



**ROYAL  
STATISTICAL  
SOCIETY**

DATA | EVIDENCE | DECISIONS

# RSS 2014 International Conference

Monday 1st - Thursday 4th September

City Hall, Sheffield UK



**Conference Directory**

## Welcome to the RSS 2014 Conference in Sheffield

I'd like to take this opportunity to welcome you to Sheffield, which is not only England's fourth-largest city, but also its greenest - more than a third of the city lies inside the beautiful Peak District National Park. You will find all the facilities you'd expect to find in a major city, yet it's compact, welcoming and accessible.

Sheffield contains an abundance of entertainment and cultural activities including award-winning theatres, museums and galleries, a variety of clubs and live music venues.

The Conference will be using three of Sheffield's illustrious venues in the heart of the city with the main event taking place at City Hall, the welcome reception in the Winter Garden and the conference dinner at Cutlers' Hall.

Obviously your main focus during this week will be the excellent programme of speakers and sessions set out on the following pages but I trust that you may be able to find a bit of free time to explore some of the opportunities Sheffield offers.

I hope you have an enjoyable and rewarding conference.



Sara Hilditch  
Secretary, RSS Sheffield Local Group  
Director, Statistical Services Unit, University of Sheffield

## Sponsors Acknowledgements

We would like to thank the following organisations for their support of the conference:

**The Glass Academy** for their support of the Professional Development stream and the Young Statisticians' Reception

**Google** for sponsoring the recording of sessions for future broadcast

**The UK Statistics Authority** and **PSI** for their support of the statistical excellence awards

**ATASS** for their support of the Sports Statistics stream

**Select Statistics** for their support of the Statistical Analytics Challenge

**CRC Press, Springer** and **Wiley** for their support of the poster competition





## Outline Timetable

### Monday 1 September

#### 10am – 5pm

Pre-conference short courses and workshops (City Hall and University of Sheffield)

#### 7pm – 9pm

Welcome Reception (Winter Garden/Mercure Hotel)

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### Tuesday 2 September

#### 9.10am – 9.40am

The Young Statisticians' Guide to the Conference

#### 9.40am – 10.40am

Contributed sessions (1)

#### 10.45am – 11.30am

Campion (President's Invited) Lecture

#### 11.30am – 12 noon

Refreshment break

#### 12 noon – 1.10pm

Invited sessions (2)

#### 1.20pm – 2.30pm

Lunch (including YSS Reception)

#### 2.30pm – 4pm

Invited sessions (3)

#### 4pm – 4.30pm

Refreshment break

#### 4.30pm – 5.30pm

Contributed sessions (4)

#### 5.45pm – 7pm

Royal Statistical Society Awards Ceremony

#### 7pm – 8.30pm

Awards & Poster Reception (Ballroom, City Hall)

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### Wednesday 3 September

#### 9am – 10am

Invited/Contributed sessions (5)

#### 10.10am – 11.40pm

Invited/Contributed sessions (6)

#### 11.40am – 12.10pm

Refreshment break

#### 12.10pm – 1.10pm

Plenary 2 – Significance lecture

#### 1.10pm – 2.30pm

Lunch

#### 2.30pm – 4pm

Invited/Contributed sessions (7)

#### 4pm – 4.20pm

Refreshment break

#### 4.20pm – 5.20pm

Invited/Contributed sessions (8)

#### 5.30pm – 6.20pm

Plenary 3

#### 7.30pm – 8pm

IOS/RSS Merger 21st anniversary reception (Cutlers' Hall)

#### 8pm until late

Conference Dinner (Cutlers' Hall)

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### Thursday 4 September

#### 9.20am – 10.40am

Contributed sessions (9)

#### 10.40am – 11.10am

Refreshment break

#### 11.10am – 12.40pm

Invited sessions (10)

#### 12.40pm – 2pm

Lunch

#### 2pm – 3.20pm

Invited sessions (11)

#### 3.20pm – 3.40pm

Refreshment break

#### 3.40pm – 4.30pm

Plenary 4

#### 4.30pm

Close of conference

## Professional Development Workshops

This programme of workshops at the RSS 2014 Conference is sponsored by The Glass Academy:

### Tuesday 2 September

**9.10am - 9.40am**

PD1 - The Young Statistician's Guide to the Conference

**12noon - 1.20pm**

PD2 - Giving a memorable presentation

**2.30pm - 4pm**

PD3 - An introduction to working with the media

**4.30pm - 5.30pm**

PD4 - Best practice for running courses

### Wednesday 3 September

**9am - 10am**

PD5 - Writing for a non-specialist audience

**10.10am - 11.40am**

PD5 - Writing for a non-specialist audience (cont'd)

**4.20pm - 5.20pm**

PD7 - CStat revalidation - experience to date and plans for 2015

**4.20pm - 5.20pm**

PD8 - An introduction to working with schools

### Thursday 4 September

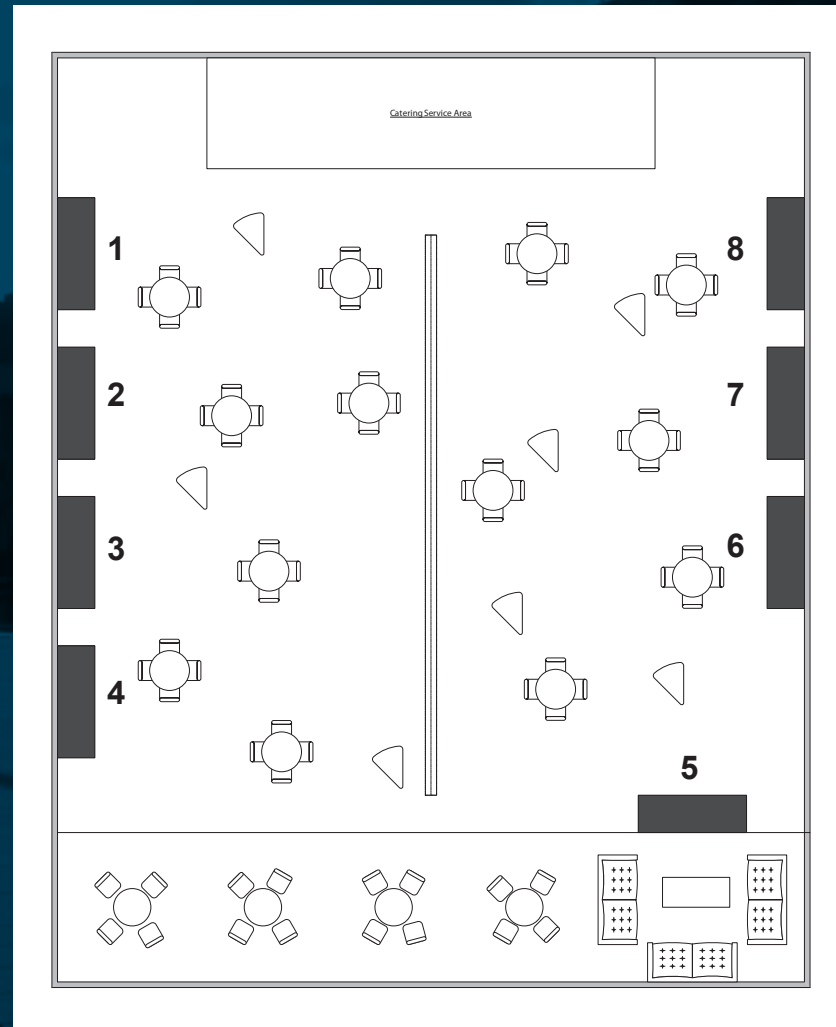
**9.20am - 10.40am**

PD9 - Career development pathways for professional statisticians



## Exhibition Plan

- 1 Oxford University Press
- 2 ATASS Sports
- 3 Springer
- 4 Datakind
- 5 Royal Statistical Society
- 6 Sage Publications
- 7 CRC Press
- 8 Wiley



## General Information

### Badges

Conference attendees are asked to wear their badges and lanyards at all times while in the Conference. Catering staff may not be able to serve individuals who cannot be identified as conference attendees.

Lost badges will be replaced at the discretion of the conference organisers. A replacement fee may be charged.

### Cloakroom

A cloakroom is situated at the end of the City Bar on the lower ground floor on route between the foyer and Oval Hall and the Ballroom and North/South Halls. Bags/suitcases may be left here.

### Information desk

An information desk for general queries staffed by RSS staff and stewards is situated in the City Bar which is situated on the lower ground floor on route between the foyer and Oval Hall and the Ballroom and North/South Halls.

### Internet access

City Hall provides free wi-fi access – when connecting to the wi-fi please look for the network called 'SCH\_Public'.

### Mobile phones

We ask that you switch your mobile phones and other hand held devices to silent when you are in sessions.

### Online Tools

The conference blog can be found at [www.rssconference.org.uk](http://www.rssconference.org.uk) and you can also follow proceedings on Twitter: RSSAnnualConf – please use the hashtag #RSS2014

### Photography

The Society will have a photographer taking photographs in many sessions and at social events. The Society may use photographs taken in publications and in future publicity. If you would prefer your photograph not to be used in this way please contact the conference office.

### Recording sessions

Please note that the Society will also be filming a number of key sessions during the conference which will be made available from the Society's website in due course.

### Refreshments

Lunch as well as tea/coffee at the mid-morning break and the mid-afternoon break is provided as part of your conference fee. All refreshments will be served in the Ballroom in the basement of City Hall.

