statsART

statistics | analysis | research | training

Course descriptions

Full course list:

- Presenting data
- Introduction to research methods
- Thinking critically about research
- Ethics in research
- Issues in experimental design
- Issues in questionnaire design
- Hypothesis testing and statistics
- Psychometrics in research
- Describing data
- Basic statistics
- Analysis of differences 1
- Analysis of relationships 1
- Analysis of differences 2
- Analysis of relationships 2
- Analysis of questionnaire data

Courses can also be custom designed according to your needs. Please contact us (info@statsART.com) to discuss your ideas.

Full course descriptions can be found overleaf.

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Presenting data

Giving a presentation can be a daunting experience at the best of times, but when you are presenting research and statistics it can be terrifying! Our new half-day course will help you to prepare and present both oral and poster presentations. This is a fun and interactive session covering the following topics:

- Why did you do it? Establishing the background to your research.
- Presenting methods and analysis.
- Graphing data: The "rules" for how best to graph your data vary according to how and where you are presenting.
- Making the most of Powerpoint for your presentation
- Oral vs. poster presentations: how should they differ?
- How to prepare for your research talk
- Dealing with nerves
- Dealing with questions from the audience

Research methodology courses

<u>Introduction to research methods</u>

This course will introduce the basic research methodologies used when you are interested in frequency data, differences between groups or relationships between variables. We will also examine consider reliability and validity in research and sampling issues.

<u>Thinking critically about research</u>

In this course we will consider the skills needed to think critically about information, research and statistical analysis. This will cover both primary sources of research and media representations of research. How do we know whether a piece of research is really showing us what the author tells us? To

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what extent do media representations of science and research really reflect the findings?

Ethics in research

Whenever conducting any form of research it is vital to ensure that the highest possible ethical standards are maintained. In this course we will discussed the standard ethic guidelines for conducting research, how to design ethical studies and how to deal with potentially unethical problems.

Issues in questionnaire design

The way in which a questionnaire is designed can greatly influence both the quality and the quantity of the data collected. In this course we will discuss how to write the questions, different way of collecting responses (rating vs. open ended questions), reliability and validity in questionnaires and we will give a basic overview of the types of analysis typically used to analyse the data collected from questionnaires.

Issues in experimental design

When designing an experiment there are a great many factors that need to be considered. In this course we will talk about experimental and quasi-experimental designs, control variables, confounding variables, the advantages and disadvantages of repeated vs. independent measures designs and the interpretation of main effects and interaction terms.

Hypothesis testing and inferential statistics

This is a *"no numbers"* introduction to the theory behind hypothesis testing and the use of inferential statistics. In this course we will consider how we can collect data from a relatively small number of people and then use statistics to understand whether the patterns in the data can be generalised to the wider population: inferential statistics.

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Psychometrics in research

This session will begin with an introduction to the main psychological theories of personality and intelligence. The methodology behind psychometric testing will then be discussed before moving on to looking at a range of different psychometric tests. The tests used for demonstration purposes can be altered to suit your needs.

Statistical analysis courses

The basic statistics courses can be taught using either Excel or SPSS whilst the more advanced statistics can only be taught using SPSS. The options available are specified in the course descriptions. Where either Excel or SPSS are possible, one must be selected. For "Analysis" courses, an Excel add-on will be needed to access the statistics.

For the more advanced statistics courses, some prerequisite skills are assumed. For all five of the "Analysis" courses, it is assumed that the descriptive and basic statistics are known. For the level 2 analysis courses, it is assumed that the level 1 content is known within the SPSS program.

Describing data (Excel or SPSS)

Measures of central tendency and dispersion. Graphing data, when to use different types of graphs and how to design an effective graph.

Basic statistics (Excel or SPSS)

Chi square (analysis of frequency data), t tests (differences between groups) and correlations (relationships between variables).

Analysis of differences 1 (Excel or SPSS)

t tests and one-way ANOVA (both independent and repeated measures)

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Analysis of differences 2 (SPSS only)

Factorial ANOVA and ANCOVA

Analysis of relationships 1 (Excel or SPSS)

Correlation, linear regression and multiple regression

Analysis of relationships 2 (SPSS only)

Complex regression modelling (stepwise and hierarchical), dummy variable modelling and logistic regression

Analysis of questionnaire data

Factor analysis and reliability analysis

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