

# The Open University Statistics Group

## 2015 Report

### 1. Membership

Dr C.M. Queen (Head of Group)  
Miss C. Calvert  
Professor F. Critchley  
Dr F. Elfadaly (to October)  
Dr A.E. Faria  
Professor C.P. Farrington (to May)  
Dr S. Fontanella  
Professor P.H. Garthwaite  
Dr R.M. Hilliam  
Professor M.C. Jones  
Professor K.J. McConway  
Dr A. Noufaily (to April)  
Dr R. Sabolová  
Dr N.T. Trendafilov  
Dr G. Van Bever  
Dr S.K. Vines  
Dr Y.G. Weldeselassie  
Dr H.J. Whitaker

#### *Long-term associates*

Dr F. Elfadaly (Imperial College Faculty of Medicine) [Visiting Research Fellow from October]  
Professor C.P. Farrington [Emeritus Professor from May]  
Professor J.C. Gower [Emeritus Professor]  
Dr A. Noufaily (Warwick Medical School) [Visiting Research Fellow from May]  
Dr S. Unkel (Universitätsmedizin Göttingen, Germany) [Visiting Research Fellow to April]

#### *Full-time research students*

Mr T.G. Gebru  
Mr M.Z. Rahman Shabuz

#### *Part-time research students*

Mr R. Harris

#### *Visitors*

Dr S. Kato (Institute of Statistical Mathematics, Tokyo, Japan)  
Professor É. Marchand (Université de Sherbrooke, Canada)  
Professor P. Marriott (University of Waterloo, Canada)  
Dr A. Pewsey (Universidad de Extremadura, Cáceres, Spain)

## 2. Introduction

Here is an overview of the considerable and successful activity in Statistics at the Open University in 2015, in both research and teaching.

On the research side, all our usual activities and outputs are described in Section 4 onwards of this report. In the course of the year, members of the Group published 22 papers in refereed journals along with numerous other outputs (see Section 6). Pre-publication papers can be found in our technical report series, at [http://statistics.open.ac.uk/technical\\_reports](http://statistics.open.ac.uk/technical_reports)

The breadth and excellence of our teaching was recognised by the accreditation of our [Mathematics and Statistics](#) degree by the Royal Statistical Society. All told, just over 3100 students were enrolled on the Statistics modules presented for study from dates in 2015 (see Section 3).

We are delighted to be able to report the promotions of Rachel Hilliam, Karen Vines and Heather Whitaker to Senior Lecturer, and to congratulate them all on their success.

Our eminent colleague Paddy Farrington retired in May after almost 17 years of service at the Open University. Paddy was an exceptionally valued and admired colleague, both for his excellent contributions to teaching, and for his outstanding contributions to, and leadership in, research. Best wishes to Paddy for a long and happy retirement.

The Statistical Advisory and Consultancy Services continue to run successfully, supporting research in other departments across the Open University. These are co-ordinated by Alvaro Faria, assisted by Paul Garthwaite. Two web pages explain the services:

[http://statistics.open.ac.uk/advisory\\_service](http://statistics.open.ac.uk/advisory_service), [http://statistics.open.ac.uk/stats\\_consult](http://statistics.open.ac.uk/stats_consult)

Further information on the Group is available through our general web pages at <http://statistics.open.ac.uk>.

## 3. Teaching

### *Presentation*

The Group continued to present six modules of 30 CATS points each with one of them (M140) being presented twice in the year. These, with numbers of students starting the presentations of each course given in square brackets, are:

- [M140](#) *Introducing Statistics* (Chairs: Calvert, Hilliam, McConway) [February 600; October 976]
- [M248](#) *Analysing Data* (Chair: Faria) [352]
- [M249](#) *Practical Modern Statistics* (Chairs: McConway, Queen) [185]
- [M343](#) *Applications of Probability* (Chair: Trendafilov) [409]
- [M346](#) *Linear Statistical Modelling* (Chair: Garthwaite, Whitaker) [296]

- [M347](#) *Mathematical Statistics* (Chair: Jones) [283].