### Registration

The registration desk can be found in the foyer area at the main entrance to City Hall.

The Registration desk will open at the following times:

<b>Monday 1 September</b>	3pm – 6.30pm
<b>Tuesday 2 September</b>	8.30am – 6pm
<b>Wednesday 3 September</b>	8.30am – 5.30pm
<b>Thursday 4 September</b>	8.45am – 2.30pm

### Session locations

Plenary sessions will be held in the Irwin Mitchell Oval Hall which you should enter by doors A, B or C and J, K or L. All other sessions will be held in one of the 7 rooms on the first, ground and basement floors of Sheffield City Hall. You should allow at least 5 minutes to walk from the Ballroom to the rooms on the first floor.

### Session timings

The following timings for presentations will normally apply:

Plenary talks:

30-45 minutes plus time for questions and discussion

Invited talks:

20-30 minutes plus time for questions and discussions

Contributed talks:

20 minutes including time for questions and discussion

## Social events

If you have booked to attend one of the social events during the conference when you collect your badge from registration tickets will be supplied for the relevant events (Welcome Reception and Conference Dinner). The awards and poster reception is non-ticketed.

Please note that at the reception on Monday evening bowl food will be served but at the Tuesday evening reception only canapés are being served.

## Speakers table

For speakers wishing to submit their presentations during the conference the speakers table will be located in the foyer area of City Hall by the main entrance.

## Stewards

City Hall stewards will be positioned around the building to direct you to the relevant rooms, while RSS stewards (in navy blue RSS t-shirts) and RSS staff members (identified by their badges) will also be happy to assist you.

## Training in Quantitative Methods

Lancaster Postgraduate Statistics Centre was established in 2005 as the only HEFCE funded Centre of Excellence for Teaching and Learning that uniquely specialises in postgraduate statistics. Courses are taught by members of the Statistics Group within the Department of Mathematics and Statistics.

### What do we offer?

We offer a wide range of statistics courses and a variety of ways to learn. The following courses run regularly each year, but are subject to change. **Please check our website for the most up-to-date information.**

For more information including fees or to book on a short course, please visit our website at [www.maths.lancs.ac.uk/psc](http://www.maths.lancs.ac.uk/psc) or email us at [psc@lancaster.ac.uk](mailto:psc@lancaster.ac.uk).



Postgraduate Statistics Centre

LANCASTER  
UNIVERSITY



## Statistics for Scientists, Social Scientists and Health Professionals

### Introductory short courses

Statistical Methods  
Introduction to Statistics (SPSS I)  
Secondary Data Analysis  
Questionnaire Design, Reliability and Validity  
Sampling Design  
Atlas.ti  
Statistical Modelling (SPSS II)

### Going further with statistics

Statistical Inference  
Using R software  
Generalised Linear Models  
Duration (Survival) Analysis  
Using STATA  
Bayesian Methods  
Quantifying and Evaluating Forensic Evidence  
Structural Equation Modelling using AMOS  
Multi-Level Models  
Methods for Missing Data  
Quantitative Criminology

**MSc/PgDip/PgCert in Quantitative Methods:** Study a selection of courses full-time or part-time and get a postgraduate qualification (eg. 6 courses for a PgCert). Optional MSc pathways include scientific research methods, social and crime statistics, statistical methods for health research or teaching statistics.

### Specialist Topics in Medical and Pharmaceutical Research

Data and Safety Monitoring Board Workshop  
Pharmacological Modelling  
Survival and Event History Analysis  
Adaptive and Bayesian Methods in Clinical Research  
Genomics: Technologies and Data Analyses  
(registration deadline is 31 January for this workshop)  
Designing Early Phase Clinical Trials

**MSc in Statistics:** Choose optional pathways in medical, pharmaceutical or environmental statistics. Study advanced techniques. For those with a background in mathematics or statistics.

## Full Programme

# TUESDAY

## 2 September

### 9.10am - 9.40am

#### PD1 - The Young Statistician's Guide to the Conference Oval Hall

We shall begin with a short presentation introducing the Young Statisticians' Section and ways to get involved, followed by YSS highlights of the conference.

We shall have one or two more senior statisticians present about their experiences at conferences, the do's and don'ts etc.

### 9.40am - 10.40am

#### 1.1 Contributed - Statistics & the Law - Memorial Hall

Statistical evaluation of forensic DNA evidence  
Roberto Puch-Solis (LGC Forensics, UK)

Using chain event graphs to address asymmetric evidence in legal reasoning  
Anjali Mazumder (University of Warwick, UK)

Calibrated Probabilities and the Investigation of Soft Fraud in Automobile Insurance Claims  
Anders Løland (Norwegian Computing Center, Norway)

Chair: Elizabeth Boggis

#### 1.2 Contributed - Spatial Analysis - South Hall

Markov Chain Monte Carlo Methods for Bayesian Spatial Survival Analysis  
Benjamin Taylor (Lancaster University, UK)

Simulating and Modeling Spatial Binary Processes  
Gabrielle Kelly (University College Dublin, Ireland)

Inference for spatial extremes using elliptical Pareto processes  
Emeric Thibaud (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

Chair: TBC

#### 1.3 Contributed - Household security, Housing and Private Schools - North Hall

The Association between Burglary and Effective Household Security: Individual, Household and Area Mediating Factors.  
Andromachi Tseloni (Loughborough University, UK)

Using Statistics to Inform Policymaking: Housing in England  
Natalie Cartwright (Department for Communities and Local Government, UK)

Are private schools for the poor actually better? Evidence from India  
Sunil Mitra Kumar (King's College London, UK)

Chair: TBC

#### 1.4 Contributed - Industry & Commerce - Vincent Harris Suite

All grown up? The fate of the quarter of a million UK firms born in 1998 after 15 years  
Michael Anyadike-Danes (Aston Business School and Enterprise Research Centre, UK)

Non-parametric modelling of SME performance  
Meng Ma (University of Edinburgh Business School, UK)

Efficient Modelling and Forecasting of the Electricity Spot Prices  
Florian Ziel (Viadrina European University, Germany)

Chair: TBC

#### 1.5 Contributed - Environment & Ecology - Dressing Rooms

Estimation of storm peak and intra-storm directional-seasonal design conditions in the North Sea  
Philip Jonathan (Shell Projects & Technology, and Lancaster University, UK)

Estimating trends for bat populations; which method is best?  
Steve Langton (Defra/Freelance statistician, UK)

Cross-validators extreme value threshold selection and uncertainty with application to off-shore engineering  
Nicolas Attalides (University College London, UK)

Chair: TBC





**1.6 Contributed - Medical/bioinformatics - Barbirolli Suite**

The Monotone Splines Lasso: Nonparametric additive monotone regression for high-dimensional data  
Linn Cecilie Bergersen, Ingrid K. Glad (Department of Mathematics, University of Oslo, Norway)

Approaches for parametric time-to-event analysis with informative entry times, with application to an HCV study of time to cirrhosis from infection  
Brian Tom (MRC Biostatistics Unit, UK)

Accounting for nonignorable missingness: A simulation study comparing method performance under model misspecification  
Finbarr Leacy (MRC Biostatistics Unit and University of Cambridge, UK)

Chair: Mike Campbell

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**10.45am - 11.30am**

**Plenary 1 - Champion (President's Invited) Lecture - Oval Hall**

The Challenges of Operating at Scale  
Richard Allan (Facebook)

Chair: John Pullinger (Immediate Past-President RSS)

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**11.30am - 12noon Coffee**

**12noon - 1.20pm**

**2.1 Invited - Communicating statistical evidence and understanding probabilistic inference in criminal trials Memorial Hall**

Organised by the Statistics & the Law working group

Colin Aitken (University of Edinburgh)  
Paul Roberts (University of Nottingham)  
Graham Jackson (University of Abertay Dundee)

Chair: Colin Aitken (University of Edinburgh)

**2.2 Invited - New advances in multivariate modelling techniques - Oval Hall**

Organised by the Liverpool Multivariate Modelling Group

Current challenges in multivariate modelling  
Marta Garcia-Finana (University of Liverpool)

Classification based on longitudinal data using multivariate mixed models  
Arnost Komarek (Charles University in Prague)

Multilevel latent class modelling of colorectal cancer survival status, incorporating stage of disease  
Wendy Harrison (University of Leeds)

Chair: Marta García-Fiñana (University of Liverpool)

**2.3 Invited - How are official statistics used in policy evaluation? - North Hall**

Organised by the Official Statistics Section

Alison Cousley (DWP)  
Evaluation of Automatic Enrolment  
Jon Simmons (Home Office Science)

Title TBC

Chair: Professor Graham Cookson (University of Surrey)

**2.4 Invited - Statistics in Industry - Vincent Harris Suite**

Organised by the Business & Industrial Section

Shirley Coleman (University of Newcastle)  
Data Mining Public and Private Energy Statistics

Idris Eckley (University of Lancaster)  
Locally Stationary Approaches to Industrial Time Series

Keith Harris (University of Sheffield)  
Statistical Tools for Enhancing Automated Manufacturing Processes

Chair: TBC

**2.5 Invited - Bayesian spatio-temporal methodology for predicting air pollution.... - South Hall**

Organised by Dr Duncan Lee and Professor Sujit Sahu in conjunction with the Environmental Statistics Section

Paul Agnew (UK Met Office)

Computing modelled estimates of air pollution at high spatial and temporal scales.

