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RSS International Conference 2015

The conference
for all statisticians and
users of data

sponsored by



Welcome



It is my great honour to welcome you all to Exeter for the 2015 RSS Conference! After listening to your feedback, you will see that this year we have adopted a new streaming format to Conference which should allow you to easily identify sessions that are directly relevant to your area of expertise and interests. That being said, I do hope that you will take advantage of this unique opportunity to pop into sessions that you may not have access to elsewhere.

We have a great line-up of speakers and sessions organised for you, but I also hope that you will find some time for exploration. The Conference will be hosted in three

outstanding venues - The Forum (which all you Broadchurch fans may recognise as the Courtroom in the second series), the award winning Royal Albert Memorial Museum and the University's Great Hall.

Exeter is an ancient city with many notable landmarks, including the Cathedral which boasts an astronomical clock and the longest uninterrupted vaulted ceiling in England. Exeter will also be welcoming rugby fans from all over the world this year for the Rugby World Cup.

As one of the flagship events of the RSS, Conference remains an excellent platform for discussion and debate of statistical topics, with opportunities for professional development and networking or just catching up with friends.

I hope that you have an inspiring and rewarding conference!

Jen Rogers

RSS Honorary Officer, Meetings and Conference

Sponsor acknowledgements

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

ATASS Sports for their support of the overall conference and also for sponsoring the Young Statisticians' Quiz Night

Select Statistics for their support of the Statistical Analytics Challenge

Springer, Wiley and **Taylor & Francis** for their support of competition for best poster presentations.



Outline Timetable

Monday 7 September

9.30am – 5.30pm

Pre-conference short courses and workshops (The Forum)

7pm – 9pm

Welcome Reception (Royal Albert Memorial Museum)

Tuesday 8 September

9am – 9.30am

The Young Statisticians' Guide to the Conference

9.30am – 10.30am

Contributed sessions (1)

10.35am – 11.35am

Plenary 1

11.35am – 12 noon

Refreshment break

12 noon – 1.20pm

Invited sessions (2)

1.20pm – 2.10pm

Lunch (including Young Statisticians Reception from 1.30pm)

2.10pm – 3.30pm

Invited sessions (3)

3.30pm – 3.50pm

Refreshment break

3.50pm – 4.50pm

Invited/Contributed sessions (4)

5pm – 6pm

Plenary 2 - Champion (President's Invited) Lecture

6pm – 6.30pm

Royal Statistical Society Awards Ceremony

6.30pm – 8pm

Awards & Poster Reception (Street, The Forum)

8.45pm – late

Young Statisticians Quiz Night (Las Iguanas, 79-81 Queen St, Exeter)

Wednesday 9 September

9am – 10am

Invited/Contributed sessions (5)

10.05am – 11.25pm

Invited sessions (6)

11.25am – 11.50am

Refreshment break

11.50am – 1.10pm

Invited sessions (7)

1.10pm – 2.10pm Lunch

2.10pm – 3.10pm

Plenary 3 – Significance lecture

3.15pm – 4.15pm

Invited/Contributed sessions (8)

4.15pm – 4.40pm

Refreshment break

4.40pm – 6pm

Invited sessions (9)

6pm – 7pm

Special session

7.30pm – 8pm

Pre-dinner drinks (Great Hall, University of Exeter)

8pm until late

Conference Dinner (Great Hall, University of Exeter)

Thursday 10 September

9.10am – 10.10am

Contributed sessions (10)

10.15am – 11.15am

Plenary 4

11.15am – 11.40am

Refreshment break

11.40am – 1pm

Invited sessions (11)

1pm – 1.50pm Lunch

1.50pm – 3.10pm

Invited/Contributed sessions (12)

3.10pm – 3.30pm

Refreshment break

3.30pm – 4.40pm

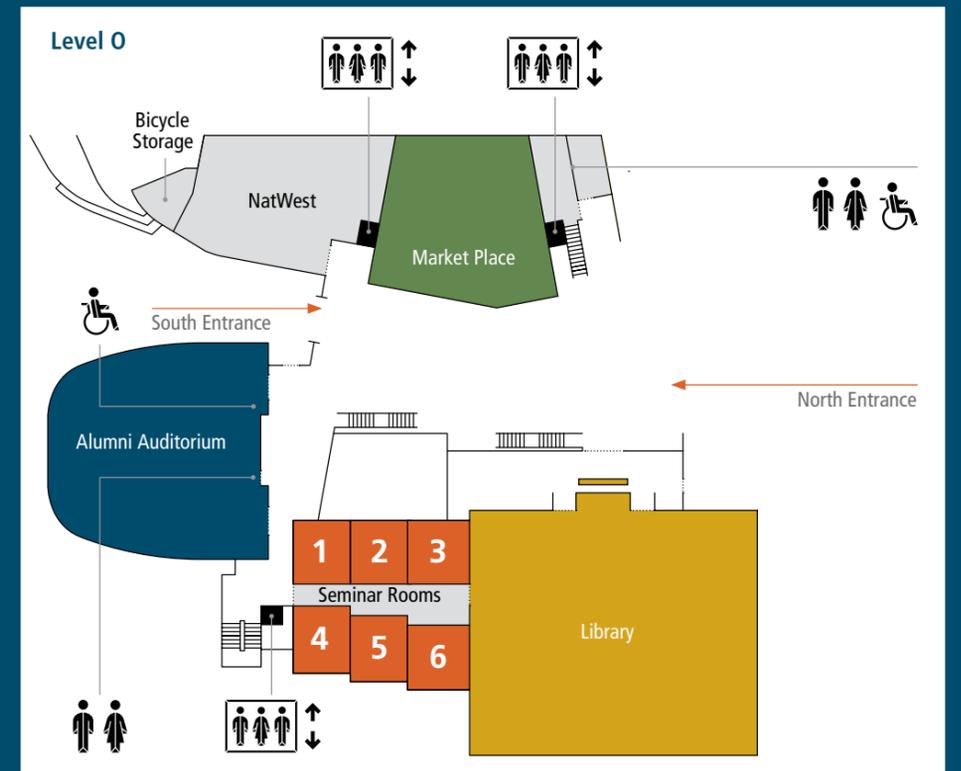
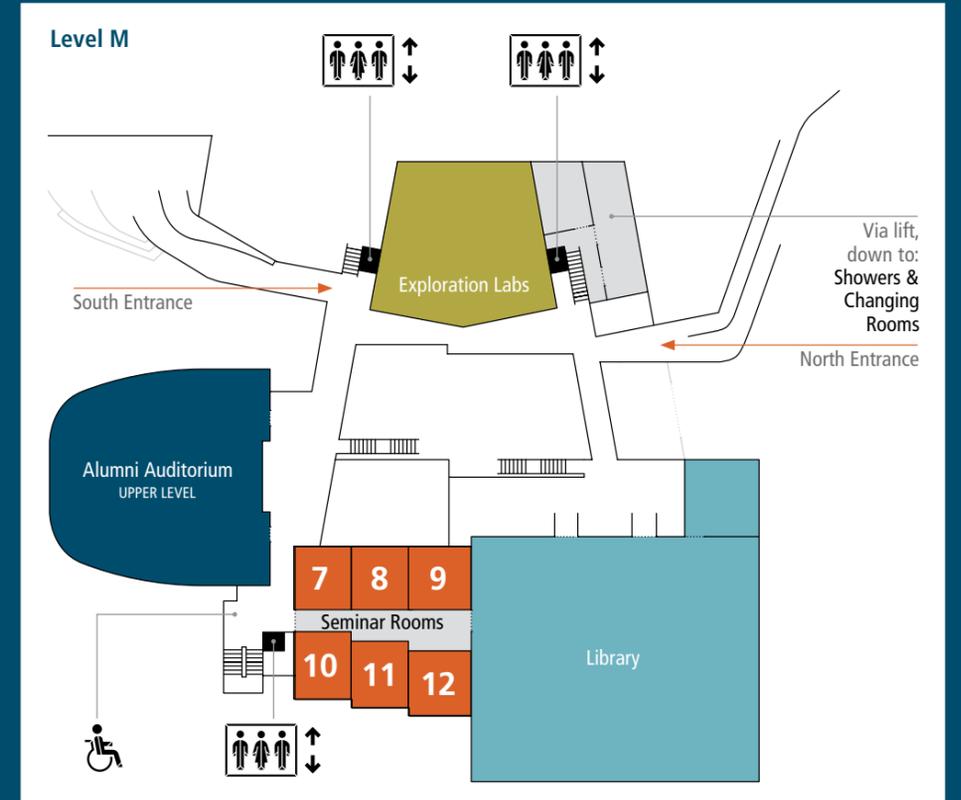
Plenary 5

4.40pm

Close of conference



Venue plan



Key: Toilets Lift

Exhibitors at RSS 2015 Conference



(Liverpool technology company) makes **PDFTables.com**; converts PDF tables into Excel.

