



# Randomization, Bootstrap and Monte Carlo Methods in Biology

A one day workshop presented by  
**Professor Bryan Manly**  
Formerly of University of Otago, Dunedin, New Zealand

Thursday, 3 October 2019  
Building 6, Room 210 University of Wollongong Campus

## Overview

Modern computer-intensive statistical methods play a key role in solving many problems across a wide range of scientific disciplines. This workshop supplies a solid foundation for statistics and quantitative analysis in biology, which is based on the book "Randomization, Bootstrap and Monte Carlo Methods in Biology".

In this workshop, we focus on three related areas in computational statistics: randomization, bootstrapping, and Monte Carlo methods of inference, illustrating the value of a number of these methods with an emphasis on biological applications. The presenter emphasizes the sampling approach within randomization testing and confidence intervals. Similar to randomization, we show how bootstrapping, or resampling, can be used for confidence intervals and tests of significance. It also explores how to use Monte Carlo methods to test hypotheses and construct confidence intervals.

Participants should have already studied basic statistical methods.

## The Instructor



Professor Bryan Manly specializes in applications of statistics in ecology and environmental science. He has particular expertise in the design and analysis of biological sampling programs, multivariate analysis, population modeling, computer-intensive methods, and the design and analysis of studies on resource selection by animals.

Professor Bryan Manly is a consultant with New Zealand Department of Conservation and the US National Marine Fisheries Service. He is an Adjunct Professor at University of Wyoming and prior to that he was Chair of Statistics and Director of the Center for Applications of Statistics and Mathematics at the University of Otago, New Zealand.

Fee	SSAI Members	UOW Staff	Students
\$500	\$450	\$250	\$250

Morning and afternoon coffee/tea and a sandwich lunch is included in the course fee.

For further information contact Pauline O'Shaughnessy on [poshaugh@uow.edu.au](mailto:poshaugh@uow.edu.au)  
*Places are strictly limited and registrations will be processed as they are received.*