

The Australian Women's Register

Entry type: Person
Entry ID: AWE26092851

Ryan, Louise Marie

Occupation Academic, Biostatistician

Summary

Distinguished Professor Louise Marie Ryan is an internationally renowned biostatistician for her work on the application of statistics to real-world problems in health and the environment. She is based at the University of Technology Sydney, and is an Adjunct Professor of Biostatistics at the Harvard T. H. Chan School of Public Health in the United States. Ryan was elected a fellow both of the American Statistical Association and the International Statistics Institute in 1994, of the Institute of Medicine in the United States National Academy of Sciences in 2008, of the Australian Academy of Science in 2012, and was appointed an Officer of the Order of Australia in 2024.

Details

Louise Ryan originally chose actuarial studies at Macquarie University for her undergraduate degree in 1975. But she soon realised the statistics part of her studies were far more interesting than the financial, and she enjoyed the ability to come up with simple formulae that revealed the complexity and randomness of a chaotic world. Ryan switched to a degree in mathematics, and graduated with honours in statistics in 1978. Her undergraduate supervisor Don McNeil suggested she do a PhD in the United States, so in 1979 she moved to Harvard University in Cambridge, Massachusetts to pursue a PhD in statistics, looking at diagnostic techniques to help decide which statistical models work best for different data sets.

After completing her PhD in 1983, Ryan began a postdoctoral fellowship in biostatistics jointly with the Harvard School of Public Health and the Dana-Farber Cancer Institute, researching both the cancer risks of a red food colouring agent and the statistical elements of clinical trial design. In 1985, Ryan was promoted to Assistant Professor at both the Dana-Farber Cancer Institute and Harvard School of Public Health, and worked on a range of studies including clinical trials of anti-cancer drugs as well as studies of clinical trial methodology and statistics. Her work was already attracting attention; in 1993 she received a distinguished achievement award in the environmental section from the American Statistical Association and in 1994 she was awarded the Mortimer Spiegelman Award – which honours a statistician under the age of 40 – by the American Public Health Association. Ryan was elected a fellow both of the American Statistical Association, and of the International Statistics Institute in 1994.

In the late 1990s, Ryan was involved in two panels convened by the US National Academy of Sciences to examine arsenic in drinking water, and methylmercury. At the same time, she was leading student programs at Harvard, including a summer program to provide opportunities for minority and female students in biostatistics – which later earned her the Elizabeth L. Scott Award from the Committee of the Presidents of Statistical Societies in 2006 – and a program in environmental statistics. Ryan was also instrumental in establishing the now long-standing Fostering Diversity in Biostatistics Workshop initiative within the Eastern North American Region of the International Biometric Society.

In the early 2000s, Ryan was appointed the Henry Pickering Walcott Professor and Chair of the Department of Biostatistics at Harvard, and she currently remains an Adjunct Professor of Biostatistics at the Harvard T. H. Chan School of Public Health. Ryan was also elected a fellow of Institute of Medicine in the United States National Academy of Sciences in 2008.

In 2009, Ryan returned to Australia and took up the position of Chief of CSIRO's Division of Mathematics, Informatics and Statistics, the same year that she was recognised with a Distinguished Alumni Award from her alma mater Macquarie University. One of her early initiatives at CSIRO was to start a graduate fellows program to attract undergraduates interested in a PhD in mathematics, informatics or statistics, with a goal of attracting the best talent to the division. After three years, she moved to University of Technology Sydney to take up the position of distinguished professor of statistics in the School of Mathematical Sciences in 2012, and that same year she was elected as a fellow of the Australian Academy of Science. A year later, she co-founded and served as Chief Investigator of the Australian Research Council Centre of Excellence in Mathematical and Statistical Frontiers; a joint venture involving seven Australian universities, including UTS.

In 2015, Harvard University honoured her contributions to society as an alumna with a Centennial Medal. In 2018, her internationally-recognised work in the development and application of statistical methods for cancer and environmental health research earned her the Statistical Society of Australia's Pitman Medal. The award honoured not only her work in biostatistics, but also her efforts in mentoring young researchers and to increase the participation of women and minorities in statistics. That year she also was elected president of the International Biometrics Society, and served in the role for two years. In 2021, Macquarie University awarded Ryan with the Moyal Medal, an annual award recognising research contributions to mathematics, physics or statistics. The award celebrated her decades of work blending statistical methods research with applications in health and environmental research. In her Moyal Medal Lecture, Ryan spoke on how statistical modelling and machine learning could offer insights about the sustainability of water resources.

In 2024, Ryan was appointed an Officer of the Order of Australia, for her distinguished service to biostatistical research and methodology, to environmental science, and to professional societies. Ryan continues her work on the application of statistics in medicine and health at UTS, most recently looking at the development and application of innovative biostatistical methodology for the study of prenatal alcohol exposure and its effect on cognitive and behavioural deficits in children.

Published resources

Article

Louise Ryan, Chief, Mathematical and Information Sciences, Commonwealth Scientific and Industrial Research Organisation, Gevin, V., 458, 374 (2009)

Online Article

Academy fellow wins Pitman Medal, 6 September 2018,
<https://science.org.au/news-events/news-views/academy-fellow-wins-pitman-medal>

Louise Ryan awarded the 2021 Moyal Medal, 2021,
<https://ar2021.acems.org.au/content/Achievements/Louise-Ryan.html>

Professor Louise Ryan,
<https://acems.org.au/our-people/louise-ryan>

Interview

A conversation with Louise Ryan, 2018,
<https://acems.org.au/conversation-louise-ryan>

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Created 28 September 2026

Last modified