- **DataBaker** unpicks complex spreadsheets for transformation into databases.
- **Data Suppression** algorithms.

We look to introduce automation, give cleaner data flows and help draw insights from large collections of new data sources. Customers include: ONS, OECD, Cabinet Office and UN.



boasts a growing and high calibre journals portfolio in mathematics and statistics. We are proud to publish American Statistical Association journals on their behalf. www.tandfonline.com

CRC Press boasts a growing and high calibre journals portfolio in mathematics and statistics. We are proud to publish American Statistical Association journals on their behalf. www.crcpress.com



Founded 50 years ago by Sara Miller McCune to support the dissemination of usable knowledge and educate a global community, SAGE publishes journals, books, and library products spanning a range of subject areas. SAGE remains majority-owned by our founder, who has ensured that the company will remain permanently independent. www.sagepub.com

Office for National Statistics (ONS) is the UK's largest independent producer of official statistics and is the recognised national statistical institute for the UK. It is responsible for collecting and publishing statistics related to the economy, population and society at national, regional and local levels.



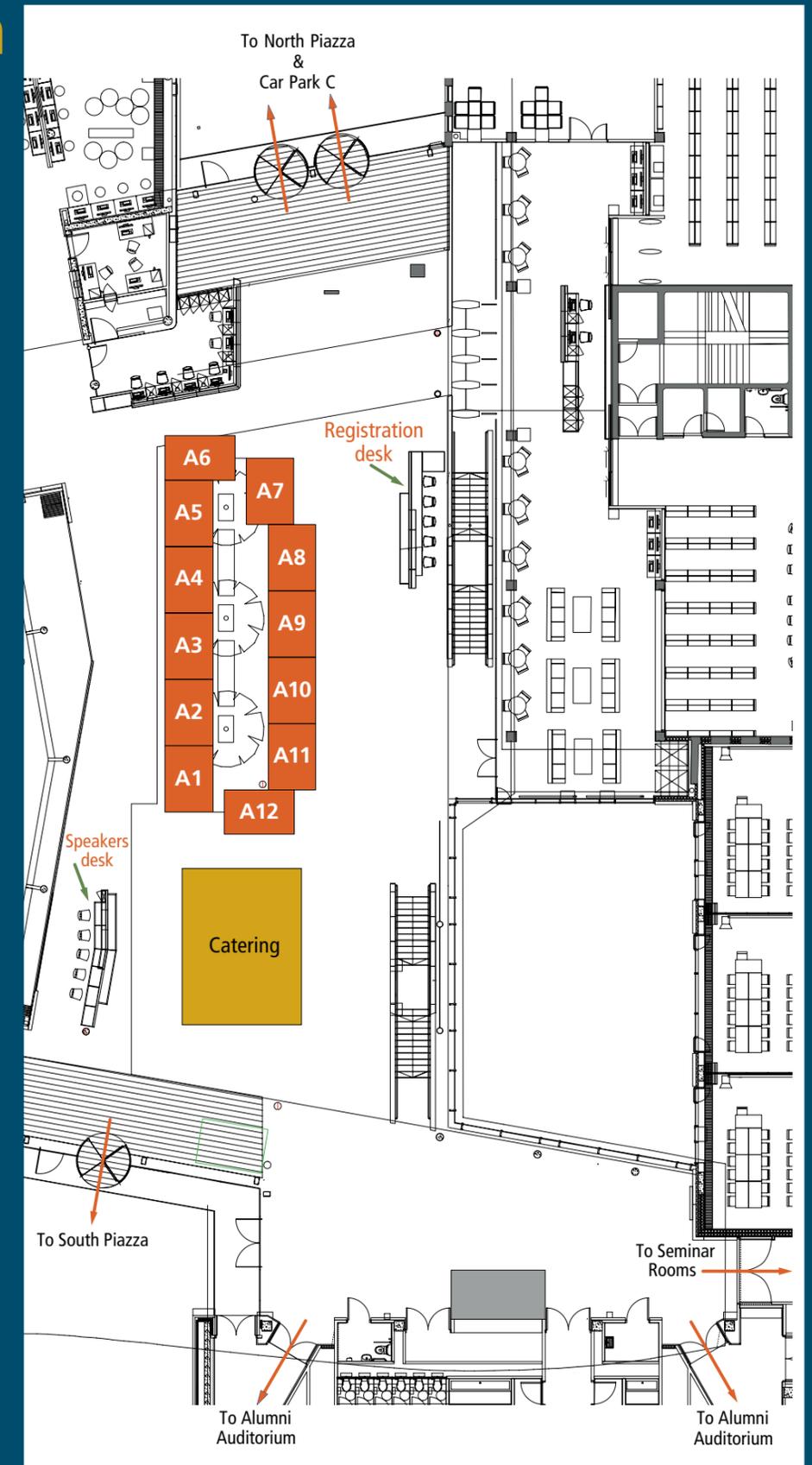
is a not-for-profit organization that advances learning, knowledge and research worldwide. It is an integral part of the University of Cambridge and for centuries has extended its research and teaching activities through a large range of academic and educational books, journals, and digital products. Come and visit our stand for 20% off all titles on display.



is a statistical research consultancy providing quality modelling and analysis for the sports industry.

Exhibition Plan

- A1 ScraperWiki
- A2-A3 Wiley
- A4-A5 Royal Statistical Society
- A6 Datakind (Tuesday)
Statistics User Forum (Wednesday)
- A7 Oxford University Press
- A8 Taylor & Francis/CRC Press
- A9 Sage Publications
- A10 Office for National Statistics
- A11 Cambridge University Press
- A12 ATASS Sports



General event 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.

Catering (Daytime)

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 Street area of The Forum next to the Exhibition.

Dietary requirements

For those attendees who have notified the organisers of special dietary requirements* the following arrangements will be made:

- Lunchtimes – individual plates will be provided – please ask a member of catering staff
- Monday evening reception and Wednesday night dinner – please make yourself known to the RSS staff at the registration table at the event.

* **N.B.** There will be vegetarian options provided at lunchtime and the evening receptions which do not require any special arrangements but for the conference dinner vegetarians should talk to the RSS registration staff as above.

Internet access

The Forum provides free wi-fi access – attendees will receive a code when they register.

Luggage

A luggage store will be available in Room 4 on the ground floor of The Forum on Thursday 10 September from 8.45am to 5pm.

Mobile phones

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

Online Tools

We are experimenting this year with a Conference App – we hope you find this useful in managing your personal programme of sessions.

Please go to <http://bit.ly/RSS-app> on an iPhone, iPad or Android device. You will be taken to the correct app store to download the app. The url is case sensitive.

Or scan this QR code:



The conference blog can be found at:

www.statslife.org.uk/events/conference-blog and you can also follow proceedings on **Twitter: RSSAnnualConf** – please use the hashtag **#RSS2015**

Photography and Recording sessions

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 materials. If you would prefer your photograph not to be used in this way please contact the conference office.

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

Registration and information desk

The registration desk can be found in the Street area of the Forum by the main entrance from the North Piazza.

The Registration desk will open at the following times:

Monday 7 September	3pm – 6.30pm
Tuesday 8 September	8.30am – 6pm
Wednesday 9 September	8.30am – 6pm
Thursday 10 September	8.45am – 2pm

Seating

At breaks you can use any of the seating on the ground and mezzanine floors of The Forum and if the weather is amenable the seating on the North and South Piazzas.

Session locations (see plan on page 5)

Plenary sessions will be held in the Alumni Auditorium. All other sessions will be held in one of the 6 rooms on the **ground and mezzanine floors** of The Forum.

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 discussion

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 you will be given tickets 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 desk

For speakers wishing to submit their presentations during the conference the speakers desk will be located in the Street area of The Forum by the South Piazza entrance.

Stewards

RSS stewards (in white RSS t-shirts) and RSS staff members (identified by their badges) will be happy to assist you throughout the conference.

Lancaster Postgraduate Statistics Centre Short Courses 2015-2016

Continuing Professional Development Courses in Statistics

The 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 lancaster.ac.uk/maths/short-courses or email us at psc@lancaster.ac.uk.