Sabyasachi Mukhopadhyay (University of Southampton)

Using spatio-temporal statistical methodology to fuse modelled and monitored pollution concentrations in irregularly shaped regions

Alastair Rushworth (University of Glasgow)

Gaussian Markov Random Field models for capturing localized residual spatio-temporal confounding in air pollution and health studies

Chair: Marian Scott (University of Glasgow)

## PD2 - Giving a memorable presentation - Barbirolli Suite

Presented by Jenny Freeman (University of Leeds)

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## 1.20pm - 2.20pm Lunch

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### 1.30pm

#### Young Statisticians Section Reception City Bar, Sheffield City Hall

Lunch and wine provided!

Come and meet fellow career-young statisticians (first 10 years in the profession) over lunch - and enjoy some free wine! All welcome, no need to reserve a place.

Event kindly sponsored by The Glass Academy

## 2.30pm - 4pm

### 3.1 Invited - Data visualisation - storytelling by numbers

Organised by the Social Statistics Section

From data to wisdom? Urban data visualisation as a policy tool  
Alasdair Rae (University of Sheffield, UK)

'How Well Do You Know Your Area?' - Gamifying census results via participative visualisation

Alan Smith (Office for National Statistics, UK)

What Will Happen To Data Without Statisticians? The Growth of Data Visualisation In The Wrong Hands

David Lewis (Audienenet Ltd. UK)

Chair: Chris Kershaw (Home Office)

### 3.2 Invited - Papers from the Journal of the Royal Statistical Society - Memorial Hall

Organised by the Publications Network of Advisors

K.J.Gile (University of Massachusetts, Amherst)

Series A: Diagnostics for respondent-driven sampling

P. Naveau (Laboratoire des Sciences du Climat et de l'Environnement, Gif-sur-Yvette, France)

Series B: A non-parametric entropy-based approach to detect changes in climate extremes

I.C. Gormley (University College Dublin)

Series C: A dynamic probabilistic principal components model for the analysis of longitudinal metabolomics data

Chair: Linda Sharples

### 3.3 Invited - Data collection challenges in Establishment Surveys - North Hall

Organised by the ENBES, the European Network for Better Establishment Statistics

Causes, consequences and measurement of response burden: With implications for the design of business surveys  
Jacqui Jones (Office for National Statistics, UK)

On the relationship between response burden and response quality in official establishment surveys  
Kari-Anne Lund (Statistics Norway, Norway)

Questionnaire Testing and Evaluation in Establishment Surveys  
Deirdre Giesen (Statistics Netherlands, The Netherlands)

Increasing motivation for better reporting in establishment surveys  
Mojca Bavdaž (University of Ljubljana, Slovenia)

Chair: Shirley Coleman

### PD3 - An introduction to working with the media - Barbirolli Suite

Organised by the Science Media Centre and the RSS getstats campaign.

Scott Keir, Head of education and statistical literacy, RSS, Fiona Lethbridge, Science Media Centre – introductions

How can you help to improve media reporting of scientific and statistical stories? Led by the Science Media Centre, this session presents a whistle-stop tour of the realities of the news media, offering a beginner's guide to some of the key issues. A panel of journalists and statisticians will share their experiences and provide invaluable advice on working with the media.

The session will highlight ways to get involved, how best to work with your own institution's press office and opportunities to work with the Science Media Centre.





## 4pm - 4.30pm Coffee

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### 4.30pm - 5.30pm

#### 4.1 Contributed - Communication of Statistical Ideas - Memorial Hall

Normal Enough? Lost Lessons of the Masters  
Neil Spencer (University of Hertfordshire, UK)

A Statistical Analysis Assistant – the future or folly?  
William Browne (University of Bristol, UK)

Visual Assessment of Cluster Structure via Dendrograms  
Nema Dean (University of Glasgow, UK)

Chair: Paul Northrop

#### 4.2 Contributed - Time Series - South Hall

Semi-parametric inference of time series using the Whittle Likelihood  
Adam Sykulski (NorthWest Research Associates, USA, University College London, UK)

Dealing with Missing Data in Spectral Analysis  
Audrey Kueh (Warwick University, UK)  
Penalized Likelihood Estimation in High-Dimensional Time Series Models and Its Application  
Yoshimasa Uematsu (Institute of Statistical Mathematics, Japan)

Chair: TBC

#### 4.3 Contributed - Government surveys and evaluation Vincent Harris Suite

Standard error estimation of regional estimates from the Annual Business Survey  
Jennifer Davies (Office for National Statistics, UK)

Evaluation in Government  
Phil Bradburn (National Audit Office, UK)

Exiting Unemployment: An Analysis Using the Australian Longitudinal Labour Force Survey File  
Cristian Rotaru (Australian Bureau of Statistics, Australia)

Chair: Louise Lloyd

#### 4.4 Contributed - Medical - Dressing Rooms

Analysis for single patient studies  
Paul Garthwaite (Open University, UK)

A Method for evaluating accumulating scientific evidence: Application to public health policy and deciding product liability cases.  
Joseph Gastwirth (George Washington University, USA)

Methods for Accounting for Measurement Error in Mediation Models as Applied to the MRC Pre-School Autism Communication Trial  
Victoria Harris (PACT Consortium - Institute of Psychiatry, UK)

Chair: Jamie Kirkham

#### 4.5 Contributed - Data Science - North Hall

Investigating the Impact of Longitudinal Outliers: The use of Robust Joint Models  
Lisa McCrink (Queen's University Belfast, UK)

Optimal design of experiments on social networks  
Steven Gilmour (University of Southampton, UK)  
Restricted b-spline models for longitudinal data analysis  
Geoff Jones (Massey University, New Zealand)

Chair: Daphne Kounali

#### 4.6 Contributed - Challenges for the Statistician - Oval Hall

Small Island Statistics in a world of Big Data  
Paula McLeod (St Helena Statistics Office, Saint Helena, & Office for National Statistics, UK)

The PLEASANT Trial: A Personal Perspective of a Statistician being a Chief Investigator  
Steven Julious (University of Sheffield, UK)

African Institute for Mathematical Sciences: opportunities for statistical capacity building.  
Jane Hutton (University of Warwick, UK)

Chair: Elizabeth Boggis

#### PD4 - Best practice for running courses - Barbirolli Suite

Presenters: Nigel Marriott and Shirley Coleman

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### 5.45pm - 7pm

#### Royal Statistical Society Awards Ceremony Oval Hall

see pages 12 - 16

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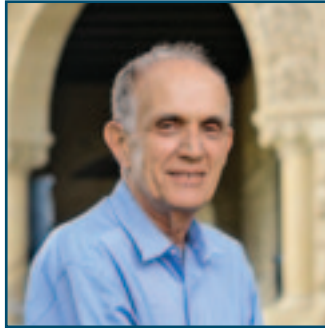
### 7pm - 8.30pm

#### Awards and Poster Reception Ballroom

See pages 17 - 20 for the list of posters being presented

## Society Honours

### Guy Medal in Gold Bradley Efron



Bradley Efron is the Max H. Stein Professor of Statistics and Biostatistics at Stanford University's School of Humanities and Sciences and the Department of Health Research and Policy with the School of Medicine. He completed his undergraduate work in mathematics at the California Institute of Technology, and earned his doctorate in statistics from Stanford in 1964, joining the Stanford faculty that same year. He was Associate Dean for the School of Humanities and Sciences from 1987 to 1990, served a term as Chair of the Faculty Senate as well as three terms as Chair of the Department of Statistics, and continues as Chairman of the Mathematical

and Computational Sciences Program. He has served as president of the American Statistical Association and of the Institute of Mathematical Statistics. He is a past editor of the Journal of the American Statistical Association and was the founding editor of the Annals of Applied Statistics. Among the numerous honours that Efron has received are Fellowships of the American Academy of Arts and Sciences, the American Statistical Association, the Institute of Mathematical Statistics, the Royal Statistical Society, the International Statistical Institute and the MacArthur Fellows Program of the John D. and Catherine T. MacArthur Foundation. He is a member of the US National Academy of Sciences, a recipient of the Ford Prize of the Mathematical Association of America and of both the Wilks Medal and the Noether Prize of the American Statistical Association. Efron was awarded the 1998 Parzen Prize for Statistical Innovation by Texas A&M University, and the first-ever Rao Prize for outstanding research in statistics by Pennsylvania State University in 2003.

Efron received the 2005 National Medal of Science "for his contributions to theoretical and applied statistics, especially the bootstrap sampling technique; for his extraordinary geometric insight into nonlinear statistical problems; and for applications in medicine, physics and astronomy." In 2014, he was awarded the Guy Medal in Gold by the Royal Statistical Society, an honour bestowed only every three years, "in recognition of his hugely influential contributions to both theoretical and applied statistics." The published citation continues: "He has made seminal

contributions to many areas of statistics, including empirical Bayes analysis, the analysis of survival data, applications of differential geometry to statistical theory, and analysis of multiple testing problems in inference for gene expression data. He is best known for his introduction of the bootstrap method of statistical inference. His work is characterised by its depth, simplicity of presentation, geometric insights and by a desire to understand statistical procedures from both frequentist and Bayesian perspectives."

