Brief Curriculum Vitae

Helen Louise MacGillivray

**1. Employment**

2004- Professor, now Adjunct, Queensland University of Technology (QUT)

1991–2003 Associate Professor in Statistics, Mathematical Sciences, QUT

1977–1991 Senior Lecturer/Lecturer (Statistics), University of Queensland (UQ).

* 1. Counsellor in Mathematical Methods, Australian National University (ANU).

# **2. Educational qualifications:** BSc(Hons) (UQ) PhD (UQ, 1979).

**3. Selected Awards/Grants (total >$800,000)**

2016 Principal Fellow, Higher Education Academy

2014-2016 Australian Maths and Science Partnerships Program

2011 Australian Citation for Outstanding Contributions to Student Learning

2011 Winner, Australian Educational Publishing Awards, Tertiary Education

2007-2008 Inaugural Australian Senior Teaching Fellowship

2006-2008 National Leadership Grant for Excellence in Learning and Teaching

2004 Honorary Life Membership, Statistical Society of Australia

2003 Finalist, Australian Awards for University Teaching

2001-2003 Teaching Grant *University-wide* *student-centred learning support strategies*

1999 Statistical Society of Australia Award for Distinguished Service

1997 Australian Teaching Grant *Developing statistical skills through projects*

1990-1992 Australian Research Council *Shape properties of distribution families*

**4. Selected Professional positions**

2018-2019 Chair, UN Global Network of Institutions for Statistical Training

2017-2019 President, International Statistical Institute

2011-2017 Vice-president, President-elect, International Statistical Institute

2014- Editor, *Teaching Statistics*, Wiley.

2008-2016 Joint chair and editor, 6th-9th Australian Conferences on Teaching Statistics

2009-2011 President, International Association for Statistical Education (IASE)

1998-2014 International Conferences on Teaching Statistics (ICOTS):

2008-2014: Program coordinator, ICOTS9. Scientific coordinator ICOTS8.

1998-2006: Topic convenor ICOTS7, ICOTS6, ICOTS5.

2007-2009 SPC member, 57th Session of the International Statistical Institute.

* 1. President, Australian Mathematical Sciences Council (AMSC)

1995-1997 President, Statistical Society of Australia

1984 Chair, 7th Australian Statistical Conference

1997- School curriculum and assessment:

Member committees Maths B, C, Core skills test, Scaling Anomalies.

Chair Senior Maths Committee. Consultant and writer P-10 syllabus statistics

# **5. Academic consultancies**

2015 Reviewer, Mathematics and Analytics, Auckland University of Technology.

2011-2013 Reviewer, Statistics working Party, University of Adelaide

2011 Reviewer, introductory statistics teaching, UQ

2010 Australian Mathematical Sciences Institute consultant: statistics for teachers

2010 Reviewer, Department of Applied Statistics and Finance, ANU

2004-2011 Director, QUT Maths Access Centre (university-wide learning support)

2007-2010 Visiting Fellow, Loughborough University, UK

2006 Reviewer, Statistics Teaching, University of Newcastle

2004 Reviewer, Statistics, Swinburne University, Lilydale campus

2003 Reviewer, ‘Teaching Statistics in Higher Education’, Royal Statistical Society, UK

2001-2003 Consultant, Higher Education Academy, UK

2003 Reviewer, Mathematics and Statistics, Univ. of South Australia

1. Visiting Fellow, University of Glasgow.

1992-1995 Member, Institutional Grants Committee, Australian Research Council

1992-1995 Chair of review panels of Key Centres/Special Research Centres

**6. Publications**

**Books**

MacGillivray, H.L., Martin, M. and Phillips, B. (2014) (eds) *Topics from Australian Conferences on Teaching Statistics: OZCOTS 2008-2012.* Springer Proceedings in Mathematics and Statistics 81, DOI 10.1007/978-1-4939-0603-1\_1© Springer Science+Business Media, New York. (418pp)

MacGillivray, H.L., Utts, J. and Heckard, R. (2014) *Mind on Statistics* (Australia and New Zealand 2nd edn). Cengage Learning Australia (650pp)

MacGillivray, H.L. and Petocz, P. (2013) *Statistics & Probability for the Australian Curriculum Years 7&8*. Cambridge University Press, Melbourne, Australia

MacGillivray, H.L. and Petocz, P. (2013) *Statistics & Probability for the Australian Curriculum Years 9&10*. Cambridge University Press, Melbourne.