Courses for Scientists, Social Scientists and Health Professionals

Introductory short courses	
Introduction to Statistics using SPSS (SPSS I)	19-20 November 2015
Secondary Data Analysis	25 November 2015
Questionnaire Design, Reliability and Validity	1 December 2015
Sampling Design	2 December 2015
Modelling Data in SPSS (SPSS II)	10-11 March 2016

Going further with statistics

Using R software	15-16 October 2015
Introduction to Multiple Linear Regression	29-30 October 2015
Modelling Binary and Count Data	5-6 November 2015
Data Mining Techniques	18-19 February 2016
Bayesian Methods	29 February-1 March 2016
Structural Equation Modelling using AMOS	18-19 April 2016
Multi-Level Models	27-28 April 2016
Methods for Missing Data	4-5 May 2016
Methods for Analysing Crime Data	18-19 May 2016

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	21 September 2015
Pharmacological Modelling	8-11 February 2016
Survival and Event History Analysis	22-25 February 2016
Adaptive and Bayesian Methods in Clinical Research	7-10 March 2016
Genomics: Technologies and Data Analyses	11 March 2016
(registration deadline is 31 January for this workshop)	
Designing Phase I Dose Escalation Studies	6 June 2016

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



Lancaster University



Full Programme



Tuesday 8 September

9am - 9.30am

PD1 - Professional Development - The Young Statistician's Guide to the Conference - Room 11

Organised by the Young Statisticians Section

The session is designed to help attendees both new and old get to grips with the conference programme, and provide a rundown of some of the YSS conference highlights.

9.30am - 10.30am

1.1 Contributed - Medical - Randomised Trials - Main Auditorium

Sample size calculation for cluster randomised trials with ordinal outcomes
Clare Rutterford (Queen Mary University London)

Sample size calculation for Stepped Wedge Trials
Rumana Omar (University College London)

Avoiding Type 0 Errors
Patricia Gunning (NUI Galway)

1.2 Contributed - Official - Administrative Data - Room 1,2,3

The assurance of administrative data - a proportionate approach
Emily Gleeson (UK Statistics Authority)

Delivering early benefits and trial outputs using administrative data
Pete Jones (Office for National Statistics, UK)

Assessing uncertainty when combining administrative data to estimate population counts
Dilek Yildiz (University of Southampton)

1.3 Contributed - Environment - Extremes - Room 7,8,9

How extreme can storms get in space and time?
Theodoros Economou (University of Exeter)

Bayesian inference for non-stationary extremes
David Randell (Shell)

ABC model selection for spatial extremes
Tony Pettitt (Queensland University)

1.4 Contributed - Social Science - Ageing & Inequality - Room 4

Cognitive ageing in Great Britain in the new century: Can the recent cohorts postpone it?
Gindo Tampubolon (University of Manchester)

The dynamical approach to inequality
Alexander Adamou (London Mathematical Laboratory)

1.5 Contributed - Methods for Handling Data Dependencies - Room 5

Singular working covariance models for informatively observed longitudinal data
Daniel Farewell (Cardiff University)

Flexible copula sample selection models for count responses
Karol Wyszynski (University College London)

Frequency domain inference for rapidly evolving nonstationary processes
Arthur P. Guillaumin (University College London)

1.6 Contributed - School performance & Work placements - Room 6

Does School Performance Add Up?
Paul Askew (Huntingdonshire District Council)

How statistics determine examination results in England
Tom Benton (Cambridge Assessment)

Do work placements work?: How the University of Manchester Q-Step Centre is making data analysis real for undergraduates by putting them into the workplace
Jackie Carter (University of Manchester)

10.35am - 11.35am

PLENARY 1 - Main Auditorium

Dame Julia Slingo (Chief Scientist and Director of Science, UK Met Office)

Refreshments - The Forum Street

12 noon - 1.20pm

2.1 Invited - Statistical causality & applications in medical research: opportunities and challenges - Main Auditorium

Organised by Daphne Kounali (University of Bristol)

Causal inference in epidemiology: the challenge of strong confounding
Rhian Daniel (London School of Hygiene and Tropical Medicine)

Adding value to large RCTs: applications of causal inference methods
Deborah Ford (University College London)

Scope of applications of causal inference methods in RCTs: A systematic review of the literature.
Daphne Kounali (University of Bristol)

Discussant: Kate Tilling (University of Bristol)

2.2 Invited - The use of admin data in the National Energy Efficiency Data framework (NEED) - Room 1,2,3

Organised by Bex Newell (DECC)

The National Energy Efficiency Data framework (NEED) is a statistical innovative data framework created from a variety of administrative sources to help assess household energy use as well as providing more info about energy saving potential. NEED received the RSS award for statistical excellence in 2014.

This session will explore some of the underlying data sources that feed into this framework; present key challenges in the creation of an anonymised version for the public use; and provide an update on how users are engaging with anonymised framework.

What can DECC's NEED data tell us about levels and change in domestic electricity consumption?

Ben Anderson (University of Southampton)

The National Energy Efficiency Data-framework: its creation and insights

Gregory Haigh (Department of Energy and Climate Change, UK)

Building a Model of Domestic Gas Consumption Using Administrative Data

Tamas Borbely (Department of Energy and Climate Change, UK)

2.3 Invited - Environmental extremes - Room 7,8,9

Organised by **Christopher Ferro (University of Exeter)**

This session will provide an overview of state-of-the-art statistical modelling and inference for environmental extreme events. Talks will focus on modelling spatial, temporal and multivariate dependence and will contain illustrative examples.

Modelling extremes on river networks

Anthony Davison (EPFL, Switzerland)

Extreme value methods for heatwave risk assessment

Jonathan Tawn (Lancaster University)

Temporal downscaling for rainfall extremes: models for Depth Duration Frequency curves

David Walshaw (Newcastle University)

2.4 Invited - Training the quantitative social scientists of tomorrow - Room 4

Organised by **William Browne (University of Bristol)**

The Nuffield Foundation, ESRC and HEFCE have put £19.5 million into the Q-Step programme designed to promote a step-change in quantitative social science training in the UK. In this session representatives from the three nodes based in the South West and Wales will discuss their thoughts on how this can be best achieved. The session will then have a wider discussion on the topic.

Statistics or applied data science? From chi-squared to (geo)computation via some pretty maps

Richard Harris (University of Bristol)

Igniting the statistical spark in the social sciences

Rhys Jones (Cardiff University)

Telling Stories with Data: Integrating Data Analysis into the Social Science Curriculum

Susan Banducci (University of Exeter)

2.5 Invited - Recent advances in computational statistics using Holonomic Gradient Methods - Room 5

Organised by **Alfred Kume (University of Kent)**

This session is aimed at giving recent progress of holonomic function approach for normalising constants appearing in statistical inference.

Origin and developments of holonomic gradient method

Akimichi Takemura (University of Tokyo)

An Estimation Procedure Based on the Information Geometry of Dually Flat Spaces

Yoshihiro Hirose (University of Tokyo)

Holonomic gradient methods for the Fisher-Bingham normalising constants

Tomonari Sei (University of Tokyo)

2.6 Invited - Statistics and school governance - Room 6

Organised by **Tom King (Newcastle University)**

School governors are a huge volunteer force, numbering hundreds of thousands but their role requires a range of sophisticated skills and experience. This session will discuss the role of statistics in schools principally in England, looking at understanding performance, evaluating policy and evidence for interventions, and the curriculum. We aim to give an insight into what statisticians can add to a board of governors and the challenges they can face, not at least limited statistical skills amongst school leaders and the governors.

Neil Sheldon (RSS Vice President for education and statistical literacy)

Ros Sutherland (University of Bristol)

Gill Close (Ofsted)

Nancy Wilkinson (Wellcome Trust)

Chair: **Harvey Goldstein (UCL/Bristol)**

12 noon - 1.20pm

PD2 - Professional Development - Giving a memorable conference presentation - Room 11

Jenny Freeman (University of Leeds)

The ability to present clearly and confidently to an audience does not come naturally to many people. However, help is at hand as this is a skill that can be learned. This workshop will take participants through the process of developing and delivering a presentation, with tips on what to do before and on the day, which will help to minimise the stress of presenting to an audience.

By the end of the workshop each participant should have some ideas that they can use to make them more effective presenters.

The workshop will be of benefit to anyone who has to give a presentation.

Lunch - The Forum Street

1.30pm - 2.10pm

Young Statisticians Reception - Mezzanine Level, The Street

2.10pm - 3.30pm

3.1 Invited - Perspectives on Stratified Medicine - Main Auditorium

Organised by the **International Biometric Society, British & Irish Region**

Following a brief introduction to stratified medicine, this session will feature perspectives on this exciting and challenging subject from three experts on regulatory, pharmaceutical and methodological matters. Plenty of time will be allowed for discussion.