The first level mathematics module, [MU123](#) *Discovering Mathematics*, also contains a little statistical material. Kevin McConway contributed in a small way to the presentation of SDK125 *Introducing Health Sciences*.

### **Production**

Work began on a revision of [M248](#) *Analysing Data*. This work is being undertaken in order to take account of the new predecessor module [M140](#), to improve parts of the material, and to update aspects of the presentation of the module.

### **Qualifications**

Our modules are compulsory components of degrees in [Mathematics and Statistics](#), [Computing & IT and Statistics](#), [Mathematics and its Learning](#) and [Economics and Mathematical Sciences](#), as well being specified options in certain other qualifications. The Mathematics and Statistics degree was awarded to 78 students in 2015. The undergraduate Diploma in Statistics, no longer available to new students, is still awarded to current students who successfully study [M248](#), [M249](#) and two modules from [M343](#), [M346](#) and [M347](#) (or their predecessors). The Diploma was awarded to 96 students in 2015. A further 47 students were awarded other joint degrees that include a substantial element of statistics.

## **4. Research interests**

The Department is home to three Research Groups:

*Multivariate Statistics*: Critchley (co-ordinator), Faria, Fontanella, Garthwaite, Gower, Jones, Queen, Sabolová, Trendafilov, Van Bever, Vines.

*Bayesian Statistics*: Queen (co-ordinator), Elfadaly, Faria, Garthwaite, McConway, Vines.

*Medical Statistics*: Whitaker (co-ordinator), Farrington, Garthwaite, Hilliam, Noufaily, Vines, Weldeselassie.

Clearly, these three general groupings cover a huge variety of research projects in Statistics. Research also continues, of course, on topics not directly covered by these Research Groups, of which single case studies, distribution theory, robust statistics, time series forecasting, influence analysis and statistics in the media are but a small selection. Strong ongoing collaborations continue in areas such as medicine, psychology, traffic modelling, earth sciences and ecology.

For details, see the publications, talks and other items to follow.

## **5. PhD awarded**

**Oluwole Oyebamiji** for his thesis

*Statistical emulation for environmental sustainability analysis*

(supervisors: N. Edwards (Environment, Earth & Ecosystems), **P.H. Garthwaite** and P. Holden (Environment, Earth & Ecosystems))

## 6. Publications

### 6.0 Publication honouring a colleague

Cox, D.R. (2015) A conversation with **John C. Gower**. *International Statistical Review*, **83**, 339-356.

### 6.1 Publications in refereed journals

Brauer, R., Smeeth, L., Anaya-Izquierdo, K., Timmis, A., Denaxas, S.C., **Farrington, C.P.**, **Whitaker, H.**, Hemingway, H. & Douglas, I. (2015) Antipsychotic drugs and risks of myocardial infarction: a self-controlled case series study. *European Heart Journal*, **36**, 984–992.

Burton, D.C., Bigogo, G.M., Audi, A.O., Williamson, J., Munge, K., Wafula, J., Ouma, D., Khagayi, S., Mugoya, I., Mburu, J., Muema, S., Bauni, E., Bwanaali, T., Feikin, D.R., Ochieng, P.M., Mogeni, O.D., Otieno, G.A., Olack, B., Kamau, T., Van Dyke, M.K., Chen, R., **Farrington, P.**, Montgomery, J.M., Breiman, R.F., Scott, J.A.G. & Laserson, K.F. (2015) Risk of injection-site abscess among infants receiving a preservative-free, two-dose vial formulation of pneumococcal conjugate vaccine in Kenya. *PLOS One*, **10**, e0141896.

**Elfadaly, F.G.** & **Garthwaite, P.H.** (2015). Eliciting prior distributions for extra parameters in some generalized linear models. *Statistical Modelling*, **15**, 345-365.

