater student engagement because the students see the relevance of what they are doing. Indeed qualitative feedback from students who took part in the workshops was overwhelmingly positive, and reveals a number of encouraging outcomes. For example, students clearly found the workshops useful for seeing the real life application of data and for bringing theories to life.

Regarding embedding quantitative material in substantive modules, we are currently at the first stage of this process. Jeff Miley, the course organiser for the HSPS paper on Modern Britain, has agreed to act as a 'trailblazer'. After initial meetings between Jeff and Matthew Sparkes, they agreed the 'Social Class and Inequality' module would be the most suitable place to start due to Matthew's knowledge of quantitative research conducted within this subject area.

Matthew has subsequently attended each of Jeff's lectures on this module and highlighted specific sections of his lectures that could be enhanced by quantitative research. This has involved the following suggestions: a greater focus on the operationalisation and measurement of classification schemes; an expanded discussion of the contest between Marxist and Weberian schemas used in

social mobility studies and their impact on the development of the discipline; and the incorporation of graphs and charts relating to inequality and voting patterns across class groups.

Now that the lectures and workshops for the Statistics and Methods paper are developed, a greater focus will be directed at embedding quantitative research and methods into substantive modules in the new academic year.

## **QM EVENTS ATTENDED BY CUQM PERSONNEL**

### **17<sup>th</sup> March 2014, Q-Step Launch, Royal Society**

Brendan Burchell attended the inaugural event for the ESRC/Nuffield Foundation/HEFCE funded Q-Step programme. It was titled '*Counting them in: quantitative social science and the links between secondary and higher education*' and explored ways to strengthen quantitative social science training through the links between secondary and higher education. It was held at the Royal Society and attended by teachers, examiners, university lecturers, awarding bodies, learned societies and subject associations.

### **11 June 2014, An introduction to R for Social Scientists.**

Brendan Burchell attended this workshop at the University of Oxford which related the relative merits of teaching QM to social science undergraduates and Masters students using SPSS and R. R clearly has advantages, such as being freeware and giving more visibility to the syntax to develop coding skills. Experiences at other universities suggest that SPSS's user-friendly front end still makes it the preferred option for undergraduates.

### **24<sup>th</sup> September 2014, Quantitative Methods Workshop, British Academy**

Brendan Burchell and Casey Mein attended this workshop, which presented results from 20 quantitative methods teaching projects, as well as some of the other latest developments in QM teaching. Sarah Lock from the Nuffield Foundation talked about developments in the Q-Step programme and Phil Sooben, Interim Chief Executive of ESRC talked about ESRC's plans for QM. Anandini Yoganathan introduced the British Academy's new Manifesto for Data Skills.

### **8<sup>th</sup> January 2015, Workshop for Teachers of Quantitative Methods for Social Scientists**

Matthew Sparkes and Pieter van Houten attended this workshop at the University of Oxford, in which Chris Zorn (Pennsylvania State University) and Cees van der Eijk (Nottingham University) discussed their experiences and what they think works well for teaching quantitative methods to undergraduate social scientists.

### **24 September 2015, Cardiff Q-Step Centre 2015 Annual Conference**

Matthew Sparkes attended this conference which took stock of the Q-Step programme 18 months on from its establishment. The conference explored teaching methods, assessment and the experiences and views of employers, teachers and other stakeholders.

### **24 September 2015, Big Data Methods for Social Science and Policy – Interdisciplinary Workshop**

Brendan Burchell attended this workshop, held at Murray Edwards College, Cambridge. The workshop brought together Cambridge research expertise in areas such as quantitative sociology,

biostatistics, computing, astronomy, mathematics, psychology, law and history and philosophy of science in order to explore what methodological insight can be offered from research advances in these disciplines.

## **CUQM QUANTITATIVE DISSERTATION PRIZE**

One of the central aims of CUQM is to increase on a yearly basis the number of third year students employing quantitative methods within their dissertations. CUQM has therefore arranged for Sage publishers to sponsor a £100 prize for the best third year dissertation using quantitative methods. This year there were six nominations for the prize and the judging panel has been appointed.

## **WORK PLACEMENTS**

According to the British Academy, well-rounded graduates, equipped with core quantitative skills, are vital if the UK is to retain its status as a world leader in research and higher education and provide citizens with the means to understand analyse and criticise data. Unfortunately, the UK has a shortage of social science graduates with the quantitative skills necessary to evaluate evidence, analyse data, and design and commission research. These quantitative research skills are essential to employers across all sectors of the workplace – academia, government, business and charities.

One of the key functions of CUQM is therefore to find work placements for students which will not only enhance students' CVs but will give them a chance to put their quant method training into practice.

A work placement for one student has been arranged with a market research company called Shift Learning. Shift are an organisation specialising in research into the education and learning sector and this placement was therefore very appropriate for a number of our students. Two students were interviewed for this position and it was offered to Jasmine John, a Part IIA Sociology student. Jasmine undertook her work placement in the summer vacation, 2015.

A second work placement has been arranged for two students to work on a research project with Brendan Burchell. The placement provides the student with an opportunity to assist with the analysis of a large dataset using SPSS, to produce graphs in SPSS or Excel, and to write up the analyses in MSWord. The dataset is of school-to-work transitions for 100,000 cases in 25 developed and developing countries and forms part of a project that is being undertaken by Dr Burchell for the ILO to examine the pros and cons of self-employment for young people. The successful candidates for this placement were Nick Pye and Ed Hall, Part IIA Sociology students who worked in the summer vacation, 2015.

YouGov also agreed to provide two exciting opportunities for students to undertake placements with them during the Easter vacation and Summer vacation of 2015. Five students who had taken the SOC 5 paper were interviewed for the placements, but unfortunately none of them were successful in passing the interview process. YouGov are, however, happy to work with CUQM again to offer placements in 2016 and CUQM will be working with the new batch of students to improve their application and interview skills.

Work is continuing to line up more companies to provide work placement opportunities next year. Organisations that have agreed so far include Cambridge Assessment and a London-based research company called YouthSight.

## MEDIA

A new logo, intended to reflect the human aspect of social science and humanities, was designed at the end of 2014.



Cambridge Undergraduate Quantitative Methods

The website for CUQM went live in November 2014. The address for the website is:

<http://www.cuqm.cshss.cam.ac.uk>

The website contains all the essential information about CUQM activities, events and work placements as well as links to other statistical/data/QM related resources.

CUQM has also become active on social media. The CUQM twitter feed is: [@CamQuantMethods](https://twitter.com/CamQuantMethods). We are slowly building up followers and are encouraging more undergraduate students to follow CUQM on twitter for information on statistics in the news, CUQM events and work placements.

There is also a CUQM Facebook page where all news and events are posted.

<https://www.facebook.com/pages/CUQM>

In June 2015, issue 27 of Research Horizons turned a spotlight onto Big Data and included a short piece about CUQM. The piece contains an extract from an interview with Dr Burchell in which he explains how the Centre is aiming to equip undergraduate Social Scientists for the emerging world of big data.

<http://www.cam.ac.uk/research/research-at-cambridge/research-horizons>

A full length article titled 'Preparing Social Scientists for the World of Big Data' appeared on the Research pages of the University's website in June 2015 and contains the full interview with Dr Burchell.

<http://www.cam.ac.uk/research/features/preparing-social-scientists-for-the-world-of-big-data>

A short video clip is currently being produced by CUQM in collaboration with the Faculty of Education to explain who we are and what we do. The clip will be two minutes long and feature a number of steering committee members and students. The clip will be available to view on the CUQM website, Facebook page and the University's streaming media service website.