An introduction to stratified medicine

Dan Jackson (MRC Biostatistics Unit, Cambridge)

High-dimensional statistical approaches for heterogeneous molecular data in cancer medicine

Frank Dondelinger (MRC Biostatistics Unit, Cambridge)

Pharmacogenetics - **John Whittaker (GSK)**

Statistical Regulation in Stratified Medicine

Deborah Ashby (Imperial College London)



3.2 Invited - Sustainable Development Goals – a challenge for statisticians in UK and worldwide - Room 1,2,3

Organised by the RSS International Development Working Group

School governors are a huge volunteer force, numbering hundreds of thousands but their Shortly after Conference a UN summit will adopt the post-2015 development agenda, including the Sustainable Development Goals (SDGs) which will succeed the Millennium Development Goals (MDGs). Under the aegis of the RSS International Development Working Group, this session will examine how the SDGs might affect and influence statisticians around the world.

Sustainable Development Goals - what they are, how they have come about, what the challenges are going to be in reporting on them, what the next steps are likely to be
Kenny Bambrick (DFID)

SDGs: Global Gain or Local Loss
Geoffrey Greenwell (OECD PARIS21)

Fiona Underwood (independent consultant) will speak on the strong evidence base which is needed to inform international development policy and practice to help meet the SDGs.

3.3 Invited - Free Data - Room 7,8,9

Organised by Robert Cuffe (Viiv Healthcare)

An era of open data promises a wealth of data readily available for analysis and investigation. The array of data sources, datasets and access procedures can appear overwhelming and laborious to navigate. Attend this session to learn about new datasets that are available for analysis, what limitations are put on the access to those datasets and to hear experiences of researchers who use those data in a session featuring speakers from industry, academia, and the media.

Balancing data security and utility - a perspective from the Office for National Statistics as both a user and owner of Government data
Lucy Vickers (ONS)

Free data: Turning numbers into information
Emily Cadman (Financial Times)

Sharing individual participant data from clinical trials: Why, How, and Can we do better?
Catrin Tudur Smith (University of Liverpool)

Using the Secure Data Service to Access Administrative Data from the UK
Catherine Robinson (University of Kent)

3.4 Invited - Cutting Edge Statistical Modelling in the Social Sciences - Room 4

Organised by William Browne (University of Bristol)

A multilevel longitudinal analysis of rich-poor achievement gaps in English schools
George Leckie (University of Bristol)

Allowing for Measurement errors in generalised linear models.
Harvey Goldstein (University of Bristol)

Understanding English Higher Education: Making modelling accessible
Mark Gittoes (Higher Education Funding Council for England)



3.5 Invited - Forecast evaluation - Room 5

Organised by Christopher Ferro (University of Exeter)

This session will describe modern statistical methods for evaluating the performance of forecasts, and will provide a forum for comparing the methods used to evaluate economic, environmental and medical forecasts.

Forecast evaluation in economics
James Mitchell (Warwick Business School)

Evaluation of prognostic value in medical research
Thomas Gerds (University of Copenhagen)

Assessing the calibration of high-dimensional ensemble forecasts using rank histograms
Thordis Thorarinsdottir (Norwegian Computing Center)

3.6 Invited - The use of technology and web resources in teaching statistics - Room 6

Organised by the RSS Medical Section

This session is intended to highlight the latest possibilities for teaching, such as use of social media, apps, online quizzes and simulation tools. Speakers will show how they have used these tools to enhance their own teaching experiences, and how you can get started using them too.

Web resources and computer based tools for teaching statistics
Gillian Lancaster (Lancaster University)

Use of technology in a distance learning statistics module
Tom Fanshawe (University of Oxford)

Interactive Statistics with The Open University
Rachel Hilliam (Open University)

Data to Insight: MOOCing around with statistics education
Chris Wild (University of Auckland)

PD3 - Professional Development - Talking with journalists - Room 11

Hosted by Timandra Harkness, Writer, performer, broadcaster

Many news stories can, or should, have a statistical angle to them. Your work could be of media interest – or your expertise could add a perspective to a current story. How do journalists work, and how do stories get written? Join a panel of journalists and media experts to hear them talk about the process, pressures and practices of stories, and get some key pointers on how the news media works and how to work with them.

Panel:

- Ruth Alexander, Producer, BBC More or Less
- Kathryn Torney, Deputy Editor, The Detail
- John Illman, journalist and author
- Sarah Nichols, Senior Press Manager, ESRC

Refreshments - The Forum Street

3.50pm - 4.50pm

4.1 Contributed - Medical - Clinical Trials - Room 1,2,3

On the Generalizability of Experimental Results
Chaitra Nagaraja (Fordham University)

Reproducible Research in the Analysis of Regulated Trials
Alberto Alvarez-Iglesias (NUI Galway)

Modelling the impact of uncertainty in the study endpoint for a clinical trial: application to prostate screening.
Stephen Walter (McMaster University)

4.2 Contributed - Official - Quality & Progress - Room 5

Reviewing official inflation statistics
Eric Crane (Office for National Statistics, UK)

Implementation of Quality Dimensions within the Office for National Statistics
Tess Carter (Office for National Statistics, UK)

Nigeria Statistical System: The Evolution, Progress and Challenges
Obafemi Keshinro (University of Lagos)

4.3 Contributed - Environment - Natural Hazards - Room 7,8,9

Statistical simulation of natural hazard event footprints.
Ben Youngman (University of Exeter)

A decision theoretic approach for issuing natural hazard warnings
David Stephenson (University of Exeter)

A bivariate copula model for extremal windstorm footprints
Laura Dawkins (University of Exeter)

4.4 Contributed - Social Science - Terrorism & Risk Management - Room 4

Learning to save lives after terrorist attacks and industrial accidents - allowing for individual variation in performance
Neil Spencer (University of Hertfordshire)

Statistical modelling of a terrorist network
Murray Aitkin (University of Melbourne)

Scoring Method of Enterprise Risk Management
Jake Ansell (University of Edinburgh)

4.5 Invited - Prize Winners YSM 2015 Conference - Main Auditorium

Antibiotic usage patterns in the UK
Nick Beckley (University College London)

Defining rural England
Matthew Dray (Department for Environment, Food & Rural Affairs, UK)

Approaches to calibration in survey sampling
Gareth Davies (Cardiff University)

4.6 Contributed - Teaching Statistics - Tools & engagement - Room 6

Developing Interactive eBooks and an Analysis Assistant to Teach and Apply Modern Quantitative Methods
Richard Parker (University of Bristol)

Data visualization as a tool for engagement with statistics and research
Daniel Ellis (Dartington Social Research Unit)

Teaching with national and cross-national survey data resources with the UK Data Service: access, analysis and visualisation using online tools and resources
Hersh Mann (University of Essex)

4.7 Invited - EPSRC Statistics & Applied Probability review and its follow up - Room 11

The International Review of Mathematical Sciences (IRM) in 2010 highlighted that UK Statistics research was in a weakened condition, despite the many areas of excellence, and that measures needed to be taken in the coming years to avoid the loss of the UK's international stature. EPSRC's strategy to shape support for Statistics and Applied Probability research area over the past few years was in part due to the recommendations made by the IRM panel. Statistics and Applied Probability is one of 15 'grow areas' across the whole EPSRC remit, and the only grow area in the Mathematical Sciences portfolio. The EPSRC Mathematical Sciences theme last year selected Statistics and Applied Probability as an area to review in detail. Whilst the area has grown since 2011, the funding environment is changing and EPSRC wanted to consult the community on how things have changed over the past few years and identify potential actions for the future. A Review Day was held in June 2014, at which representatives from academia and other stakeholders (including other Research Councils) were invited to make inputs. This session will describe the outcomes from the review, and explain how its recommendations are being taken forward.
Chris White (EPSRC)

5pm - 6pm

PLENARY 2 - Champion (President's Invited) Lecture - Statistical Problems in Individualized Health - Main Auditorium

Scott Zeger (John Hopkins Bloomberg School of Public Health)

6pm - 6.30pm

Royal Statistical Society Awards Ceremony - Main Auditorium

Please see the insert in the back of the directory for details of the award winners

6.30pm - 8pm

Poster Reception - The Forum Street

Please see the insert in the back of the directory for the full list of poster presentations

8.45pm til late

Pub Quiz Night - Top floor of Las Iguanas, 79-81 Queen St, Exeter

See advert on page 36 for full details



Wednesday 9 September

9am - 10am

5.1 Contributed - Medical - Survival Models - Room 11

Survival models for highly clustered censored data: Accurate inference based on integrated likelihoods

Giuliana Cortese (University of Padua)

Outlier Identification in Robust Joint Models

Lisa McCrink (Queen's University Belfast)

Methods for analysing recurrent events in time-to-event (survival) data: an application in Hospital Episode Statistics

Annie Herbert (Institute of Child Health, University College London)

5.2 Contributed - Official - Census - Room 1,2,3

Plans and challenges for the 2021 Census in England and Wales

Paul Waruszynski (Office for National Statistics)

Afghanistan: How to count the number of people in a conflict country

Kim Bradford Smith (UK Department for International Development)

Electricity consumption and household characteristics: Implications for census-taking in a smart metered future

Ben Anderson (University of Southampton)

5.3 Contributed - Environment - Climate Change - Room 4

Sources of uncertainty in future projections of the carbon cycle

Alan Hewitt (UK Met Office)

On constraining projections of future climate change using observations and simulations from multiple climate models

Philip Sansom (University of Exeter)

A Bayesian framework for verification and recalibration of ensemble forecasts:

How uncertain is NAO predictability?