Geraci, M. & **Jones, M.C.** (2015) Improved transformation-based quantile regression. *Canadian Journal of Statistics*, **43**, 118-132.

**Gower, J.C.** (2015) The development of statistical computing at Rothamsted. *International Statistical Review*, **83**, 357-370. [Edited version of paper in *Rothamsted Annual Report 1985*, with epilogue by R.W. Payne]

**Gower, J.C.**, Le Roux, N.J. & Gardner-Lubbe, S. (2015) Biplots: quantitative data. *Wiley Interdisciplinary Reviews: Computational Statistics*, **7**, 42-62.

Holden, P.B., Edwards, N.R., **Garthwaite, P.H.** & Wilkinson, R.D. (2015) Emulation and interpretation of high-dimensional climate model outputs. *Journal of Applied Statistics*, **42**, 2038-2055.

**Jones, M.C.** (2015) On families of distributions with shape parameters. Published with discussion and rejoinder. *International Statistical Review*, **83**, 175-227.

**Jones, M.C.** (2015) Univariate continuous distributions: symmetries and transformations. *Journal of Statistical Planning and Inference*, **161**, 119-124.

**Jones, M.C.** & **Noufaily, A.** (2015) Log-location-scale-log-concave distributions for survival and reliability analysis. *Electronic Journal of Statistics*, **9**, 2732-2750.

**Jones, M.C.**, Pewsey, A. & Kato, S. (2015) On a class of circulars: copulas for circular distributions. *Annals of the Institute of Statistical Mathematics*, **67**, 843-862.

Kafatos, G., Andrews, N., **McConway, K.J.**, Anastassopoulou, C., Barbara, C., De Ory, F., Johansen, K., Mossong, J., Proscenc, K., Vranckx, R., Nardone, A., Pebody, R. & **Farrington, P.** (2015) Estimating seroprevalence of vaccine-preventable infections: is it worth standardizing the serological outcomes to adjust for different assays and laboratories? *Epidemiology and Infection*, **143**, 2269-2278.

Kato, S. & **Jones, M.C.** (2015) A tractable and interpretable four-parameter family of unimodal distributions on the circle. *Biometrika*, **102**, 181-190.

**Noufaily, A., Ghebremichael-Weldeselassie, Y.,** Enki, D.G., **Garthwaite, P.,** Andrews, N., Charlett, A. & **Farrington, P.** (2015) Modelling reporting delays for outbreak detection in infectious disease data. *Journal of the Royal Statistical Society Series A*, **178**, 205-211.

Oyebamiji, O.K., Edwards, N.R., Holden, P.B., **Garthwaite, P.H.,** Schaphoff, S. and Gerten, D. (2015) Emulating global climate change impacts on crop yields. *Statistical Modelling*, **15**, 499-525.

Paindaveine, D. & **Van Bever, G.** (2015) Nonparametrically consistent depth-based classifiers. *Bernoulli*, **21**, 62–82.

Rosco, J.F., Pewsey, A. & **Jones, M.C.** (2015) On Blest's measure of kurtosis adjusted for skewness. *Communications in Statistics – Theory and Methods*, **44**, 3628-3638.

**Sabolová, R.,** Sečkárová, V., Dušek, J. & Stehlík, M. (2015) Entropy based statistical inference for methane emissions released from wetland. *Chemometrics and Intelligent Laboratory Systems*, **141**, 125-133.

Silvertown, J., Harvey, M., Greenwood, R., Dodd, M., Rosewell, J., Rebelo, T., Ansine, J. & **McConway, K.** (2015) Crowdsourcing the identification of organisms: a case-study of iSpot. *ZooKeys*, **480**, 125–146.

**Trendafilov, N.T.** & Adachi, K. (2015) Sparse versus simple structure loadings. *Psychometrika*, **80**, 776-790.

**Vines, S.K.** (2015) Predictive nonlinear biplots: maps and trajectories. *Journal of Multivariate Analysis*, **140**, 47-59.