### Guy Medal in Silver Jianqing Fan



Jianqing Fan is Frederick L. Moore Professor of Finance, Professor of Statistics, Chairman of Department of Operations Research and Financial Engineering, and Director of Committee of Statistical Studies, Princeton University, where he directs both financial econometrics and statistics labs. He was the past president of the Institute of Mathematical Statistics and International Chinese Statistical Association, and was an invited speaker at the 2006 International Congress of Mathematicians. He is co-editing Journal of Econometrics and is an and Journal of American Statistical Association, and was the co-editor of The Annals of Statistics, Probability Theory and Related Fields and Econometrics

Journal. After receiving his Ph.D. from the University of California at Berkeley in 1989, he has been appointed as assistant, associate, and full professor at the University of North Carolina at Chapel Hill (1989-2003), professor at the University of California at Los Angeles (1997-2000), Professor and Chairman at Chinese University of Hong Kong (2000-2003), and professor at Princeton University (2003--). His published work on statistics, computational biology, and finance has been recognized by the 2000 COPSS Presidents' Award, the Myrto Lefkopoulou distinguished lecture of Harvard School of Public Health, the 2007 Morningside Gold Medal of Applied Mathematics, Guggenheim Fellow in 2009, and election to Academician of Academia Sinica and fellow of American Associations for Advancement of Science, Institute of Mathematical Statistics, and American Statistical Association.





**Guy Medal in Bronze**  
**Ming Yuan**



Ming Yuan is Professor at Department of Statistics at University of Wisconsin-Madison and Senior Investigator at Morgridge Institute for Research. He was previously Coca-Cola Junior Professor in the H. Milton School of Industrial and Systems Engineering at Georgia Institute of

Technology. He received his Ph.D. in Statistics and M.S. in Computer Science from University of Wisconsin-Madison. Dr. Yuan is currently serving on editorial boards of The Annals of Statistics, Electronic Journal of Statistics, and Journal of the Royal Statistical Society Series B. Dr. Yuan was awarded the John van Ryzin Award in 2004 by ENAR, and CAREER Award in 2009 by NSF. He was also named a Distinguished Cancer Scholar by the Georgia Cancer Coalition in 2007.

**Chambers Medal**  
**Jenny Lannon**



Principal Statistician, NHS Blood and Transplant, Bristol.

Jenny began her statistical career by studying Mathematics and Statistics at Plymouth University in 2003, followed by an MSc in Biometry and PhD at the University of Reading. Her thesis was an Applied Statistics project in physical geography and focused on modelling evaporation and soil moisture in order to predict nitrate levels in rivers. It was during her PhD that Jenny acted as the first chair of the Royal Statistical Society's Young Statisticians Section (YSS).

Following her PhD Jenny trained as an actuary for two years. Whilst the fast pace and the challenge of the actuarial industry was enjoyable, she was drawn back to her statistical roots and made the decision to become a statistician, firstly by working in environmental consultancy as a statistical consultant but later moving to NHS Blood and Transplant (NHSBT). NHSBT is a Special Health Authority with responsibility for coordinating the UK organ donation and transplantation service as well as managing the national blood and tissue services in England and Wales. Jenny has been a principal statistician at NHSBT since July 2013, specialising in heart and lung transplantation. The science behind transplantation is continuously evolving and there a need to reduce the substantial gap between the number of patients waiting for a transplant and the much lower number of donated organs. The research Jenny is involved in aids the evaluation of new technologies (for example ventricular assisting devices) and ultimately contributes to our knowledge and understanding of the donation to transplantation pathway.

## Awards Ceremony

### Excellence Awards Winners:

#### Award for Statistical Excellence in the Pharmaceutical Industry

Craig Mallinckrodt  
Eli Lilly & Company, Indianapolis, Indiana  
for  
"A conceptual, technical and practical framework for missing data in longitudinal clinical studies"



Dr. Mallinckrodt received his PhD in 1993 from Colorado State University, where he subsequently held a joint appointment in the departments of statistics and clinical sciences. Craig joined Eli Lilly & Co in 1998 and has extensive drug development experience covering all four clinical

phases in multiple therapeutic areas. Dr. Mallinckrodt has published extensively on missing data and other methodology issues in clinical trials. He led the PhRMA missing data expert team and currently leads the Drug Information Association Scientific Working Group on missing data. Dr. Mallinckrodt is a Fellow of the American Statistical Association. His book titled: A Practical Guide to the Prevention and Treatment of Missing Data is the result of his collaborations across industry and academia, and is the focus of his award for excellence in the pharmaceutical industry from the Royal Statistical Society

## Awards for Statistical Excellence in Official Statistics

Main award: Joint Winners  
Justice Data Lab Team  
Ministry of Justice for the Justice Data Lab



Team members:  
Ann-Marie Jordan  
Georgina Eaton  
Tillie Paul  
Nicola Webb  
James Riley

The Justice Data Lab was launched in April 2013, by the Ministry of Justice. Early in 2012, the Ministry of Justice recognised that there was a real issue for organisations that work with offenders, particularly those in the Voluntary and Community Sector, being able to access central re-offending data. This meant that these organisations really struggled to understand how they were having an impact – and in some cases meaning they couldn't evidence bids for funding.

During 2012, the Ministry of Justice spent time working with users to develop a service offering that would provide this sensitive personal data in a way which was helpful to customers, funders, and the Government bodies alike. In October 2012 the team was formally established and worked towards launching the service in April 2013.

Since launching the service, the team continue to make time to talk to, and meet with our users – this is an enjoyable part of our work, and helps us understand how our analysis is ultimately used to improve services with offenders.

Joint winner:

National Energy Efficiency Data (NEED) Team  
Department for Energy and Climate Change  
for The National Energy Efficiency Data-framework

Team members:  
Mark Gardner  
Mary Gregory  
Victoria Obudulu  
Claire Pini  
Sam Stadnyk

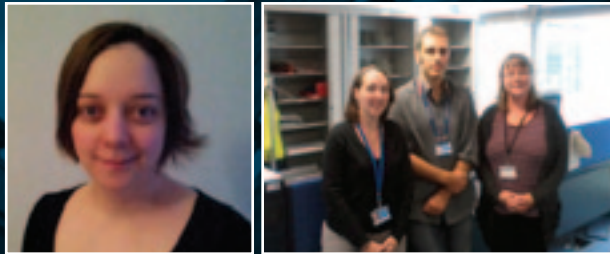
The National Energy Efficiency Data-Framework (NEED) is an innovative data linking project that utilises a mix of private and public sector admin data to provide a deeper insight into the use of energy in homes and help understand the savings following installation of energy efficiency measures. The team produce and publish analysis from the framework, making a significant contribution to DECC policy. The work also supports private sector activity and is at the forefront of work on the release of anonymised data.





## Most improved Statistical Release: Winner

Children and Families Statistics, Scottish Government.



Team members:  
Carrie Graham  
Sara White  
Ian Volante  
Denise MacLeod.

The Children and Families Statistics team produce Scottish data on vulnerable children and pre-school children. One of their key statistical publications is the annual Children's Social Work Statistics which provides demographic information on children who are looked after, on the child protection register or in secure accommodation.

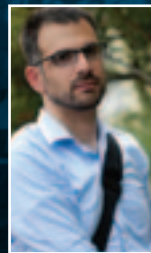
## Awards for Statistical Excellence in Journalism

Broadcast category  
Winner - BBC 100 Women  
for 100 Women - What Chance Does a Young Girl Have?

This data-based animation opened the three-week BBC 100 Women season on BBC World News TV, [bbc.com/news](http://bbc.com/news), and BBC World Service radio. Commissioned for TV, the piece is really a multiplatform offering, running prominently on TV and online, and even being adapted into a radio soundscape for World Service. We used data to form a narrative, which helped tell a story that anyone could easily understand and access.

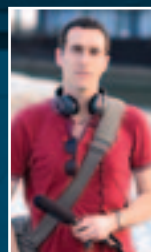
Team members:

David Botti



David is a video journalist based in the BBC's bureau in Washington DC. He reports for all BBC outlets from across the US, and currently produces a weekly stats-based animated video series called Face Facts.

Adam Blenford



Adam is a digital journalist working across BBC global news output, who oversaw all online content for the 100 Women season. He works in London high-impact projects and daily digital news coverage.

Fiona Crack



Fiona was the editor of BBC 100 women. She is a Planning Editor for BBC News, and works with teams in 27 languages to commission and deliver content for television, radio and digital.

Highly Commended - More or Less  
for "An Army of Drunken Children?"

James Fletcher with Richard Vadon, Tim Harford, Hannah Barnes and Ruth Alexander

Radio 4's statistics programme, has now been going for 10 years. The creators of the programme, Andrew Dilnot and Michael Blastland, thought that the media was failing to use numbers properly to explain the world around us. The programme continues to investigate and explain the use of numbers in public debate, showing both how statistics can be mis-used, but importantly also how statistics used properly can provide a real insight into our society. These days More or Less is presented by Tim Harford, and is produced in co-operation with the Open University.

Highly Commended - The Infinite Monkey Cage Team



Presenters: Brian Cox and Robin Ince  
Producer: Rami Tzabar  
Production Co-Ordinator Maria Simons  
Editor: Deborah Cohen  
The Infinite Monkey Cage: 'Risk'

Print category

Joint winner  
James Ball of The Guardian



James Ball is the special projects editor for Guardian US, based in the New York office. He was the Washington Post Laurence Stern Fellow for 2012.

Joint winner  
Jan Piotrowski of The Economist.  
How Science Goes wrong



Jan Piotrowski is The Economist's São Paulo bureau chief. Previously he was the online science editor from 2010, having joined The Economist following a three-month stint as the Richard Casement science intern in 2008. He wrote extensively on research in various areas, from evolutionary psychology to fundamental physics, as well as contemporary problems with the scientific method. He is a regular contributor to "The World In" annual compilation of forecasts, which examines the critical issues that will shape the year ahead, as well as a number of Economist blogs, including Americas View, Babbage and Game Theory. Mr Piotrowski holds a PhD in linguistics and philosophy of language from Warsaw University, where he lectured in semantics and translation theory. Before joining The Economist, he also worked as a translator and interpreter.