Stefan Siegert (University of Exeter)

5.4 Contributed - Medical - Biostatistics - Room 6

Translational Statistics, Dynamic Nomograms and Mean Residual Life

John Newell (NUI Galway)

Spatial and temporal signatures of dengue in Singapore

Sourav Das (University of Bristol)

5.5 Contributed - Methods & Theory - Historical Review - Room 5

The Information Imperative in Fisher's Statistics

John Aldrich (University of Southampton)

Multiple regression, longitudinal data and welfare in the nineteenth century: reflections on Yule (1899)

Ian Plewis (University of Manchester)

Why non-parametric estimation of the ROC curve is hard.

Matt Stapleton (AWE)

5.6 Invited - Prize winners RSC 2015 - Main Auditorium

Gareth Davies (Cardiff University)

Craig Alexander (University of Glasgow)

Amy Whitehead (University of Sheffield)

5.7 Contributed - Data Science - Miscellaneous - Room 7,8,9

A mixed model approach to the relationship between molecular structure and biological activity: application to high-throughput screening of potential new medicines

Nicholas Galwey (GlaxoSmithKline R&D)

The chopthin algorithm for resampling

Axel Gandy (Imperial College London)

Probabilistic uncertainty analysis of energy system models, with an application to a model for the UK energy market

Amy Wilson (Durham University)

10.05am - 11.25am

6.1 Invited - Medical - Papers from the RSS Journal - Main Auditorium

Organised by The Publications Network of Advisors

The papers have a common theme ('health') in some of the applications that they consider to illustrate their techniques.

Series A:

Modelling reporting delays for outbreak detection in infectious disease data

Aurore Noufaily (University of Warwick)

Series B:

Methodology for non-parametric deconvolution when the error distribution is unknown

Aurore Delaigle (University of Melbourne)

Series C:

Bayesian analysis of measurement error models using integrated nested Laplace approximations

Stefanie Muff (University of Zurich)

6.2 Invited - Official - Evolution of the Census - Room 1,2,3

Organised by Emma Emery (RSS User Engagement Programme Manager)

This session will outline changes in approaches to Census taking across Europe and how developments will impact on users and uses. It will include developments in European Census methods, and cover more detail on Italy's move to a mainly register based census and the role of administrative data in the England and Wales 2021 Census.

The evolution of the England and Wales census in a European context

Garnett Compton (ONS)

Challenges in the Italian transition from a traditional to a mainly register-based census

Giuseppe Sindoni (ISTAT)

Integrating administrative data - the 2021 Census and beyond

Owen Abbott (ONS)

6.3 Invited - Environment - The Role of Statistics in the Analysis of Climate Models (1) - Room 4

Organised by Danny Williamson and the RSS Environmental Statistics Section (with support from the CliMathNet Network)

Climate science depends on the use of very large, complex non-linear models to analyse and predict the climate. In this session we look at the statistical analysis of such models and how statisticians can contribute to the climate debate. Topics covered include climate prediction, data assimilation model calibration and pattern scaling.

Introduction - a statisticians introduction to climate models

Peter Challenor (Exeter)

Analysing Multi-model ensembles

Richard Chandler (UCL)

What drives the glacial-interglacial cycle? A Bayesian solution to a long standing model selection problem

Richard Wilkinson (Nottingham)

Pattern Scaling

Peter Good (Met Office)

Earth system models and probabilistic Bayesian calibration: a screw meets a hammer?

Danny Williamson (Exeter)

6.5 Invited - New directions in statistical methods for environmental exposure and health - Room 5

Organised by the RSS General Applications Section

This session will explore the latest developments in statistical methods for environmental epidemiology, focusing on topics like spatial and spatio-temporal models, multivariate clustering methods, propensity score methods.

Modelling nutrient dynamics in aquatic ecosystem: their response to storm-driven events

Monica Pirani (S3Ri, University of Southampton)

The Regression Discontinuity Design in Policy Evaluation: Protective Effects of the Smoke Free Legislation on birth outcomes.

Ioannis Bakolis (Imperial College London)

Coherent public health forecasts for environmental risk assessment

Vasilis Kontis (Imperial College London)

Modelling geo-located public health data using spatio-temporal log-Gaussian Cox processes

Theresa Smith (Lancaster University)

10.05am - 11.25am

6.6 Invited - Data Science - Urban Informatics - Room 7,8,9

Organised by The Publications Network of Advisors

Understanding how cities work using data is often described as urban informatics. The issues that such tools can help inform include health, transport, environment and resilience. This session will touch on three diverse aspects of urban informatics.

Innovative Data for Urban Informatics

Vonu Thakuria (University of Glasgow)

Detecting trends and changes in urbanization via statistical modelling of land use maps

Massimo Ventrucchi (University of Bologna)

Communicating Big Urban Data - Smart Cities, Realtime Feeds, Simulation and The Crowd

Andrew Hudson-Smith (University College London)

PD4 - Professional Development - Riding the mega-trends - Room 11

Organised by RSS Quality Improvement Section

Content is intended to be a follow on from the very well attended session run at Sheffield 2014 titled 'Megatrends in Statistics: The past, Present & Future of Statistical Thinking'. That session looked more at the bigger picture and the challenges that statisticians.

For 2015 we want to focus on how statisticians individually can cope with those challenges and thrive in a changing world.

Nigel Marriott

Paul Askew

Refreshments - The Forum Street

11.50am - 1.10pm

7.1 Invited - Medical - Synthesizing evidence - Room 6

Organised by the RSS Medical Section

Meta-analysis lies at the heart of evidence synthesis, an increasingly important task when attempting to answer research questions, particularly in health research. Traditionally meta-analysis consisted of pooling aggregated results from published studies. In recent years this basic idea has been extended in a number of directions, offering both new opportunities and new challenges. In this session speakers will present work on recent developments in meta-analysis methodology, including network meta-analysis, individual participant data meta-analysis, and multivariate meta-analysis.

Individual participant data meta-analysis: opportunities and challenges

Richard Riley (Keele University)

Network meta-analysis of multiple outcomes

Sofia Dias (University of Bristol)

Using Real World Evidence (RWE) in Health Technology Assessment (HTA) Decision Making - Challenges & Potential

Keith Abrams (University of Leicester)

7.2 Invited - Official - The Science of Electoral Forecasting - Room 1,2,3

Electoral forecasting models: what works and when?

Can non-survey datasets be used to enhance electoral forecasting?

How accurate was the UK 2015 general election exit poll and what might be improved in the future?

Ben Lauderdale (LSE)

Andreas Murr (University of Oxford)

Stephen Fisher (University of Oxford)

7.3 Invited - Environment - The Role of Statistics in the Analysis of Climate Models (2) - Room 4

Organised by Danny Williamson and the RSS Environmental Statistics Section (with support from the CliMathNet Network)

See session 6.3 for details

7.4 Invited - Changes to statistical education in schools - Room 5

Organised by Scott Keir (Royal Statistical Society)

Everyone needs to be able to use and interpret statistical information, to benefit their everyday lives, and their future careers.

Reforms in England to school education have been substantial, and include substantial changes to how statistics and data skills are learned and taught in a wide variety of subjects. These are mirrored in changes in curriculums across the world.