MacGillivray, H.L.(2004) *Data Analysis: introductory methods in context*, Pearson Education Australia, Sydney.

MacGillivray, H.L. and Hayes, C. (1998) *Practical Development of Statistical Understanding: a project based approach*, QUT press, Brisbane.

B**ook chapters**

Gibbons, K. and MacGillivray, H.L. (2014) *Education for a workplace statistician*. In MacGillivray, H.L., Martin, M. and Phillips, B. (2014) (eds) *Topics from Australian Conferences on Teaching Statistics: OZCOTS 2008-2012,* (pp267-294)Springer Science+Business Media, LLC, New York.

MacGillivray, H.L. (2010) *Assessment for learning that reflects the variety in statistics*, In Bidgood, P., Hunt, N. and Jolliffe, F. (eds) *Assessment Methods in Statistical Education. An International Perspective*, (pp21-34). Chichester, UK: Wiley.

MacGillivray, H.L. and Mendoza, L. (2011) *Teaching statistical thinking through investigative projects* In Batanero, C., Burrill, G., and Reading, C. (eds) *Teaching Statistics in School Mathematics - Challenges for Teaching and Teacher Education,* a joint ICMI/IASE Study (pp 109-120). Springer Science+Business Media, B. V. 2011

# King, R. And MacGillivray, H. L. (2011) *Fitting the generalized lambda distribution with location and scale-free shape functionals,* In Zaven E. Karian and Edward J. Dudewicz, (eds) *Handbook of fitting statistical distributions with R* (pp.415-432 ) CRC Press

**Selected refereed/invited publications/keynotes (from over 100)**

*Education for a workplace statistician.* Japan Statistical Conference, Kyoto, March 2014.

*Developing statistical thinking capabilities for postgraduates across disciplines.* SAS Inc, Tokyo, March 2014.

MacGillivray, H.L. and Croft, A. C. (2011) *Understanding Evaluation of Learning Support in Mathematics and Statistics.* IJMest 42 (2), 189-212

Forster, M. and MacGillivray, H.L. (2010). *Student discovery projects in data analysis*. In Reading, C. (ed) The Proceedings IASE/ISI8th International Conference on Teaching Statistics, Ljubljana: ISI, Voorburg, The Netherlands. <http://icots.net/8/cd/pdfs/invited/ICOTS8_4G2_FORSTER.pdf>

MacGillivray, H.L. (2009) *Learning support and students studying mathematics and statistics* IJMest 40 (4), 455-472

King, R. and MacGillivray, H.L. (2007) *Fitting the generalised lambda distribution with location and scale-free shape functionals*, Amer J Mathematical and Management Sciences 27 (3/4), 441-460

Wilson, T.M. and MacGillivray, H.L. (2007) *Counting on the basics: mathematical skills amongst tertiary entrants*, IJMest 38(1), 19-41

MacGillivray, H.L.(2006) *Using data, student experiences and collaboration in developing*

*probabilistic reasoning at the introductory tertiary level,* In Rossman, A. and Chance, B. (eds) Proc IASE/ISI7th International Conference on Teaching Statistics, Brazil: ISI, Voorburg.

