Statistics for Psychologists 1

John Towse, Tom Beesley, Margriet Groen, Rob Davies

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Chapter 1

Intro

This is a collection of tuition material

Written by John Towse & Tom Beesley

1.1 Analysis labs and 'pre-lab' activity

For each lab session that you have been scheduled to attend, please come "prepared'. By this we mean

- You have watched the lecture video, made notes, and developed questions where you have them.
- You have worked through the online "prelab" preparation materials (this is the one for week 1)
- You read the lab sheet (this one) to get a sense of what we're going to be doing, and you anticipate potential problems so that you can focus on these in the session.

The lecture is designed to deliver important ideas and procedures for learning about analysis. Pre-lab material is then designed to help consolidate this learning, or enhance, expand and apply it in ways that set the scene for the lab session activity.We want to prepare you to be ready to go in the session itself and make the most of your time there.

Want additional support? Keep in mind that the Department has endorsed and will use the Statistics textbook by David Howell called "**Fundamental statistics for the behavioral sciences"**

The book covers principles of statistics as well as lesson on using. You can access a library copy here

1.2 1 Activities for this week

1.3 Task 1 - check-in with the University attendance register

When you arrive, mke sure you have checked-in to your Analysis session in the Levy lab. All students are required by the University to confirm attendance at taught sessions. Here's information from the University about how to do this.

Staff will remind you of this in your class.

1.4 Task 2 - Getting dicy

Here's a simple task for you to complete as a grou around each of the workstations;

You will be given a pair of dice

1. Working in pairs, one person rolls both dice.
2. Add up the total on each of them and have someone record that total (if you don't have some spare paper or a pen, use your computer)
3. Repeat those steps 20 times.
4. Then swap over your roles (the person rolling the dice, the person recording the outcome)
5. Once everyone at the workstation has had a turn at this, each person should attempt to work out (a) the mean and (b) the median of their dice roll total.
6. Check each others working, and discuss any differences or problems you have.

Are all your answers the same? Why / why not? If not, are they very different or very similar?

1.5 Task 3 - Using RStudio

1.5.1 3.1 Introducing R Studio

R and RStudio is the software that we will be using to explore and learn about analysis in your Psychology degree. It's a computational engine: a very snazzy calculator that you should see as your friend and ally in the journey to understand and appreciate psychology. It sits *alongside* what we teach about the concepts and interpretation of statistical analysis.

R is the core software, RStudio is the interface for interacting with it. Put another way, *R is the engine, RStudio is the cockpit.*

Like even a simplest calculator, it just does what you ask (at least when you ask nicely!) but it requires the user to know what they want from it and to understand what it is telling you. A calculator can't help a kid get the right answer to a multiplication problem if they don't know the difference between multiplication and division and addition etc. And whilst a calculator is brilliant at doing the number crunching (and as a bonus, R Studio can help with turning the numbers into beautiful graphs and images too), even a calculator requires a thoughtful person to take the answers and make sensible interpretations from them.

Therefore, we need to learn both about the concepts of statistical analysis on the one hand, and the processing of statistical information -through R- on the other. The lectures will provide the starting pointmand the direction for statistical concepts, whilst these analysis labs provide the more practical experiences in how to use R, and how to R your ally. Over the next year, in these labs we will increasingly be using RStudio to focus on the latter, processing side, which will allow you to focus your energies on the conceptual side and its relevance for appreciating psychology.

1.5.2 3.2 Getting started with RStudio

For Lancaster University Psychology Students in 2022, we will be learning about R Studio through a simple but powerful web server architecture. That is, through the power of the internet, you can access and use R Studio by logging into a free account that we have provided and we will maintain for your use.

> Here's a little secret: There are several different ways to access RStudio. For example, you can download a copy of the software onto your computer, or use a Virtual Machine set up to run a copy. There's nothing to stop you having your local copy, but please note - we can't support your own version through lab classes. We're using the web server to make sure everyone has the same, controlled experience.