Steven Walker (OCR)

The awarding organisation collaboration to develop the proposed subject criteria for GCSE and A Level Statistics

Sue Pope (MMU)

Opportunities for statistics in the new primary curriculum

Roger Porkess (Independent Consultant)

Embedding Statistics at A level: a report on statistical requirements and assessment across A level courses in Biology, Chemistry, Geography, Psychology and Sociology

7.5 Invited - Modern methodological challenges in statistics

- Main Auditorium

Organised by Richard Samworth (University of Cambridge)

Nonparametric Network Summaries

Sofia Olhede (University College London)

Random projection ensemble classification

Richard Samworth (University of Cambridge)

Contemporary challenges in change point analysis

Idris Eckley (Lancaster University)

7.6 Invited - Data Science - The rise of data science - Room 7,8,9

Organised by Kevin McConway on behalf of the RSS Academic Affairs Advisory Group

Data science, a term whose meaning is not entirely agreed, is becoming more and more prevalent - consider for instance the establishment of the Alan Turing Institute and the introduction of large numbers of taught master's courses and some undergraduate courses. The session will investigate the implications for postgraduate and undergraduate statistics teaching in UK universities, and also consider more broadly the position of academic statisticians in the light of these changes.

The statistical face of data science: what will future graduates need?

David Hand (Imperial College London)

Data science - a commercial perspective

Gordon Blunt (Gordon Blunt Analytics Ltd)

Data Science and Education

Sofia Olhede (University College London)

Lunch - The Forum Street

2.10pm - 3.10pm

PLENARY 3 - Significance Lecture - Politics is broken: How can we measure, analyse and understand increasingly fragmented electorates? - Main Auditorium

Alberto Nardelli (Data Editor, Guardian News & Media)

3.15pm - 4.15pm

8.1 Contributed - Medical - Modelling case studies - Room 1,2,3

Organised by the RSS Medical Section

Acute kidney injury amongst chronic kidney disease patients: a case-study in statistical modelling
Ozgur Asar (Lancaster University)

Predictive statistical ecological modelling of global tuberculosis burden
Markus Elze (London School of Hygiene and Tropical Medicine)

Using Cox modelling to allocate donor livers to patients on the transplant list
Rhiannon Taylor (NHS Blood and Transplant)

8.2 Contributed - Official - Prices - Room 6

Investigation into the use of web scraped data to calculate consumer price indices
Chris Payne (Office for National Statistics, UK)

How volatile are Fruit and Vegetable prices in the UK?

Nicky Pearce (Office for National Statistics, UK)

Location, location, location: New methodology for forming consumer price index location boundaries

Liz Metcalfe (Office for National Statistics, UK)

8.3 Contributed - Environment - Ecology - Room 4

Parameter Redundancy in Ecological Integrated Population Models
Diana Cole (University of Kent)

Do rainforests contain communities? Characterising dependence structures in massive populations of point processes.

James Martin (University College London)

Detecting heterogeneity in capture-recapture models: diagnostic goodness-of-fit tests and score tests

Anita Jeyam (University of Kent)

8.4 Contributed - General - Match fixing, Betting and Forecasting - Room 11

Smashing the racket: Detecting match-fixing in tennis via in-play betting irregularities
Tim Paulden (ATASS Sports)

What can gambling machine data tell us about betting behaviour?

David Excell (Featurespace Ltd)

Forecasting Incoming Volume into a Call Centre

Andrew Zelin (Bupa)

8.5 Contributed - Methods & Theory - Modelling Complex systems - Room 5

Evaluating the performance of ensemble forecasts
Christopher Ferro (University of Exeter)

Generalised additive and index models with shape constraints
Yining Chen (University of Cambridge)

Bayes linear analysis for Bayesian optimal experimental design
Matthew Jones (Durham University)

8.6 Invited - YSS/Significance Writing Competition winners - Main Auditorium

Organised by the RSS Young Statisticians Section

Engaging and thought-provoking statistical writing by young statisticians.

This year's shortlist (in alphabetical order) is:

Annie Herbert

The Great British Bayes-off:
How much difference (statistically)
does a soggy bottom make?

James Skeffington

Warren Buffett:
Oracle or Orangutan?

Samantha Tyner

The Joy of Clustering
(with Bob Ross)

8.7 Contributed - Data Science - Elections - Room 7,8,9

Predicting the Results of the United Kingdom General Election: analysis of 2010 and 2015
Timothy Martyn Hill (Liverpool Victoria)

A Dynamic, Hierarchical, Bayesian approach to Forecasting the 2014 US Senate Elections
Roberto Cerina (University College London)

Checking the UK General Election fact checkers
Andrew Garratt

Refreshments - The Forum Street

4.40pm - 6pm

9.1 Invited - Medical - Out of Practice Primary Care - Room 1,2,3

Organised by the RSS Primary Health Care Special Interest Group

Statistician behind Bars: by design and on trial
Sheila Bird (MRC Biostatistics Unit, Cambridge)

Use of a stepped-wedge design to compare prescribing errors in community pharmacies using the NHS electronic prescription service compared to paper prescriptions
Matthew Boyd (University of Nottingham)

We only randomise to treatment here! Is the 'Cohort Multiple Randomised Controlled Trial' a better alternative to the pragmatic RCT?
David Reeves (University of Manchester)

9.2 Invited - Official - Understanding Poverty - Room 6

Organised by Emma Emery (RSS User Engagement Programme Manager)

This session will consider:

- the different ways in which poverty is measured and reported upon in official statistics and other research outside of government
- how that evidence is used to inform government interventions and civil society work in communities
- the link between government policy and targets, and the measurement of poverty and poverty-related issues
- how poverty trends may evolve in the coming years, and
- how administrative data and longitudinal research could play a stronger role in official statistics.

Matthew Whittaker (Chief Economist Resolution Foundation)

TBC (DWP spokesperson on poverty policy)

Eldin Fahmy (Centre Head, Poverty and Social Justice - School for Policy Studies, University of Bristol)

9.3 Invited - Environment - Recent advances in Statistical Ecology - Room 4

Organised by the RSS Environmental Statistics Section

Due to climate change, changes in habitat and other such pressures on the environment, there is extensive interest in studying wildlife populations. To accurately estimate key ecological parameters it is important to get the statistical models correct. This session will examine some recent developments in statistical ecology.

Integrated population model selection in ecology Rachel McCrea (University of Kent)

Bayesian non-parametric population ecology models Eleni Matechou (University of Kent)

Ecological applications of hidden Markov and related doubly stochastic processes
Roland Langrock (University of St Andrews)

9.4 Invited - Statistics in Sport: The Bigger Picture - Main Auditorium

Organised by Tim Paulden and Chris Ferro

A unique exploration of how statistics and statistical thinking are applied in practice across the sports domain.

Panel members include:

Paul Tisdale

(Manager, Exeter City Football Club)

Chris Anderson

(Author of 'The Numbers Game: Why Everything You Know About Soccer Is Wrong')

Exeter Chiefs coaching team: Mark Twiggs

(Head of Strength and Conditioning) and Speaker TBC

Pat Carden (Postgraduate researcher at Exeter University, and data/analytics collaborator with Exeter Chiefs)

Grace Stirling

(Director, ATASS Sports)

9.5 Invited - Methods & Theory - Copula Modelling and Applications - Room 5

Organised by Dr Luciana Dalla Valle and the RSS South West Local

Group Copulas are a flexible class of multivariate modules that are now considerably used to model complex dependencies between variables. The session will provide a general state-of-the-art introduction to the topic, after which it will present methodological advances motivated by applications in epidemiology and finance.

Using local dependence to evaluate goodness of fit in copula regression models

Mario Cortina Borja (UCL Institute of Child Health)

Bayesian Copula Modelling in the Presence of Covariates

Julian Stander (University of Plymouth)

Copula mixed effect models for multivariate meta-analysis of diagnostic test accuracy studies

Aristidis K. Nikoloulopoulos (University of East Anglia)

9.6 Invited - Data Science - Big Data: the challenges in using large non-random data sets - Room 7,8,9

Organised by the RSS Social Statistics Section

Presentations will cover the advantages and disadvantages of using large non-random data sets, to open up a discussion on the different weights these carry and a look at what this means for the longer term with references to specific examples.

Big data, big changes for official statistics?

Jane Naylor (Office for National Statistics, UK)

Challenges and Perspectives in Exploring Complex & Big Data

Maria Fasli (University of Essex)

Big data is more than behaviour: why business needs to get smarter about extracting insights from big data

Colin Strong (Verve)

PD6 - Professional Development - Submitting and refereeing journal articles - Room 11

Organised by Silvia Liverani on behalf of the RSS Young Statisticians Section, RSS Academic Affairs Advisory Group and RSS Publications Network

The session is designed to help the professional development of career-young statisticians by focusing on paper-writing and learning about the journal paper review process directly from Editors of Series A, B or C.

During this session positive and negative examples of submitted papers will be discussed, as well as what makes a review useful for an Editor, and what not to waste time on.