Wang, Q., Yin, X. & **Critchley, F.** (2015) Dimension reduction based on the Hellinger integral. *Biometrika*, **102**, 95-106.

## 6.2 Book chapters and refereed conference proceedings

Adachi, K. & **Trendafilov, N.T.** (2015) Sparse structural equation modeling for finding interfactor causal relationships. In *Proceedings of the 29th Annual Meeting of the Japanese Society of Computational Statistics*, pp. 53-56.

Adachi, K. & **Trendafilov, N.T.** (2015) Factor analysis of high-dimensional data with clustering variables. In *Proceedings of the 2015 International Workshop for Japanese Society of Computational Statistics 30th Anniversary*, pp. 15-16.

Bove, R., **Critchley, F., Sabolová, R. & Van Bever, G.** (2015) On ANOVA-like matrix decompositions. In *Modern Nonparametric, Robust and Multivariate Analysis (Hannu Oja Festschrift)*, Eds: K. Nordhausen & S. Taskinen; Springer, pp. 425-439.

Fontanella L., **Fontanella S.,** Valentini P. & **Trendafilov N.** (2015) Sparse exploratory multidimensional IRT models. In *Proceedings of CLADAG 2015: 10th Scientific Meeting of the Classification and Data Analysis Group of the Italian Statistical Society*, Eds: F. Mola & C. Conversano; CUEC Editrice.

**Fontanella S.,** Fontanella L., Ippoliti L. & Valentini P. (2015) Learning non-linear structures with Gaussian Markov random fields. *Procedia Environmental Sciences*,

26, *Spatial Statistics conference 2015*, pp. 38–44.

Genicot, M., Huang, W. & **Trendafilov, N.T.** (2015) Weakly correlated sparse components with nearly orthonormal loadings. In *Geometric Science of Information*, Eds: F. Nielsen & F. Barbaresco; Springer, pp. 484-490.

Gower, J.C. (2015) Principal coordinates analysis. In *Encyclopedia of Biostatistics*, second edition, Eds: P. Armitage & T. Colton; Wiley.

Gower, J.C. (2015) Visualisation. In *Geometry Driven Statistics (Kanti Mardia Festschrift)*, Eds: I.L. Dryden & J.T. Kent; Wiley, pp. 282-287.

Marriott, P., **Sabolová, R., Van Bever, G. & Critchley, F.** (2015) Geometry of goodness-of-fit testing in high dimensional low sample size modelling. In *Geometric Science of Information*, Eds: F. Nielsen & F. Barbaresco; Springer, pp. 569-576.

### 6.3 Others

**McConway, K.** (2015) Opinion polls in a nutshell. Three videos. Online at <http://www.open.edu/openlearn/science-maths-technology/mathematics-and-statistics/opinion-polls-nutshell>

**McConway, K.** (2015) Explainer: how do you read an election poll? *The Conversation*, May 5 2015, online at <https://theconversation.com/explainer-how-do-you-read-an-election-poll-41204>

Smith, E., Miller, C., **McConway, K.**, Merrill, S., Opsomer, J., Zacks, S., Brown, R., Sloan, R., House, L. & Vaidya, K. (2015) *Statistics for the Curious: Why Study Statistics?* Curious Academic Publishing; e-book.

Paindaveine, D. & **Van Bever, G.** (2015) Discussion of "Multivariate Functional Outlier Detection", by Mia Hubert, Peter Rousseeuw and Pieter Segaert. *Statistical Methods and Applications*, **24**, 223-231.

## 7. Conferences and Seminars at The Open University

In May, the Statistics group organized a conference/workshop pair. The one-day conference **Multivariate Analysis Today: Topical Expository Reviews (MATTER)** was followed by a **Workshop on Multivariate Analysis Today (WOMAT)**. The local organising committee comprised Sara Griffin & Tracy Johns (secretaries in Mathematics & Statistics Department), Radka Sabolová and Germain Van Bever; the scientific organising committee comprised Frank Critchley, Bing Li (Penn State University, USA) and Hannu Oja (University of Turku, Finland).