Online category

Chris Cook, Martin Stabe and Cleve Jones of the Financial Times.



The Problem with Education Statistics

Chris was the FT's education correspondent from 2010 to 2013, and was subsequently appointed as the newspaper's executive comment editor. Prior to that,

he was a leader writer on the newspaper, worked for the Conservative party and studied economic history at university.

He is now BBC Newsnight's policy editor, covering the real-world consequences of decisions made by the politicians. In this role, he covers everything from schooling, health and hunger through to budgets and banks.



Martin Stabe, Head of Interactive News, Financial Times Martin Stabe is head of interactive news at the Financial Times, leading a team of data journalists, designers and web developers tasked with producing innovative, data-driven forms of online storytelling for FT.com. The team supports FT investigations

with data collection and analysis, and produces news applications, interactive graphics and online maps. He joined the FT in 2010 from business-to-business publisher Emap, where he was online editor of Retail Week. He began his career as a reporter covering digital media for British newspaper industry magazine Press Gazette.



Cleve Jones, Interactive Design Journalist, Financial Times Cleve Jones has been an designer with the Financial Times' interactive news team since it was founded in 2005. He joined the FT in 1994, working on the newspaper before shifting to FT.com in 1998.





## Poster Listing

Posters will be on display throughout the conference in the exhibition and catering area with a wine reception dedicated to viewing the posters scheduled for the evening of Tuesday 2 September following the Society's awards ceremony.

Please note this listing is provisional – a final listing with poster board numbers allocated will be available at the conference.

### Optimum Allocation of Multi-Items in Stratified Random Sampling using Principal Component Analysis

Olaniyi Mathew Olayiwola (Federal University Of Agriculture, Abeokuta, Nigeria)

### Causal Inference through IV estimation - The effect of domestic violence on neonatal & infant mortality.

Seetha Menon (University of Essex, UK)

### A Proposed New Information Criterion for Order Determination in Time Series Modelling

Olanrewaju Shittu (University of Ibadan, Ibadan, Nigeria)

### Age Effect on Players' Performance in Twenty20 Cricket

Atanu Bhattacharjee (Malabar Cancer Centre, Thalassery, Kerala, India)

### Multilevel Modeling of Two Level Survey Data

Shafquat Rozi (Aga Khan University, Karachi, Pakistan)

### Cricket Captain's Dilemma: Selecting the Remaining Players

Hemanta Saikia (The Assam Kaziranga University, Jorhat, Assam, India)

### Statistical analysis and modelling of climatic variables

T. O. OLATAYO (Olabisi Onabanjo University, Ogun State, Nigeria)

### Nonparametric Predictive Inference for Bivariate Copulas

Noryanti Muhammad (Durham University, UK)

### Advancing the methodology behind multilevel small area synthetic estimates: incorporating orthogonal polynomials into the estimation process

Joanna Taylor (University of Southampton, UK)

### Modelling Road Traffic Crashes Using Variants of Spatial Autoregressive (SAR) Models

Grace Korter (University of Ibadan, & Federal Polytechnic, Kwara State, Nigeria)

### Bayesian Analysis of Seemingly Unrelated Regression Model with Measurement Errors

Anoop Chaturvedi (University of Allahabad, India)

### Interpreting p-values in the light of prior evidence: deepening understanding of statistical significance

Hilary Watt (Imperial College, London, UK)

### Determining the safety impact of changing street lighting

Paul Marchant (Leeds Metropolitan University, & University of Leeds, UK)

### The Disagreeable Behaviour of the Kappa Statistic

Laura Flight (University of Sheffield, UK)

### What motivation drives Aikido training in Kangeiko?

Lu Zou (Queen Mary University of London, UK)

### Forecasting seasonal data and nonparametric unit-root tests

Robert Kunst (University of Vienna, & Institute for Advanced Studies, Vienna, Austria)

### Don Bradman: sporting genius and statistical outlier?

Stephen Walters (University of Sheffield, UK)

### Recruitment and retention of participants in publicly funded randomised controlled trials in the UK

Christopher Knox (University of Sheffield, UK)

### The statistical interpretation of pilot trials: estimation instead of significance testing

Richard Jacques (School of Health and Related Research, University of Sheffield, UK)

### Direct Risk Standardisation: A New Method for Comparing Casemix Adjusted Event Rates

Richard Jacques (School of Health and Related Research, University of Sheffield, UK)

### Multiple imputation in clinical trials: Should treatment group be included in the imputation equation?

Ellen Lee (University of Sheffield, UK)

### Measuring Group Diversity with Incomplete Data

Jeremy Dawson (University of Sheffield, UK)

### The Office for National Statistics Longitudinal Study

Nicky Rogers (Office for National Statistics, Fareham, UK)

### Bayesian extreme value prediction using reference priors

Paul Northrop (University College London, UK)

Random effects models for binary data: generation and estimation

Ilyas Bakbergenuly (University of East Anglia, UK)

Exact A- and D-Optimality Criteria for Partial Replication of the Central Composite Designs

Eugene Ukaegbu (University of Nigeria, Nsukka, Enugu State, Nigeria)

Prediction of equine fatal injuries in Thoroughbred flat racing in North America

Stamatis P. Georgopoulos (Boyd Orr Centre for Population and Ecosystem Health, University of Glasgow, UK)

On the Presentation of Results of Bayesian Inference on Statistical Models Containing Categorical Explanatory Variables.

Apostolos Gkatzionis (University of Warwick, UK)

Surrogate endpoint evaluation for ordinal outcomes: an information theory approach

Hannah Ensor (University of Edinburgh, UK)

Linear mixed effects models for the comparison of gastric emptying patterns in preterm infants

Anna Hepworth (The University of Western Australia, Australia)

Intention to treat verses completed treatment – modelling the effect of improved compliance

Anna Hepworth (The University of Western Australia, Australia)

Comparing outcomes following kidney transplantation from donation after circulatory death and donation after brain stem death: A propensity score approach

Sally Rushton (NHS Blood and Transplant, Bristol, UK)

Estimating the prevalence of female genital mutilation in England and Wales

Alison Macfarlane (City University London, UK)

Practical issues in ordinal response modelling

Altea Lorenzo-Arribas (Biomathematics and Statistics Scotland, UK)

How big is big? Identifying which numbers in a series are significant, and applying them to migration.

Timothy Martyn Hill (Liverpool Victoria, Bournemouth, & ONS, Fareham, UK)

Calibration Approaches for Disease Models

Arthur White (Trinity College Dublin, Ireland)

An Application of Regression Modelling to the Incidence and Mortality Rates of Children from Tuberculosis in London and Glasgow at the Turn of the 20th Century

Gordon Hunter (Kingston University, UK)

Evaluation of the Prediction Capabilities of Partially Replicated Orthogonal Central Composite Designs

Polycarp Chigbu (University of Nigeria, Nsukka, Nigeria)

Comparison of methods for imputing limited-range variables

Laura Rodwell (Murdoch Childrens Research Institute, Melbourne, & University of Melbourne, Australia)

Blogging in Biostatistics: impact metrics and social network analysis

Altea Lorenzo-Arribas (Biomathematics and Statistics Scotland, UK)

Multivariate and Multilevel Logistic Regression Analysis of Infant Mortality Rates across the Six Geopolitical Zones of Nigeria

Phillips Obasohan (Niger State Polytechnic, Bida, Nigeria)

Developing, validating and recalibrating a competing risks prognostic model for kidney failure patients.

Lucy Riley (Keele University, UK)

Benzodiazepine drug dispensing and risk of abuse

Ingunn Fridtveit (The Norwegian Computing Center, Oslo, Norway)

Modelling neonatal electroencephalogram signals in response to noxious and tactile stimuli

Simon Wallace (University College London, UK)

ONS business survey returns: Winsorisation vs trimming for treating outliers

Laura Mulcahy (Office for National Statistics, Newport, UK)

Normalization of plant gene expression data using support vector machine for identification of differentially expressed genes

Kishore K Das (Gauhati University, Guwahati, Assam, India)

Estimating population characteristics of psychometric function using adaptive rules

Mark Edmondson-Jones (NIHR Nottingham Hearing Biomedical Research Unit, Nottingham, & Otology and Hearing group, Division of Clinical Neuroscience, University of Nottingham, UK)

Modelling Chronic Disease Progression in Longitudinal (General Practice) records.

Rosemary O'Neil<sup>1</sup>, <sup>1</sup>Kingston University London, London, UK





How much confidence should we have in the confidence interval for a proportion?

Sam Ellis (Defence Ordnance Safety Group, Defence Equipment & Support, Bristol, UK)

Optimising options and strategies for living donor kidney transplantation for incompatible donor-patient pairs

Matthew Robb (NHS Blood and Transplant, Bristol, UK)

Improving the Segmentation of Consumer Databases

Steve Wisher (Information by Design, Hull, UK)

The impact of including incorrectly analysed time to event data in meta-analysis

Kerry Dwan (University of Liverpool, UK)

A geometric treatment of overdispersion in binomial regression models

Karim Anaya-Izquierdo (University of Bath, UK)

On development of Hyperbolic nonlinear growth models for application in Life Sciences and Environmental Studies

Oluwafemi Oyamakin (University of Ibadan, Nigeria)

What is Normal? A Meta-Analysis of Phase 1 Placebo Data

Simon Kirby (Pfizer, Cambridge, UK)

Statistical methods to manage treatment non-compliance in RCTs with time-to-event outcomes (VenUS IV trial)

Caroline Fairhurst (York Trials Unit, University of York, UK)

Dietary patterns amongst the United Kingdom adult population. A cross-sectional analysis of data from the National Diet and Nutrition Survey.