We will also discuss Search Engine Optimisation techniques for journal publications to raise the visibility of one's research.

Speakers: Richard Chandler (UCL), Harvey Goldstein (Bristol), Chris Ferro (Exeter) and TBC (Wiley)

6pm - 7pm

Special session - Learning from Multivariate Data: A tribute to Wojtek Krzanowski - Main Auditorium

Organised by Trevor Bailey, RSS South West Local Group

Wojtek Krzanowski was Professor of Statistics at Exeter University from the late 1980s until his retirement in 2007. He remains an Emeritus Professor of the University. During his career he has made very significant contributions to statistical research, particularly in the field of multivariate analysis. He is also author of several books and many in the profession will be familiar with his highly cited and highly regarded texts such as: -The Principles of Multivariate Analysis: A User's Perspective and An Introduction to Statistical Modelling.

The Exeter venue of RSS2015 is a suitable opportunity for a much deserved session in honour of Wojtek Krzanowski. Two distinguished speakers who know and have worked with Wojtek in the past will give talks on a general interest topic of their own choosing in contemporary statistics with a multivariate flavour. The session will also be chaired by Ian Jolliffe, himself a multivariate statistician well known to Wojtek and a Visiting Professor at Exeter.

Summarising classifier ROC curves

David Hand (Imperial College London)

Multivariate methods and ecology

Byron Morgan (University of Kent)

7.30pm - 8pm

Pre-dinner drinks - Great Hall, University of Exeter

8pm - late

Conference dinner - Great Hall, University of Exeter



Thursday 10 September

9am - 10am

10.2 Contributed - Official - Official Statistics Methods - Room 1,2,3

Behind the Marmot curve: Why and how do some communities do better or worse than their levels of disadvantage would predict?

David Maguire (King's Fund)

Handling attrition and non-response using weighting - what methods make a difference?

Matthew Greenaway (Office for National Statistics, UK)

A 50-year journey: measuring changes in personal travel using the National Travel Survey

Delphine Robineau (Department for Transport, UK)

10.3 Contributed - Environment - Seabirds, fish and seedlings - Room 5

Gaussian Processes in Species Distribution Modeling: Case Studies from the Baltic Sea

Jarno Vanhatalo (University of Helsinki)

There is more to climate than the North Atlantic Oscillation: a new perspective from climate dynamics and climatology-specific methods to explain the variability in population growth rates of a long-lived seabird

Michel d. S. Mesquita (Bjerknes Centre for Climate Research, Norway)

Perturbed grid processes and plot sampling of seedling density

Aki Niemi (University of Jyväskylä, Finland)

10.4 Contributed - General - Room 6

Semiparametric Least Squares Estimation of Single-Index Model with Nonstationary Regressors

Ryota Yabe (Hitotsubashi University)

Asymptotics for Estimators dating the Origination and Collapse of an Asset Price Bubble: Consistency, Convergence Rates and Limit Distributions

Mohitosh Kejriwal (Purdue University)

On using predictive-ability tests in the selection of time-series prediction models

Robert Kunst (University of Vienna)

10.5 Contributed - Medical - Collating Data - Main Auditorium

Incorporating external evidence on heterogeneity and bias in meta-analysis

Kirsty Rhodes (MRC Biostatistics Unit, Cambridge)

A microsimulation model for Health Checks - Evidence synthesis and simulation of what-if scenarios

Arno Steinacher (MRC Biostatistics Unit)

Application of statistical methods to identify patterns in post-operative complications experienced after cardiac surgery

Rachel L Nash (University of Bristol)

10.6 Contributed - Methods & Theory - High Dimensional Data - Room 7,8,9

Inference From Noisy, High Dimensional Acoustic Data

Tim Park (Shell)

Estimating Dynamic Graphical Dependencies from Multivariate Time-Series

Alexander Gibberd (University College London)

Statistical and Computational Trade-offs in Estimation of Sparse Principal Components

Tengyao Wang (University of Cambridge)

10.15am - 11.15am

PLENARY 4 - RSS President's Session - Main Auditorium

Organised by Kevin McConway on behalf of the RSS Academic Affairs Advisory Group

In this session, Professor Peter Diggle, President of the Royal Statistical Society, will summarize his Presidential Address, 'Statistics: a data science for the 21st century,' touching on the state of the discipline and profession of statistics in general, and in our Society in particular. Peter's presentation will be followed by an extended question and answer session, giving Society members and other Conference attendees the opportunity to share their views.

Refreshments - The Forum Street

11.40am - 1pm

11.1 Invited - Data Science - Uncertainty quantification at the interface of the Physical and Engineering Sciences - Main Auditorium

Organised by the RSS Statistical Computing Section

The role that Statistical Science plays in the emerging area of Uncertainty Quantification. Three speakers drawn from Statistics, Applied Mathematics and Engineering will each give a talk about UQ and the statistical aspects of the challenges being faced with an emphasis on engineering, statistics and mathematics. The introductory speaker will set the scene for the audience and then synthesise the three presentations in a closing discussion of the session.

Claudia Schillings (University of Warwick)

The limits of information in Inverse Problems

Peter Challenor (University of Exeter)

Uncertainty Quantification in Climate Modelling

Patrick Conrad (University of Warwick)

Measure Theoretic Differential Equation Solvers: A new Concept

11.2 Invited - Official - Recent methodological advances for official statistics - Room 1,2,3

Organised by Guy Nason (University of Bristol)

New statistical theory and methodology inspired by or of directly of use to Official Statistics.

Model-based inference for official statistics; applications at Statistics Netherlands

Jan van den Brakel (Statistics Netherlands)

Is it really worth sampling a process more frequently?

Ben Powell (University of Bristol)

An introduction to applications of wavelet benchmarking with seasonal adjustment

Homesh Sayal (University of Cambridge)

11.3 Invited - Environment - Spatial preferential sampling and citizen science - Room 7,8,9

Inference From Noisy, High Dimensional Acoustic In many environmental contexts, preferential sampling is used to replace or sometimes supplement more statistically based sampling schemes. What effect does this have on the inferences in one question. This has also been compounded by recent growth in the use of citizen science. This session will explore these sampling and monitoring developments.

Mitigating the effects of preferentially selected monitoring sites for inference and policy
James. V Zidek (University of British Columbia)

The effect of sampling location selection on determining environmental outcomes.
Ron Smith (Centre for Ecology and Hydrology, Edinburgh)

Smart study design – optimizing biodiversity monitoring by Citizen Scientists
Stephen Baillie (British Trust for Ornithology)

11.4 Invited - Public Statistics: use, utility and understanding - Room 5

Organised by Thomas King (University of Newcastle)

Statistical literacy is more than just a problem of education and specialised users. The public is confronted with many decisions which can be assisted by an understanding of statistics. And those who seek to influence their decisions know the power that statistics can add to an argument. This session will present several different perspectives on what an understanding of public statistics has at stake. We will discuss what this means in terms of the initiatives of the Society and other partners. There are lessons to learn from a much more mature discipline of science communication, new strategies of tailoring official statistics outputs for and engaging with different users; and the pressure of sensational science reporting based on naïve statistical inference.

David Colquhoun (UCL)

‘Understanding and Engaging with Users of Official Statistics: Quick wins, harder wins and setting out a challenge’

Nick Woodhill (Good Practice Team, National Statistician’s Office)

PD7 - Professional Development - Horses for Courses - Room 6

Organised by the RSS Professional Development Committee

Aimed at anyone who runs statistical/analytical training courses aimed at non-statistical audiences or those with limited statistical education.

The speakers will suggest a variety of ways of teaching specific statistical concepts including ideas from the floor.

Nigel Marriott

Roland Caulcutt

Lunch - The Forum Street

1.50pm - 3.10pm

12.1 Invited - Statistical Analytics Challenge Winners - Room 1,2,3

Organised jointly by the RSS Young Statisticians Section and RSS Research Section, and sponsored by Select Statistics

Presentations from the winning teams



12.2 Invited - Official - Accessing and analysing administrative data - Room 5

Organised by the RSS Academic Affairs Advisory Group

Jonathan Tinsley (ADRC-E and the Office for National Statistics)

will share how ONS are using admin data to improve statistics, and will give a briefing on relevant ADRC-E research.

Trazar Astley-Reid (Administrative Data Research Network)

will present on access to linked data for research, and the development of this.

Rachel Knowles (Clinical Research Fellow, UCL Institute of Child Health)

will present on an project for the National Institute of Health Research (HS&DR Project no. 10/2002/29) and the insight that this provided into linkage methods, using data collected for a different reason to apply to a clinical question.