Speakers at the **MATTER** conference were:

David Hand (Imperial College London) *Big data*

Siegfried Hörmann (Université Libre de Bruxelles, Belgium) *Functional data analysis*

John Kent (University of Leeds) *The big picture*

Bing Li (Penn State University, USA) *Dimension reduction*

Hannu Oja (University of Turku, Finland) *Non-parametric and semi-parametric methods*

Rajen Shah (University of Cambridge) *Sparsity*

Speakers at the **WOMAT** workshop were:

Kjersti Aas (Norwegian Computing Centre, Oslo, Norway) *Pair-copula constructions – even more flexible than copulas*

João Branco (Universidade de Lisboa, Portugal) *High dimensionality: the trouble with Mahalanobis distance*

Tim Cannings (University of Cambridge) *Random projection ensemble classification*

Lutz Dümbgen (Universität Bern, Switzerland) *New algorithms for M-estimation of multivariate scatter and location*

Sara Fontanella (Open University) *A Bayesian approach to sparse latent variables modelling: factor analysis and multidimensional item response theory*

John Kent (University of Leeds) *Some new perspectives on partial least squares*

Yanyuan Ma (University of South Carolina, USA) *A validated information criterion to find the structural dimension*

Jim Smith (University of Warwick) *Chain event graphs for discrete multivariate processes*

Shahin Tavakoli (University of Cambridge) *Dynamics of DNA minicircles in motion via Fourier analysis of functional time series*

We ran our usual **seminar programme** with invited speakers. Over the year we heard:

John Kent (University of Leeds) *Statistical methods for projective shape analysis*

Rumana Omar (University College London) *The comparison of multiple imputation methods for repeated measurement studies*

Nadarajah Ramesh (University of Greenwich) *Some stochastic models for rainfall*

Guy Nason (University of Bristol) *Analysis and forecasting of locally stationary time series*

Shogo Kato (Institute of Statistical Mathematics, Tokyo, Japan) *The wrapped Cauchy distribution on the circle and its bivariate extension*

Arthur Pewsey (Universidad de Extremadura, Cáceres, Spain) *Inference for a bivariate wrapped Cauchy model for data on the torus*

Éric Marchand (Université de Sherbrooke, Canada) *Predictive density estimation: recent results*

Sofia Olhede (University College London) *Modeling Lagrangian trajectories as stochastic processes*

Biman Chakraborty (University of Birmingham) *On some nonparametric classifiers based on distribution functions of multivariate ranks*

We also ran our twelfth **Annual Research Students' Research Day**, where speakers were Tsegay Gebru, Ross Harris and Zillur Rahman Shabuz

And we held an **internal research morning** at which the speakers were Radka Sabolová, Germain Van Bever and Karen Vines

## 8. Conference & workshop papers and posters given

### C. Calvert

Royal Statistical Society Conference, Exeter *Predictive analytics* [Poster]

### F. Critchley

ICMS Workshop on Computational Information Geometry for Image and Signal Processing, Edinburgh *Information geometry and its applications: an overview* [Plenary]

### F. Elfadaly

Third Subjective Bayesian Meeting, Newcastle *Eliciting prior distributions for multinomial models – beyond the Dirichlet distribution*

8<sup>th</sup> Conference of the International Biometric Society of Eastern Mediterranean Region (IBS-EMR), Nevşehir, Turkey *On point estimation of the abnormality of an individual patient's results*

Workshop on Multivariate Analysis Today (WOMAT), The Open University *On point estimation of the abnormality of a Mahalanobis distance* [Poster]

### S. Fontanella

Workshop on Multivariate Analysis Today (WOMAT), The Open University *A Bayesian approach to sparse latent variables modelling: factor analysis and multidimensional item response theory*

