UNSW PSYC2001 Computing Tutorials

Bart Cooley, Peter Lovibond, Kelly Garner

2025-09-01

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Course Information

0.1 The purpose of this coursebook

Welcome to the computing tutorials for PSYC2001. This coursebook has been designed to support your learning of statistics through hands-on practice with R. It accompanies the RMarkdown tutorial documents available on Moodle and will guide you through the more code-heavy components of the course. The focus is not just on memorising but on learning how to think about data, ask good questions, and use R as a tool to answer them.

0.2 Structure of the Coursebook

Each chapter introduces a key concept in statistics. You will often see worked examples with code that runs in R. These examples show you how to apply statistical techniques step by step. Throughout the chapters, you will also find incomplete code blocks. These are practice opportunities for you to fill in the missing parts. Completing these code blocks is important, because your goal at the end of each tutorial is to be able to reproduce the coursebook chapter using the RMarkdown code. More importantly, it will help you move from simply reading code to actively writing and using it. Throughout this course book there will be questions that encourage you to think about about or apply what you've learned in new situation.

Chapter 1

Introduction to R

To perform data analysis in Psychology, one needs some powerful software to help you get data into shape, and to apply all the fancy statistical tests that you will learn about in this course. In this course, we will be using the programming language R and the software R Studio to do this.

1.1 R and R Studio

For this course, you need two different bits of software, R and RStudio. R is a programming language that you will write code in and R Studio is an Integrated Development Environment (IDE) which makes working with R easier. Think of it as knowing English and using a plain text editor like NotePad to write a book versus using a word processor like Microsoft Word. You could do it, but it wouldn't look as good and it would be much harder without things like spell-checking and formatting. In a similar way, you can use R without R Studio but we wouldn't recommend it. The key thing to remember is that although you will do all of your work using R Studio for this course, you are actually using two pieces of software which means that from time-to-time, both of them may have separate updates.

R is a free and open-source programming language that is widely used for statistical computing and data analysis. R Studio is a user-friendly interface that makes it easier to write and run R code, manage files, and visualize data.

All of the School of Psychology computers have R and R Studio installed, however, we can only guarantee that the computers in the Level 2 psychology labs have the right set-up.

Both R and RStudio are freely available so you may wish to install them on your own machine. There is a useful guide to installing them both here that you can use. Note that the PSYC2001 staff are unable to help you if you have specific