12.3 Invited - Statistics and the Law - Room 6

Organised by the RSS Statistics and the Law Section

Statistical evaluation of forensic DNA evidence

Roberto Puch Solis (LGC)

Epidemiological evidence in civil cases.

Jane Hutton (University of Warwick)

The evaluation of evidence consisting of traces of cocaine on banknotes

Amy Wilson (Durham University)

12.4 Contributed - Special - P-values debate - Main Auditorium

Discussant: **David Colquhoun (UCL)**

Hypothesis testing, p-values and confidence intervals: Numeracy - good, Comprehension - poor. Comments - definitive guidance required.

Mike Hicks (Defence Ordnance Safety Group, UK)

How good are the reasons given by the editors of Basic and Applied Social Psychology (BASP) to ban hypothesis tests and p-values?

Ian Hunt (EDHEC)



PD8 - Professional Development - Inspiring young people with statistics and data - Room 7,8,9

The session will be focused on practical ways that delegates can enrich young people's understanding of statistics and data and inspire young people to consider careers in relevant fields. Speakers will draw on their own experiences to share top tips and advice.

Celia MacIntyre (National Records of Scotland) and Tom Macintyre (University of Edinburgh)
Helping schools to use official statistics in Scotland

Lyn Taylor (PRA Health Sciences) and Eleanor Stillman (University Of Sheffield)
'Your career today is a ...'

Tim Paulden (Young Statisticians Section & ATASS Sports)
Becoming a Stem Ambassador

Dr Julie Moote (King's College London)
ASPIRES 2: Investigating the development of young people's science and career aspirations from age 10-19

Refreshments - The Forum Street

3.30pm - 4.40pm

PLENARY 5 - What's the worst that could happen? Exploding popular myths surrounding uncertainty and risk - Main Auditorium

Organised by Tim Paulden (RSS Young Statisticians Section)

Panel:

- Stephen Senn (CCMS, Luxembourg Institute of Health)
- Timandra Harkness (Writer, performer, broadcaster)
- David Hand (Imperial College London)



PUB QUIZ NIGHT

Tuesday 8 September from 8.45pm

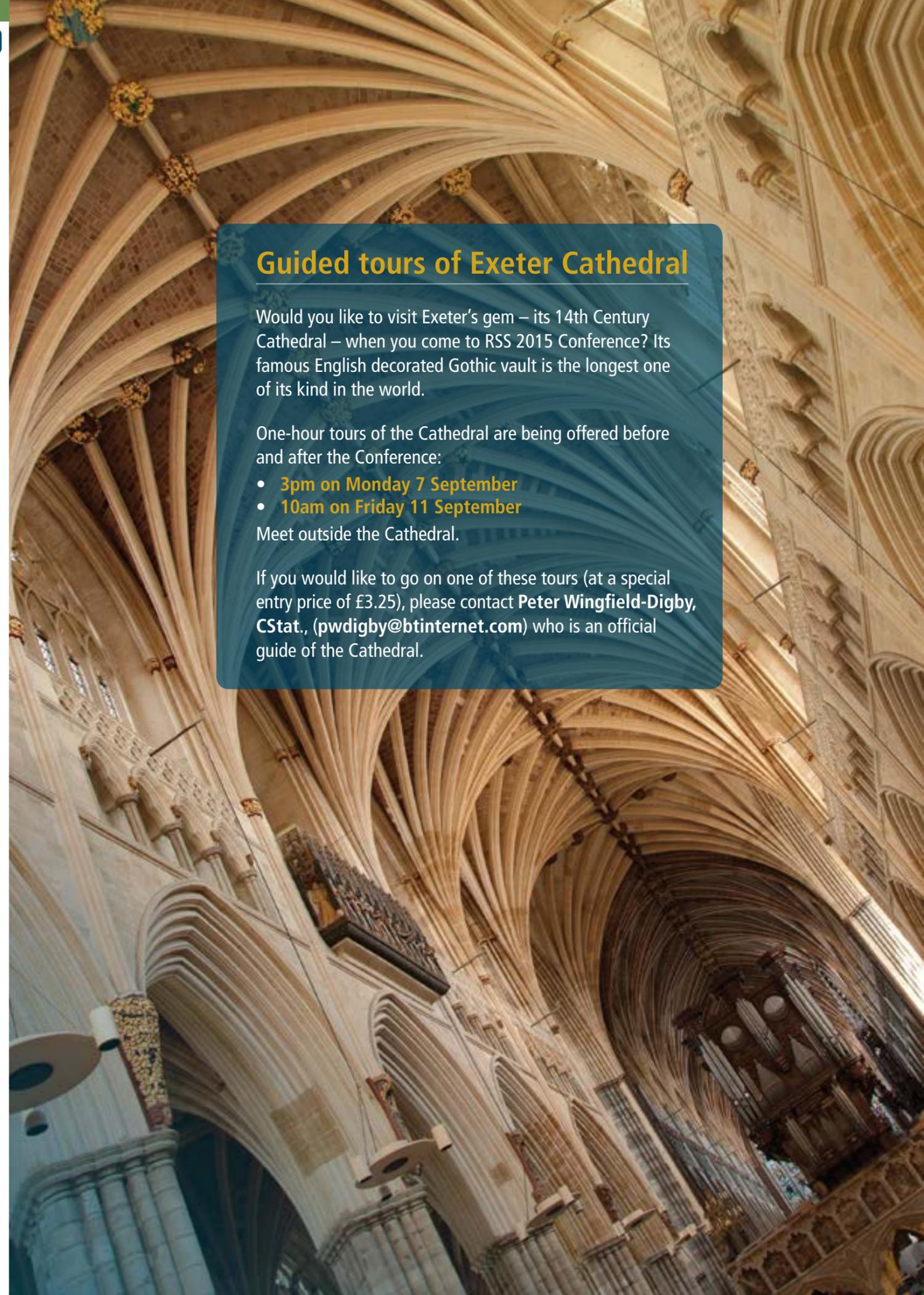
Venue: Top floor of Las Iguanas, 79-81 Queen St, Exeter
(adjacent to the Royal Albert Memorial Museum)

All welcome!

Come and enjoy a few casual drinks with fellow attendees, and try your hand at our general knowledge quiz – there'll be prizes for the winning and losing teams, plus free drinks vouchers for all participants!

Teams will be arranged on the night – just arrive before 9pm to register.

Event organised by the Young Statisticians Section (YSS)
and generously supported by ATASS Sports.



Guided tours of Exeter Cathedral

Would you like to visit Exeter's gem – its 14th Century Cathedral – when you come to RSS 2015 Conference? Its famous English decorated Gothic vault is the longest one of its kind in the world.

One-hour tours of the Cathedral are being offered before and after the Conference:

- 3pm on Monday 7 September
- 10am on Friday 11 September

Meet outside the Cathedral.

If you would like to go on one of these tours (at a special entry price of £3.25), please contact Peter Wingfield-Digby, CStat., (pwdigby@btinternet.com) who is an official guide of the Cathedral.



Thanks and acknowledgements to those responsible for organising the conference:

Members of the RSS Conferences & Events Programme Board

Chair: Jen Rogers (LSHTM/Honorary Officer for Meetings & Conferences)

Vice Chair (2015 Programme Chair): **Bill Browne** (University of Bristol/Avon Local Group)

Paul Askew (Quality Improvement Section)

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Chris Ferro (RSS Read Papers Editor/University of Exeter)

Tim Paulden (Young Statisticians Section/ATASS Sports)

Lauren Rodgers (Young Statisticians Section/University of Exeter)

RSS Staff and stewards

Paul Gentry (conference manager), **Toni Young** (social events coordinator), **Jack Beeby** (web & multimedia manager), **Mawreen Chapman** (speaker coordinator), **Tessa Pearson** (registration manager), **Cat Eaton-Lee** (chief steward), **Anna Heath** (exhibition manager), **Sarah Simpson** (awards ceremony coordinator), **Sarah Barker** (short course coordinator), **Emma Levins**, **Rochelle Donovan**, **Oz Flanagan**, **Sara McDonnell** and fellow staff at the **Royal Statistical Society**.

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Venues

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Jacqui Channon at the Royal Albert Memorial Museum and **Emma Phillips** at **Posh Nosh** (www.posh-nosh.co.uk) for the welcome reception

Carly Elwell and **Magdalen Smith** at First Choice Conference & Events (firstchoice-ce.co.uk) for venue sourcing, site visit coordination, and for the accommodation booking service

Dates for your diary

RSS 2016
International Conference

5 – 8 September 2016
University Place, Manchester,
England

More details available shortly
from
www.rss.org.uk/conference2016