Spatial Statistics: Emerging Patterns, Avignon, France *Learning non-linear structures with Gaussian Markov random fields*

60th ISI World Statistics Congress, ISI2015, Rio de Janeiro, Brazil *A normal mixture gamma inverse approach for sparse factor analysis*

10th Scientific Meeting of the Classification and Data Analysis Group of the Italian Statistical Society, CLADAG2015, Santa Margherita di Pula, Italy *Sparse exploratory multidimensional IRT models*



**P.H. Garthwaite**

International Biometric Society Channel Network 2015 Conference, Nijmegen, Netherlands *Analysis for single patient studies: examining a patient's profile of scores*

Expert Judgement Workshop, University of Strathclyde, Glasgow *Elicitation of opinion about multinomial models*

**T.G. Gebru**

8th International Conference of the ERCIM Working Group on Computational and Methodological Statistics, London *Sparse linear discriminant analysis with common principal components*

**R. Hilliam**

Royal Statistical Society Annual Conference, Exeter *Interactive statistics with The Open University*

One Day Workshop for Post-Doctoral Students, University of Derby *Statistics is for everyone*

**M.C. Jones**

60th ISI World Statistics Congress, ISI2015, Rio de Janeiro, Brazil *Log-location-scale-log-concave distributions for survival and reliability data*

**K.J. McConway**

Government Statistical Service Annual Conference, Birmingham *How the media operate: a statistician's view*

Royal Statistical Society Conference on Communicating Statistics with the Media, London *Why are the newspapers full of numbers anyway?*

Contemporary Issues in Statistics, Imperial College London *Statistics in the media: a statistician's view*

**R. Sabolová**

ICMS Workshop on Computational Information Geometry for Image and Signal Processing, Edinburgh *Computational information geometry for sparse goodness-of-fit testing*

Geometric Science of Information (GSI15), Paris, France *Geometry of goodness-of-fit testing in high dimensional low sample size modelling*

Workshop on Multivariate Analysis Today (WOMAT), The Open University *Recovering Fisher linear discriminant subspace by invariate coordinate selection* [Poster]

33rd Leeds Annual Statistical Research Workshop (LASR 2015), Leeds *Recovering Fisher linear discriminant subspace by invariate coordinate selection* [Poster]

**N.T. Trendafilov**

48th Scientific Meeting of the Italian Statistical Society, SIS 2015, Treviso, Italy

*Recipes for sparse linear discriminant analysis of data with more variables than observations*

### **G. Van Bever**

International Conference on Robust Statistics (ICORS 2015), Kolkata, India  
*Advances in invariant coordinate selection*

ICMS Workshop on Computational Information Geometry for Image and Signal Processing, Edinburgh  
*Computational information geometry: mixture modelling*

Geometric Science of Information (GSI15), Paris, France  
*Computational information geometry: mixture modelling*

8th International Conference of the ERCIM Working Group on Computational and Methodological Statistics, London  
*Hilbertian fourth order blind identification*

Workshop on Multivariate Analysis Today (WOMAT), The Open University  
*FFOBI: functional fourth-order blind identification* [Poster]

### **S.K. Vines**

Conference of the International Federation of Classification Societies, IFCS 2015, Bologna, Italy  
*Measures of fit for nonlinear biplots*

### **Y.G. Weldeselassie**

Joint Statistical Meetings (JSM2015), Seattle, USA  
*Spline-based self-controlled case series method*

## **9. Other seminars and talks given**

### **M.C. Jones**

University of Piraeus, Greece  
*Skew-t and all that: some of the main parametric families of distributions and how they compare*

University College Dublin, Ireland  
*Skew-t and all that: some of the main parametric families of distributions and how they compare*

### **K.J. McConway**

Royal Statistical Society Leeds/Bradford Local Group, Leeds  
*How the media operate: a statistician's view*

Royal Statistical Society West Midlands Local Group, Coventry  
*Statistics in the media: a statistician's view*