Benjamin Kearns (University of Sheffield, UK)

Patient characteristics associated with survival of 60+ year olds with a history of myocardial infarction using the UK THIN Data

L.A. Gitsels (University of East Anglia, UK)

Random effect meta-analysis of individual patient time-to-event outcomes

Wirda Nisar (University of Liverpool, UK)

Reporting the use of Statistical Regression Models in Economic Evaluations - a Review and Good Practice Guidelines.

Benjamin Kearns (University of Sheffield, UK)

Higher education: who goes, who doesn't

Leyla Bagherli (Higher Education Funding Council for England, Bristol, UK)

Prediction of the People lost follow up on Antiretroviral Therapy (ART) Services in Nepal: A Statistical Modelling

Brijesh Sathian (Manipal College of Medical Sciences, Pokhara, Kaski, Nepal)

Developing Robust Scoring Methods for use in Child Assessment Tools.

Phillip Gichuru (Lancaster University, UK)

Estimating the burden of childhood tuberculosis in the twenty-two high burden countries: a mathematical modelling study

Peter Dodd (University of Sheffield, UK)

Mexican adult cancer patients' supportive care needs: validation of the Mexican version of the Short-Form Supportive Care Needs questionnaire (SCNS-SFM).

Svetlana Doubova (Instituto Mexicano del Seguro Social, Mexico)

Reporting of harms data in orlistat trials: A comparison between clinical study reports and journal publications.

Alex Hodgkinson (Liverpool University, UK)

Measuring wellbeing: great idea, but what's the use?

Paul Allin (Imperial College, London, UK)

Modelling the abundance of *Culex pipiens* in Portugal

Marilia Antunes (Universidade de Lisboa, & CEAUL, Lisboa, Portugal)

Chain Event Graphs for assessing information in missing data

Jane L Hutton (University of Warwick, UK)

African Institute for Mathematical Sciences: opportunities for statistical capacity building.

Jane L Hutton (University of Warwick, UK)

High Density Linkage Mapping using Multidimensional Scaling

Katharine Preedy (Biomathematics and Statistics Scotland, UK)

Modelling the foraging behaviour of terns

Jacqueline Potts (Biomathematics and Statistics Scotland, Aberdeen, UK)

An approach for summarising the association of multiple correlated features

Marina Evangelou (Cambridge Institute for Medical Research, University of Cambridge, UK)

A Proposed Modification to the Smith-Satterthwaite Test for Autocorrelated Data

Nigel James (Sigmametrics Consulting, Sheffield, UK)

Emerging Topic: Energy Efficiency

Graham Johnson (EEVS Insight Ltd, London, UK)

Statistical Approach to MESS Epilepsy Data

Boryana Lopez (University of Warwick, UK)

Variation in cancer incidence (1996-2010) and mortality (1997-2011) by deprivation quintile, in England

Monika Ciurej (Cancer Research UK, London, UK)

Modelling risk of an adverse outcome in anticoagulated patients with a head injury

Joanne Rothwell (University of Sheffield, UK)

Inferences from confidence intervals based on small numbers of events: Lessons from a Cochrane Review Group

Matthew Grainge (University of Nottingham, UK)

Automatic generation of scientific theories to fit experimental data

Peter Sozou (University of Liverpool, & London School of Economics, UK)

MIM\_sim: A mixed-inheritance simulation package for testing hypothesised disease models within pedigrees

Alexandra Gillett (King's College London, UK)

On Determination of Economic Threshold Level - A Statistical Approach

Satyabrata Pal (Indian Statistical Institute, Kolkata, West Bengal, India)

Meta-analysis of logistic regression coefficients

Masayuki Henmi (The Institute of Statistical Mathematics, Tokyo, Japan)

Some Problematic Matters in Meta-Analysis

Paul Marchant (Leeds Metropolitan University, & University of Leeds, UK)

Temporal and Spatial Analysis of TB in Singapore

Sourav Das (National University of Singapore, Singapore)

Modelling Stroke Outcome Data over time

Jessica Potts (Keele University, UK) – prize winner 2014 Young Statisticians Meeting

Variable Selection for Latent Class Analysis

Michael Fop (University College Dublin - Insight Centre for Data Analytics, Ireland) - prize winner 2014 Research Students Conference

**YSS Tuesday night social  
and quiz (8pm till late)**

**All welcome!**

**Join the Young Statisticians Section  
for a social drink or three in some  
of Sheffield's finest watering holes,  
plus an optional general knowledge  
quiz (with prizes!)**

**Meet from 8pm in The Bessemer  
pub, just 2 minutes from the city  
hall - look out for our red YSS  
t-shirts!**

**Please arrive before 8:30pm if you'd  
like to enter the quiz.**





# WEDNESDAY

## 3 September

### 9am - 10am

#### 5.1 Invited – Young Statisticians Meeting 2014 Prize winners - Oval Hall

Experts Sharing Knowledge through Wikipedia - Experiences at the Office for National Statistics  
Hannah Thomas (Office for National Statistics, UK)

Predicting the Results of the Scottish Referendum  
Zhou Fang (Biomathematics and Statistics Scotland, UK)

Chair: Jenny Lannon

#### 5.2 Contributed - Statistical Methods & Theory Memorial Hall

Sufficient Dimension Reduction through Support Vector Machine variants  
Andreas Artemiou (Cardiff University, UK)

Fitting regression models with survey data  
Alastair Scott (University of Auckland, New Zealand)

Misspecified Model Approach for Sensitivity Analysis  
Nan Xuan Lin (University of Exeter Medical School, UK)

Chair: Daphne Kounali

#### 5.3 Contributed - Medical/Survival Data - North Hall

A practical divergence measure for survival distributions  
Trevor Cox (University of Liverpool, UK)

Statistical modelling of biomarkers incorporating non-proportional effects for survival data  
Jacqueline Stephen (University of Edinburgh, UK)

Chair: Jamie Kirkham

#### 5.4 Contributed - Roads and transport Vincent Harris Suite

Road worker safety trials: balancing statistical requirements with practical application  
Caroline Reeves (TRL, UK)

How DfT have embraced data visualisation to make statistics have an impact and reach new audiences  
Julie Brown (Department for Transport, UK)

The potential uptake of fully Electric Vehicles - does everybody want one?  
Louise Lloyd (TRL, UK)

Chair: Paul Northrop

#### 5.5 Contributed - Statistics in Sport South Hall

Time-varying ratings in association football: the all-time greatest team is...  
Ian McHale (University of Salford, UK)

An Investigation into Factors Affecting Who Wins Matches in Major Tennis and Volleyball Tournaments Using Official and "Page Ranking" Algorithms and Logistic Regression  
Gordon Hunter (Kingston University, UK)

A profitable adjustive rating system for NBA teams  
Jonathan Sargent (RMIT University, Australia)

PD5 - Writing for a non-specialist audience Barbirolli Suite  
Presenter: Julian Champkin (former editor, Significance)

Chair: Elizabeth Boggis

### 10.10am - 11.40am

#### 6.1 Invited - Statistical Analytics Challenge finalists - Oval Hall

Organised by the YSS and Research Section

Sponsored by Select Statistics

Overall winner:

Long-Range Spatiotemporal Dependence in fMRI Imaging Data

Team UCLStats - Beate Franke, Sam Livingstone, Alfredo Kalaitzis (University College London) & Michael Betancourt (Warwick University)

Highly commended:

Effect of smoothing halfwidth on estimated network structure in single-subject fMRI data

Team SODA - Chris Brignell, Phillip Paine, Wilhelm Braun, Heather Pettitt (University of Nottingham)

Chairs: Mark Girolami and Orlaith Burke

The AGM of the Young Statisticians Section will follow at the end of the session.

