

Professor William J Browne

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KEY METRICS & INDICATORS

- **Publications:** 115 peer-reviewed journal articles (47 as first, corresponding or senior author), 10 books, 10 book chapters, h-index = 52, total citations = 30,341 (*Google Scholar*).
- **Grant income** of around **£3 million** as principal investigator (ESRC, British Academy, Defra, Home Office), and over **£8 million** as co-investigator (many funders).
- **Staff Management/Student supervision:** since 2003 managed 7 post-doctoral researchers and supervised 33 Doctoral students (18 completed, 15 current).
- **Academic Leadership:** Founding Director (2015-17) of the Jean Golding Institute for Data Intensive Research, one of Bristol's 4 cross-faculty research institutes. Member of University Research Committee (2016-17) and many other university level committees as JGI director. Within School of Education, School Education Director (2019-22) including period acting as Head of School in 2022. Deputy Research Director (2015-16)
- **Policy engagement:** Wrote Royal Statistical Society response to Government's consultation on the 'use of metrics in the REF' and also advised HEFCE on their consultation on 'Data publication thresholds and aggregation on Unistats'. Contributed to Royal Society DELVE report on 'Balancing the risks of pupils returning to school' during pandemic. Currently working with the Home Office on review of Police Funding Formula.
- **Learned societies:** Fellow of the Royal Statistical Society where served on Council (2010-13), Executive (2012-13), Academic Affairs (2011-14), and currently Honours Com. (2020-)
- **Presentations:** plenary/invited speaker at international conferences: e.g. International multilevel modelling conference (2011,2015) Royal Stat Society conference (many years)
- **Professional expertise:** Sat on NC3Rs Reporting Guidelines Working Group that developed the ARRIVE guidelines. Senior Fellow and Bristol lead on ESRC National Centre for Research Methods. Education Endowment Foundation Statistical Analysis Plan reviewer.

EMPLOYMENT HISTORY

Professor in Statistics, School of Education, University of Bristol.	2014 – present
Professor in Biostatistics, Vet School, University of Bristol	2007 – 2014
Associate Professor, School of Maths, University of Nottingham	2006 – 2007
Lecturer in Statistics, University of Nottingham	2003 – 2006
Post-doctoral Researcher, Institute of Education, London	1998- 2003

QUALIFICATIONS

PhD in Statistics, University of Bath	1995-1998
MSc in Computational Statistics (with distinction) University of Bath	1994-1995
BSc in Statistics, 1st, University of Bath	1990-1994

SELECTED RESEARCH GRANTS

Home Office (2016-17 & 2021-23) **£45k & £42k** *Police Funding Formula Reviews* (Principal Investigator)

Wellcome grant (2020–22) **£309k** *Efficient and transparent methods for linking and analysing longitudinal population studies and administrative data* (co-applicant and UoB lead)

ESRC NCRM collaborative grant (2018-19) **£99k** *Borrowing Strength – a collaborative software development for Small Area Estimation* (Principal Investigator)

British Academy grant (2016-18) **£115k** *Using Statistical E-books to teach undergraduate students quantitative methods and statistical software* (Principal Investigator)

BBSRC grant (2014-17): **£483k** *Validation and Differentiation of Welfare Indicators in Laying Hens* (co-applicant)

ESRC grant (2013-17) **£786k** *The use of interactive electronic-books in the teaching and application of modern quantitative methods in the social sciences* (Principal Investigator)
 3 related RSPCA grants (2013-17) **£240k** *Statistically modelling the racing greyhound population, Aetiology of dental disease in racing greyhounds, and Determining the most welfare compatible transport method for dogs, with emphasis on racing greyhounds* (Co-Applicant)
 EU grant (2012-13) **380k Euros** *Coordinated European Animal Welfare Network* (Co-Applicant)
 NERC grant (2012-15) **£650k** *Experimental approaches to determine the impacts of light pollution: field studies on bats and insects* (Co-Applicant)
 ESRC Research Methods programme node (2011-2014) **£1.4M** *LEMMA 3: Longitudinal Effects, Multilevel Modelling and Applications* (Deputy Director)
 DEFRA grant (2011-14) **£380k** *Improving mitigation success where bats occupy houses and historic buildings* (Co-Applicant)
 BBSRC grant (2011-14) **£725k** *The defence cascade as an indicator of animal welfare in the lab and field* (Co-Applicant)
 EPSRC/NERC grant (2010-15) **£1M** *National Centre for Statistical Ecology* (Co-Applicant)
 ESRC NCeSS Programme Node (2009-12) **£1.1M** *e-STAT –NCeSS quantitative node* (Node Director & Principal Investigator)
 DEFRA grant (2008-11) **£286k** *A County Parish Holding Herd (CPHH) level spatial and temporal analysis of the Randomised Badger Culling Trial (RBCT) dataset* (Principal Investigator)
 ESRC Research Methods programme node (2008-11) **£1.2M** *STRUCTURES for building, learning, applying and computing statistical modelling* (Co-Applicant)
 Wellcome Clinical Fellowship (2006-10) **£406k** *Use of Bayesian statistical methods to investigate farm management strategies, cow traits and decision-making in the prevention of clinical and sub-clinical mastitis in dairy cows* (Sponsor of Martin Green)
 ESRC grant (2006-09) **£174k** *Sample Size, Identifiability and MCMC Efficiency in Complex Random Effect Models* (Principal Investigator)

RESEARCH INTERESTS

My research can be split naturally into two areas:

I firstly work on the development of new statistical methodology and software for the fitting of models that account for the realistic complexity that exists in data sets collected in practice. From a methodology point of view I generally work using Bayesian estimation and MCMC methods but also importantly my aim is to enable these methods to be easily used by the research community at large. My team achieve this via the development of statistical software packages such as MLwiN (which has over 20,000 users) and this area of my research has been primarily funded by the ESRC. This research has also more recently been extended (with British Academy funding) to cover how best we use software in teaching statistics which I continue in my Turing Fellowship.

The second area is using these methods on applied problems, by acting as the statistical lead on more application focussed grants. I have done this recently in the fields of education, policing, aerosol science, ecology, animal behaviour and vet. epidemiology with the work being supported by funding from ESRC, BBSRC, EPSRC, NERC, Wellcome, Home Office and Defra among others.

EXAMPLE PUBLICATIONS (see <https://scholar.google.co.uk/citations?hl=en&user=yEHlg0AAAAAI> for full list)

Browne, WJ & Draper D (2006). A Comparison of Bayesian and likelihood methods for fitting multilevel models (with discussion). *Bayesian Analysis*. 1: 473-550.

Browne, WJ, Golalizadeh, M, Green MJ, & Steele F. (2009) The use of centred parameterisations and MCMC estimation to fit multilevel discrete-time survival models. *JRSS, Series A*. **172**, 579-598

Goldstein, H, Carpenter, J and Browne, WJ (2014). Fitting multilevel multivariate models with missing data in responses and covariates.... *JRSS, Series A*. 177:553-564

Steele, FA, Washbrook, E., Charlton, C. and Browne WJ (2016) A longitudinal mixed logit model for estimation of push and pull effects in residential location choice. *JASA* 111:515, 1061-1074

Zhang, Z., Parker, RMA, Charlton, CMJ, Leckie, G. and Browne, WJ. (2016) R2MLwiN: A package to run MLwiN from within R. *Journal of Statistical Software*.

van Erp, S. and Browne, WJ (2021) Bayesian multilevel structural equation modeling: An investigation into robust, default prior distributions. *Structural Equation Modelling*. 28(6) 875-893