<http://iase-web.org/documents/papers/icots7/6B4_MACG.pdf>

MacGillivray, H.L.(2005) *Helping students find their statistical voices*, In Weldon, L. and Phillips, B. (Eds.) Proc ISI / IASE Satellite on Statistics Education and the Communication of Statistics, Sydney: ISI, Voorburg, The Netherlands <http://www.stat.auckland.ac.nz/~iase/publications.php?show=14>

MacGillivray, H.L. and Cuthbert, R. (2003) *Investigating weaknesses in the underpinning mathematical confidence of first year engineering students*, Proc. 14th Australasian Engineering Education Conference, 358-368, The Institution of Engineers, Australia.

MacGillivray, H.L.(2003) *Making statistics significant in a short course for graduates with widely-varying non-statistical backgrounds*, J. Applied Mathematics and Decision Sciences 7(2) 105-113.

Rayner, G.D. and MacGillivray, H.L. (2002) *Numerical maximum likelihood estimation for the g-and-k and generalised g-and-h distributions*, Statistics and Computing, 12, 57-75

Rayner, G.D. and MacGillivray, H.L. (2002) *Weighted quantile-based estimation for a class of transformation distributions*, Computational Statistics and Data Analysis, 39, 401-433

King, R. and MacGillivray, H.L. (1999) *A starship estimation method for the generalised*

*lambda distributions*, Austral. & New Zealand J. Statist. 41, 901-922

MacGillivray, H.L. (1998) *Statistically Empowering engineering students*, Proc. 3rd Engineering Maths and Applications Conference, 335-338, The Institution of Engineers, Australia.

Haynes, M., MacGillivray, H.L. and Mengersen, K. (1997) *Robustness of ranking and selection rules using generalised g-and-k distributions*, J. Stat. Planning and Inference, 65, 45-66

MacGillivray, H.L. (1992) *Shape Properties of the g-and-h and Johnson Distributions*, Comm. Statist. - Th. Meth. 21, 1233-1250.

Balanda, K.P. and MacGillivray, H.L. (1990) *Kurtosis and Spread*, Can. J. Statist. 18, 17-30.

MacGillivray, H.L. and Balanda, K.P. (1988) *Mixtures, Myths and Kurtosis*, Comm. Statist. B. - Simula. Comput. 17, 789-802.

Balanda, K.P. and MacGillivray, H.L. (1988) *Kurtosis, a critical review*, Amer. Statist. 42, 111-119.

MacGillivray, H.L. and Balanda, K.P. (1986) *The relationships between skewness and kurtosis*, Aust. J. Statist. 20, 319-337.

B.G. Quinn and MacGillivray, H.L. (1986) *Normal approximations to discrete unimodal distributions*, J. Appl. Prob. 23, 994-1011.

MacGillivray, H.L. (1986) *Skewness and asymmetry: measures and orderings*, Ann. Statist. 14, 994-1011

MacGillivray, H.L.(1982) *Skewness properties of asymmetric forms of Tukey lambda distributions*, Comm. Statist. - Theory and Methods 11, 2239-2248.

MacGillivray, H.L. (1981) *The mean median, mode inequality and skewness for a class of densities*, Austral. J. Statist. 23, 247-350.

MacGillivray, H.L. (1981) *Moment inequalities of the Liapunov type*, J. Austral. Math. Soc. Ser. A31, 236-251.

MacGillivray, H.L. (1980) *The moment ratios of particle size distributions in some simple growth models*, J. Appl. Prob. 17, 956-967.

**7. Curriculum design, teaching and outreach**

**1974-2011:** 45 units, subjects or modules in statistics developed, lead and taught across a wide range of different courses in more than 6 different faculties at QUT, UQ and ANU, at all undergraduate and postgraduate levels, with class sizes range from 600 to honours classes and postgraduates across disciplines.

**Founder and director**: *MathX* – extension program year 11 students (1995-2004); QUT’s grade 12 Scholars in Mathematics Program (1995-2004); *Mathematics Futures* (1998-2010).

**Workshops/presentations for teachers** 1990-2016: >150