## 6.2 Invited - What does the ubiquity of data mean for Society? - Vincent Harris Suite

Speakers will include:  
Ulrich Atz (Open Data Institute)

Chair: Paul Askew

## 6.3 Invited - Quantum statistics - Memorial Hall

Richard Gill (University of Leiden)  
Statistics, causality and Bell's Theorem

David Gross (University of Freiburg)  
Nuclear-norm regularization for quantum and classical estimation problem

## 6.4 Invited - Statistics and Emergency Care - North Hall

Organised by the RSS Sheffield Local Group  
Introduction to Emergency care research in Sheffield  
Mike Campbell (SchARR, University of Sheffield)

Emergency system performance using Hospital Episode Statistics  
Jon Nicholl (University of Sheffield, UK)

Numbers attending A&E  
Suzanne Mason (University of Sheffield, UK)

The Trauma Audit and Research Network (TARN)  
Fiona Lecky (University of Sheffield, and Salford Royal Hospital NHS Foundation Trust, UK)

Explaining variation in emergency admissions  
Alicia O'Cathain (University of Sheffield, UK)

Chair: Mike Campbell

## 6.5 Invited - Statistics in Sport - South Hall

Organised by the Statistics in Sport Section

George Kavetos  
Assessing the impact of stadiums: Outlook, progress and challenges

Rob Mastrodomenico (Global Sports Statistics)  
Practising statistics in a fast moving environment: examples from the real world of sports statistics

Chair: Ian McHale

## 6.6 Contributed - Meta-analysis - Dressing Rooms

Bayesian meta-analysis without MCMC  
Kirsty Rhodes (MRC Biostatistics Unit, UK)

Outcome reporting bias in randomised controlled trial of pharmacological treatment for Rheumatoid Arthritis: an empirical assessment using multivariate meta-analysis.  
Giacomo Frosi (University of Liverpool, UK)

Incorporating external information on between-study heterogeneity in network meta-analysis  
Rebecca Turner (MRC Biostatistics Unit, UK)

Random effects meta-analysis model with Box-Cox transformation  
Yusuke Yamaguchi (Astellas Pharma Inc., Japan)

Chair: Daphne Kounali

## PD5 - Writing for a non-specialist audience (cont'd) Barbirolli Suite

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**11.40am - 12.10pm**      **Coffee**

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**12.10pm - 1.10pm**

## Plenary 2 - Significance Lecture - The Big Data trap - Oval Hall

'Big Data' is the catch-all term that is big news for business. Tim Harford looks at some of the most celebrated uses of 'big data' and asks whether we're at risk of forgetting some old and important statistical lessons.

Chair: Brian Tarran (Editor, Significance)

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**1.10pm - 2.30pm**      **Lunch**

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**2.30pm - 4pm**

## 7.2 Invited - Bayes meets Bellman Barbirolli Suite

Organised by the Statistical Computing Section

Bayes, bounds and Bellman  
Stephen Roberts (University of Oxford, UK)



Learning Dynamics and Control  
Carl Edward Rasmussen (University of Cambridge, UK)

Bayesian techniques for black-box optimization  
Matthew Hoffman (University of Cambridge, UK)

Bayesian Bandits, An Information Perspective  
Nathaniel Korda (Oxford University, UK)

Chair: lead Rezek

### **7.3 Invited - YSS/Significance Magazine Competition Finalists** **Oval Hall**

Organised by the Young Statistician Section

The finalists are Jonathan Lyle Auerbach, Nathan Cunningham and Katie Saunders

Chair: Jennifer Rogers

### **7.4 Invited - Measuring segregation** **Memorial Hall**

Statistics of Space, economy and Society  
Gwilym Pryce (University of Glasgow)

Inference for segregation indices in the presence of spatial autocorrelation  
Duncan Lee & Jon Minton (University of Glasgow)

Measuring residential ethnic segregation through demographic change  
Ludi Simpson & Nissa Finney (University of Manchester)

Characterising Multi-Scale Segregation  
Chris Lloyd (University of Liverpool)

Summary  
Gwilym Pryce (University of Glasgow)

Chair: Gwilym Pryce

### **7.5 Invited - Statistics in Sport** **South Hall**

Organised by the Statistics in Sport Section  
Siem Jan Koopman  
The Dynamic Skellam Model with Applications

Javier Lopez Pena  
A Markov model for football possession and its outcomes

Chair: Ian McHale

### **7.6 Contributed - Medical Statistics** **Dressing Rooms**

A Comparison of Multiple Imputation Methods for Handling Missing Data in Repeated Measurements Observational Studies  
Rumana Omar (University College London, UK)

Meta-analysis of time-to-event data: what can we do about missing Individual Participant Data?  
Sarah Nolan (University of Liverpool, UK)

Real time monitoring of progression towards renal failure in primary care patients  
Ozgur Asar (Lancaster University, UK)

Treating patients with Rheumatoid arthritis: a Mixed Treatment Comparison analysis of anti-TNF drug effects  
Ingunn Fride Tvette (The Norwegian Computing Center, Norway)

Chair: TBC

### **7.7 Invited - Nightingale's Legacy: The Value of Statistics to Society** **North Hall**

Organised by the Sheffield Local Group

Florence Nightingale and the use of graphics in health statistics  
Dame Valerie Beral (University of Oxford)

On Lamps  
Denise Lievesley (King's College London)

Orlaith Fraser (Office for National Statistics) Title TBC

Chair: Sara Hilditch (SSU, University of Sheffield) / Jenny Freeman (University of Leeds)

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**4pm - 4.20pm**      **Coffee**

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**4.20pm - 5.20pm**

### **8.1 Invited - Research Students Conference 2014 Prize winners - Oval Hall**

Central limit theorems and Markov chain Monte Carlo estimators  
Samuel Livingstone (University College London, UK)

'Keith Newman (Newcastle University) – Title TBC

Chair: TBC



## 8.2 Contributed - Bayesian methods - Memorial Hall

Convergence rates for Approximate Bayesian Computation  
Stuart Barber (University of Leeds, UK)

Sample size and classification error for Bayesian change-point models with unlabelled sub-groups and incomplete follow-up  
Simon White (MRC Biostatistics Unit, UK)

Bayesian Networks for sex-related homicides: structure learning and prediction  
Stephan Stahlschmidt (Humboldt-Universität zu Berlin, Germany)

Chair: Paul Northrop

## 8.3 Contributed - Medical/Observational data - North Hall

A comparison of multilevel multiple imputation techniques for Big Data in epidemiological research  
Paul Baxter (University of Leeds, UK)

Modelling progression in Parkinson's disease.  
Michael Schulzer (UBC Pacific Parkinson's Research Centre, Canada)

Introducing RAMMIE - a new hierarchical multi-level modelling approach to syndromic surveillance for public health.  
Roger Morbey (Public Health England, UK)

Chair: Jamie Kirkham

## 8.4 Contributed - Older people and Victims of theft Vincent Harris Suite

Who are the victims of theft from the person and robbery?  
Rebecca Thompson (Loughborough University, UK)

The impact of household and partner characteristics on the labour force participation of older women in England  
Jennifer Prattley (University of Manchester, UK)

Chair: Paul Askew

## 8.5 Contributed - Statistics in Sport (and Song) - South Hall

An Analysis of Home Advantage for Use in Predictive Models  
George Foulds (Lancaster University, & ATASS Sports, UK)

Accounting for Rink Effects in the National Hockey League's Real Time Scoring System  
Michael Schuckers (St. Lawrence University & United States Military Academy, USA)

Evidence of bias in the Eurovision song contest: modelling the votes using Bayesian hierarchical models  
Gianluca Baio (University College London, UK)

Chair: Elizabeth Boggis

## PD7 - CStat revalidation - experience to date and plans for 2015 - Dressing Rooms

Presenter: Trevor Lewis (RSS Theme Director for Professional Affairs)

## PD8 - An introduction to working with schools - Barbirolli Suite

Overview  
Scott Keir (Head of education and statistical literacy, RSS)  
Being a STEM Ambassador

Sarah Hill (Regional Networks Manager – Yorkshire and The Humber, STEMNET)  
Nuffield Research Placements

David Ward (Regional Coordinator - Yorks and Humberside, Nuffield Research Placements)  
One other TBC

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## 5.30pm - 6.20pm

### Plenary 3 - Removing unwanted variation - Oval Hall

Terry Speed (Walter and Eliza Hall Institute, Melbourne)

Chair: Mike Campbell

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## 7.30pm - 8pm

IOS/RSS Merger 21st Anniversary Reception  
Cutlers' Hall

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## 8pm until late

Conference Dinner - Cutlers' Hall

# THURSDAY

## 4 September

**9.20am - 10.40am**

### **9.1 Contributed - Statistics methods & theory/ regression - Dressing Rooms**

Measuring Asymmetry and Testing Symmetry  
Christopher Partlett (University of Birmingham, UK)

Inference for generalized linear mixed models with sparse structure  
Helen Ogden (University of Warwick, UK)

On the Computation of R-estimators  
Yuankun Wang (Lancaster University, UK)

Empirical likelihood confidence intervals for nonparametric nonstationary regression model  
Ryota Yabe (Hitotsubashi University, Japan)

Chair: Paul Clarke

### **9.2 Contributed - Loans, Prices, Inflation and the Income Gap - Oval Hall**

Forecasting student loan repayments

Helen Woodward (Department of Business, Innovation and Skills, UK)

Calculating retrospective consumer price indices using the Fisher and Tornqvist formulae  
Ria Sanderson (Office for National Statistics, UK)

Will the real inflation rate please stand up - overlooked "quirks" of a favoured chain-linking technique  
Jens Mehrhoff (Deutsche Bundesbank, Germany)

Crossing the income gap: understanding and presenting the evolution of income disparity in the UK  
Stefano Cecon (The Times and The Sunday Times Data Team, UK)

Chair: TBC

### **9.3 Contributed - Genetic sequencing - North Hall**

Using the Bayesian Normal Gamma prior to identify associated genetic sequence variants.  
Elizabeth Boggis (University of Sheffield, UK)

Statistical challenges from next-generation sequence data  
Arief Gusnanto (University of Leeds, UK)

Accurate statistical tests to detect changes in genome regulation using next-generation sequence data  
Ibrahim Nafisah (University of Leeds, UK, & King Saud University, Saudi Arabia)

Reconstructing population ancestry using wavelet methods  
Jean Sanderson (Massey University, New Zealand)

Chair: Andy Lynch

### **9.4 Contributed - Data linkage and privacy - Memorial Hall**

Using data linkage to create a national database of birth and maternity data  
Nirupa Dattani (City University London, UK)