### **G. Van Bever**

Aalto University, Finland  
*Hilbertian fourth order blind identification*

## 10. Editorial roles

### F. Critchley

- Associate Editor: *Journal de la Société Française de Statistique*
- Editorial Board Member: *Studies in Classification, Data Analysis, and Knowledge Organisation* (book series, Springer)

### M.C. Jones

- Associate Editor: *Annals of the Institute of Statistical Mathematics*
- Associate Editor: *Journal of the Korean Statistical Society*
- Associate Editor: *Statistical Methodology*
- Associate Editor: *Statistics and Probability Letters*

### K.J. McConway

- Senior Editor/Statistical Advisor: *Endocrine-Related Cancer*
- Senior Editor/Statistical Advisor: *Journal of Endocrinology*
- Senior Editor/Statistical Advisor: *Journal of Molecular Endocrinology*

### N.T. Trendafilov

- Associate Editor: *Computational Statistics*
- Associate Editor: *Behaviormetrika*

## 11. Other activities

### C. Calvert

- is a member of the RSS Professional Affairs Committee
- co-authored two posters and a talk at the Open University eSTeEM conference
- co-authored two posters at the Open University SHARE conference
- ran an employment options event for Open University Mathematics and Statistics graduates

### F. Critchley

- co-organiser [with Kit Dodson (University of Manchester) and Frank Nielsen (Ecole Polytechnique, Paris)] of ICMS workshop on *Computational Information Geometry for Image and Signal Processing*, Edinburgh
- ran one-day meeting of research groups headed by himself, Bing Li (Penn State University, USA) and Hannu Oja (University of Turku, Finland)

### A.E. Faria

- examined a PhD at the University of Warwick

### C.P. Farrington

- is a member of the RSS Honours Committee

**P.H. Garthwaite**

- is a member of the RSS Research Section committee
- external examiner for MSc in Applied Statistics with specialisation in Actuarial Science at the University of Mauritius

**R. Hilliam**

- co-authored two posters and a talk at the Open University eSTEEeM conference
- co-authored two posters at the Open University SHARE conference
- gave a talk in the Open University SHARE online seminar series
- became a visiting Fellow in Medical Statistics at the University of Derby

**K.J. McConway**

- is RSS Vice-president for Academic Affairs and an elected member of the RSS Council
- became chair of the RSS Examinations Board
- member of the Council for the Mathematical Sciences
- external examiner for undergraduate and postgraduate statistics and management mathematics courses at the University of Birmingham
- external examiner for undergraduate statistics courses at Queen Mary University of London
- member, Natural Environment Research Council Peer Review College
- member, peer review panel for competition on 'Science and data-driven journalism', Volkswagen Stiftung, Hannover, Germany
- academic consultant on three further series of the BBC Radio4/OU series 'More or Less'
- made appearance regarding statistical issues on television (BBC News Channel, BBC World News) and radio (BBC Radio 4 (The World at One), BBC Radio Wales, BBC World Service, LBC)
- wrote invited comments on statistical aspects of scientific papers for the Science Media Centre
- STEM Ambassador (working with schools and young people to promote STEM subjects), including giving a talk at a school in Wellingborough
- judge for the 'SET for Britain' parliamentary poster competition for career-young researchers
- trustee of the Southern England Consortium for Credit Accumulation and Transfer

**C.M. Queen**

- external examiner for undergraduate statistics and related modules at Birkbeck College, University of London

**N.T. Trendafilov**

- was a research visitor to the University of Osaka, Japan

**S.K. Vines**

- was a research visitor to the Université de Liège, Belgium
- began co-chairing (with Chris Hughes [Mathematics & Statistics]) an Open University eSTeEM project on 'Sonification of Depictions of Numerical data'

**H.J. Whitaker**

- member of the scientific organising committee for the 2016 International Society of Clinical Biostatistics conference to be held in Birmingham