

# Introduction to R and Reproducible Research

Monday, 23 September to Tuesday, 24 September 2024

Enrolment form for fee-paying participants



Title:		Full Name:	
Employer:			
Department:			
Address:			
Suburb:		Postcode:	
Email:			
Telephone:		Mobile:	

Signature:		Date:	
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<b>Course fees</b>	Full	\$750		
	UoM Staff	\$550		
	UoM GR student	\$275	Student ID	

**Internal billing:**

<input type="checkbox"/>	<b>Internal transfer of funds</b>	Staff \$500	<input type="checkbox"/>	UoM Student \$250	<input type="checkbox"/>
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Full Themis account string								
Finance person:		Finance email:						

**External billing:**

<input type="checkbox"/>	Tax invoice	External party fee includes GST \$750
	Name/Company	
	Address	

<input type="checkbox"/>	Pay by Credit card go here:	<a href="https://ecommerce.unimelb.edu.au/introduction-to-r-and-reproducible-research">https://ecommerce.unimelb.edu.au/introduction-to-r-and-reproducible-research</a>
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# Introduction to R and Reproducible Research

*A course of the Statistical Consulting Centre Platform, The University of Melbourne  
in conjunction with Statistical Consulting Centre*

**Monday, 23 September to Tuesday, 24 September 2024**

Face to Face

This workshop covers the tools needed to efficiently work with data using R, particularly focusing on importing, rearranging, describing and visualising data. This course has a focus on reproducible research, which means making sure that all of steps in analysing your data are recorded and could be run again automatically: by you, if you discover an error in your data file or a step in your data processing; by a colleague, to do a similar analysis on their own data; or by someone else to verify your results. The course covers the following topics:

- the basics of R and RStudio;
- using R Markdown to tie together your R code, output and analytical decisions;
- the benefits of a reproducible approach to data analysis;
- concepts relating to types of data and how to best organise the data you collect;
- importing data from commonly used file formats including Excel and CSV;
- practical data-cleaning tasks to get your original data ready for analysis;
- methods for summarising and describing data;
- producing high-quality graphics with the 'ggplot' package;
- presenting results from statistical analyses in tables and graphs.

The workshop focuses on specific aspects of the R statistical package, methods for reproducible research and ways to effectively work with data arising from real-world research. The Statistical Consulting Centre also offers a general, introductory statistics course "Statistics for Research Workers using R" which focusses on statistical concepts and methods. These courses are designed to have relatively little overlap and may be taken in either order.

## **Course structure:**

This is a two day course. Each day will consist of four approximately equal-length sessions; the first session of the day will commence at 9:15 a.m. and the final session will end at approximately 4:45 p.m. The sessions will mix lecture presentations with practical work; tutorial help will be readily available.

The statistical package R will be used in the course, along with companion software including RStudio, R Markdown, ggplot2 and the 'tidyverse' collection of packages. Participants are encouraged to have R and RStudio set up on their personal laptop prior to the course. Desktop PCs will also be available at the venue.

## **Venue:**

The course will be held in the Wilson Computer Laboratory in the School of Mathematics and Statistics, Peter Hall Building (160).

## **Cost:**

The cost of the course is \$750 (including GST) for external participants to the university, \$500 plus GST for University staff members, or \$250 plus GST for University students. (GST does not apply if paying through your university department.)

## **Who should take this course?**

The course is suitable for researchers wanting efficient and effective strategies for working with quantitative data in a reproducible manner. This course is about what happens before and after traditional statistical analysis: getting your data in a form ready for analysis and presenting the results of statistical analyses. While designed for those who have not used R before, it may also be of interest to participants with some familiarity in R but not R Markdown or the 'tidyverse' family of packages.

## **Prerequisites:**

No prior experience with R is necessary.

Most of this course assumes little statistical knowledge. However, some statistical concepts will be employed and may be introduced with less detail or rigour than a statistics-focussed course. Background knowledge equivalent to an introductory statistics course will be beneficial but not necessary.

## **Course presenters:**

The presenters, Dr Jeremy Silver and Cameron Patrick, are consultants for the Statistical Consulting Centre in the School of Mathematics & Statistics with over 25 years of experience using R between them, both in research and commercial settings. Cameron worked as a software developer in a data-intensive industry prior to becoming a statistician. Jeremy commenced at the University of Melbourne in 2015 as a research fellow, and recently joined the Statistical Consulting Centre, assisting university students and staff with R for a wide range of applications. Both Cameron and Jeremy also consult to industry and government.