Are Partially-Synthetic Data the Answer To Care.Data's Woes?  
Emmanuel Lazaridis (University College London, UK)

The Challenges of Consent in Linking Survey and Administrative Data: Evidence from The Millennium Cohort Study.  
Tarek Mostafa (Institute of Education, UK)

Extending log-linear capture-recapture models to handle erroneous records in linked administrative data to estimate population counts  
Dilek Yildiz (Southampton Statistical Sciences Research Institute, UK)

Chair: TBC

### **9.5 Contributed - Communication of Statistical Ideas - Vincent Harris Suite**

Five Steps for Analytical Insight  
Paul Askew (Chartered Society of Physiotherapy, UK)

Sequence analysis as a graphical tool for investigating call record data  
Olga Maslovskaya (University of Southampton, UK)



The right graph for the right audience  
Gordon Blunt (Gordon Blunt Analytics Ltd, UK)

Crocheting the Normal Distribution: Exploring Creative Public Engagement with Statistics  
Victoria Gorton (Lancaster University, UK)

Chair: Mike Campbell

### 9.6 Contributed - Trial design - South Hall

On a simple quickest detection rule for health-care technology assessment  
Jacco Thijssen (University of York, UK)

Sample size calculations for comparative pharmacoepidemiology surveillance studies in healthcare databases  
Nicholas Galwey (GlaxoSmithKline, UK)

How big should a pilot cluster randomised controlled trial be?  
Stephen Walters (University of Sheffield, UK)

Sequential Clinical Trial Design when Outcomes Arrive with Delay: a Bayes Decision-Theoretic Approach  
Martin Forster (University of York, UK)

Chair: Jamie Kirkham

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### 9.20am - 10.40am

**PD9 - Career development pathways for professional statisticians**

### 10.40am - 11.10am Coffee

### 11.10am - 12.40pm

**10.1 Invited - Checking and Cleaning in Big Data - Memorial Hall**

Organised by the Statistical Computing Section  
Efficient algorithms for statistical data editing and imputation  
Ton de Waal (Statistics Netherlands)

Beyond the codes: Making use of free text in health datasets  
Elizabeth Ford (Brighton & Sussex Medical School)

Speaker/Title TBC

Chair: Robert Grant (St George's Medical School & Kingston University)

**10.2 Invited - Mega Trends in Statistics – The past, present & future of statistical thinking- Vincent Harris Suite**

Organised by the Quality Improvement Section  
Introduction and why megatrends matter  
Nigel Marriott (Statistical Consulting Ltd)

The Ghosts of Statistics Past, Statistics Present & Statistics Future  
Tony Bendell (Services Ltd)

Are Statisticians shaping the Future of Statistical Thinking?  
Nigel Marriott (Marriott statistical Consulting Ltd)

Chair: Nigel Marriott

**10.3 Invited - Anonymisation Practices for Sharing Data - Oval Hall**

Organised by the University of Manchester

EUL or OGD: a penetration test on two survey datasets  
Mark Elliot (University of Manchester)

Data pseudonymisation and (privacy-preserving) record linkage  
Duncan Smith (University of Manchester)

New developments in data sharing and the application of data linkage in Scotland from a health perspective  
Anthea Springbett (NHS National Services Scotland, UK)

Discussant - Unifying perspective on anonymisation practices arising from the papers  
Natalie Shlomo (University of Manchester)

Chair: Scott Heald (Statistics Public Health & Intelligence)

**10.4 Invited - Floods: risk assessment, management and attribution to climate change - South Hall**

Towards realistic models of flood risk: a multivariate conditional exceedance approach to assess the probability of flood events  
Rob Lamb (JBA Trust)

Bayesian Uncertainty Analysis for Hydrological Computer Models  
Nathan Huntley (Durham University)

Climate change attribution of flood risk  
Myles Allen (University of Oxford)

Chair: Paul Northrop

## 12.40pm - 2pm Lunch

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### 2pm - 3.20pm

#### 11.1 Invited - Who's afraid of data science Oval Hall

Peter Diggle (Lancaster University)

Duncan Ross (Data Science, Teradata and Society of Data Miners)

Sylvia Richardson (MRC Biostatistics Unit Cambridge Institute of Public Health)

One speaker TBC

In recent years terms such as 'big data' and 'data science' have become relatively sexy. The statistical community has had a mixed relationship with these terms. Some have embraced them, others see them as representing something genuinely new and different, and many have felt they do not add much to what the discipline of statistics already covers. This panel session will bring a range of perspectives to the question of 'who is afraid of data science'? In other words how should the statistical community understand the rise of 'data science' and what might it mean for the future?

Chair: Hetan Shah (Executive Director)

#### 11.2 Invited - Advances in Astrostatistics - South Hall

Using Gaussian processes to detect and characterise exoplanets  
Suzanne Aigrain (University of Oxford)

Multi-modal nested sampling  
Farhan Feroz (University of Cambridge)

Sparsity and Compressive Sensin  
Jason McEwen (University College London)

Chair: Daniel Mortlock

#### 11.3 Invited - Exploiting large genetic data sets North Hall

Organised by the Medical Section

Casual inference from large genetic data sets  
Marloes Maathius (ETH Zurich)

Regression methods for gene mapping using imaging phenotypes  
Giovanni Montana (King's College London)

Chair: Nuala Sheehan and Dawn Teare

#### 11.4 Invited - Vic Barnett and his contributions to statistics - Memorial Hall

Organised by the General Applications and Environmental Statistics Sections

Statistics and Regulation, Inside and Outside  
Tony O'Hagan (University of Sheffield, UK)

Combining simulated and observed wind speed data:  
Generating risk maps for electric grid disruptions in Portugal  
K. Feridun Turkman (DEIO-CEAUL, Portugal)

Vic Barnett: some of his contributions to school statistics teaching.  
Peter Holmes (RSS Centre for Statistics Education, UK)

Chair: Marian Scott (University of Glasgow)

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### 3.20pm - 3.40pm Coffee

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### 3.40pm - 4.30pm

#### Plenary 4 - Recent advances in High Dimensional Covariance Matrix Estimation - Oval Hall

Ming Yuan (University of Wisconsin-Madison)



## Thanks and acknowledgements

### Members of the RSS Conferences & Events Programme Board

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and fellow staff at the Royal Statistical Society.

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### Venues

Andy Graham, Glenn Clark and colleagues at Sheffield City Hall

Lauren Greaves and colleagues at the Mercure St Pauls for the welcome reception

Kate Green and colleagues at Cutlers' Hall for the conference dinner

Dominic Wilson at SIV Events and Chloe Wood at Marketing Sheffield for venue sourcing and coordination of site visits, and Jane Tompkins at Marketing Sheffield for the accommodation and rail travel booking services

### DATES FOR YOUR DIARY

**RSS 2015 International Conference**  
**7-10 September 2015**  
**Exeter, South West England**  
More details available shortly from  
[www.rssconference.org.uk](http://www.rssconference.org.uk)

## Notes



## Notes

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# Short Course Programme 2014

## **Analysing Sectional and National Survey Data using Variable and Structural Equation Models**

29 & 30 September 2014

Latent variable models are a broad family of models that can be used to capture abstract concepts by means of multiple (continuous and/or categorical) indicators. They are often best known in the form of factor analysis and structural equation models. Day 1 introduces participants to latent trait models (continuous latent variables) and latent class models (categorical latent variables) and Day 2 to multiple group latent trait and latent class analyses. The course provides training in the use of the Mplus programme to carry out the analyses.

## **Add Value to your Organisation every day with Statistical Thinking**

27 October 2014

Statistical thinking should not be the preserve of technical experts. If your role requires you to understand and make use of statistical data and reports produced by other analysts then you need to be a statistical thinker as well. To see how Statistical Thinking will add value to your organisation, why not attend an enjoyable and eye-opening day on this course that will change the way you think. Like a taster menu in a restaurant, you will get a flavour of how Statistical Thinking can be applied to familiar business situations including risk management, forecasting, customer surveys, product trials, quality control and business improvement.

## **Questionnaire Design and Implementation for Web Surveys**

6 November 2014

This course is about how to create a visually effective, respondent-friendly web questionnaire and how to implement it in an optimal way. The course also covers general principles of questionnaire design which apply to web surveys and the unique aspects of web surveys (both the advantages and disadvantages).

## **Understanding and Analysing Data**

10 & 11 November 2014

This course will help delegates understand some basic statistical concepts and develop a strategy for approaching a simple data analysis. The course will introduce basic concepts such as hypothesis testing and confidence interval estimation. It will provide the tools to undertake a simple analysis of a dataset and include some helpful hints and tips for reading and understanding reported statistics.

## **Advanced Programming in R**

3 & 4 December 2014

This is a two-day intensive course on advanced aspects of R programming. This workshop is primarily aimed at R users who do not have a formal background in computing. The course will be a mixture of lectures and computer practicals and will cover conditional programming structures, functional programming, S3 and S4 objects.

## **Multilevel Modelling**

15 & 16 December 2014

This course is designed to give participants a solid grounding in the theory and application of multilevel models. The course will be based around theoretical sessions followed by 'hands on' practical sessions illustrating the theoretical concepts. The hands on sessions will use the MvM software package.

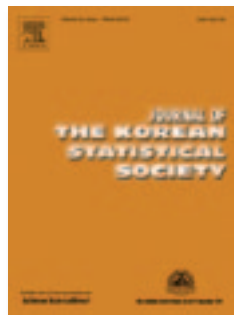
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