

Data analysis software & troubleshooting

Dr Nick Skladnev & Dr Amy Weber

Surgical Research Society

Why me?



Site of study

PSYC2012: Statistics and Research Methods for Psych

The aim is to introduce students to fundamental concepts in statistics and research design as applied to psychological research. These include summary descriptive statistics, an introduction to the principles and practice of research design (both quantitative and

Unit of study_

PSYC3010: Advanced Statistics for Psychology

This unit of study expands upon students' knowledge of the general linear model and its applications in the psychological research. One half of the unit introduces students to contrast analysis and interaction analysis, which allows for more focused analysis of data where group comparisons are the primary interest. Another regression and its extensions, which are used when the primary interest is to predict or explain a part of other variables.



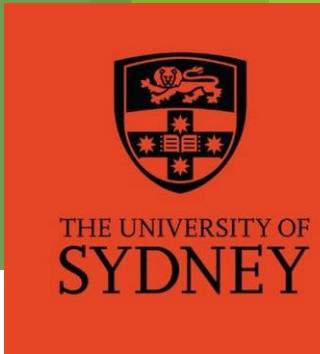
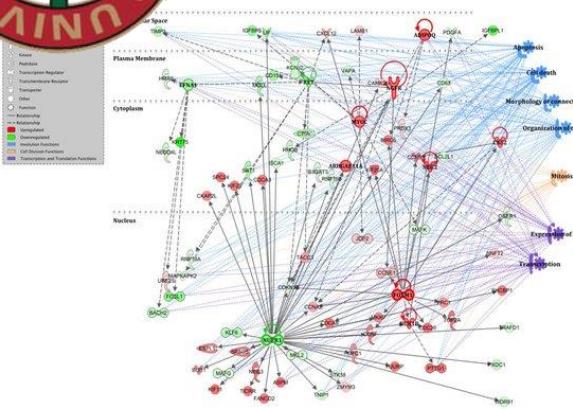
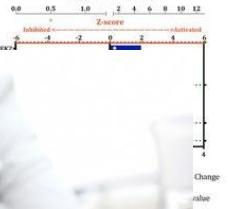
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PUBH5018: Introductory Biostatistics

This unit introduces students to statistical methods relevant in medicine and health. Students will learn how to appropriately summarise and visualise data, carry out a statistical analysis, interpret p-values and confidence intervals, and present statistical findings in a scientific publication. Students will also learn how to determine the appropriate sample size when planning a research study. Students will learn how to conduct analyses using calculators and statistical software. Specific analysis methods of this unit include: hypothesis tests



Comparison

	How to access	Interface	Learning curve	Data manipulation	Statistical analysis	Graphics	Highlights	Limitations	Import & export
Excel	Standard Microsoft program	Menus	Gradual	Minimal	Low scope, low versatility	Require editing	Manage & store large data sets securely	Formulated operations defined by Microsoft	Excel files (.xls, .xlsx)
SPSS	University access	Menus & syntax	Moderate	Moderate	Moderate scope Low versatility	Good	Custom tables, ANOVA & multivariate analysis Easily exclude data & handle missing data	Can't do regression analyses	Excel files (.xls), test files (.csv, .txt., .dat), stata (.dta)
Stata	Paid (\$74 for 6 months with student discount)	Syntax & menus	Steep	Strong	Broad scope Medium versatility	Good	Works well with panel, survey, and time-series data + mixed models Multivariate analysis Regression analysis	Graphs have limited flexibility Can only hold one dataset in memory at a time	Most file types (Excel files (.xls, .xlsx), Text files (.txt, .csv, .dat), SAS (.XPT), Other (.XML), and various ODBC data sources)
R	Free & open source	Syntax	Steep	Very strong	Very broad scope High versatility	Excellent	Graphic packages, machine learning, predictive modelling	Have to have good understanding of different data types before real ease of use begins	Excel files (.xlsx), Text files(.txt, .csv), SPSS (.sav), Stata (.dta), Other (.json)
Jamovi	Free & open source	Menus & syntax	Gradual	Minimal	Moderate scope Low versatility	Good	Very user friendly	Can't handle date/time variables	Text files (.txt) SPSS (.sav) SAS binary files (.sas7bdat) Stata (.dta)

Quantitative Analysis Guide: Which Statistical Software to Use?

Resources and support for statistical and numerical data analysis

[Home](#) [SPSS](#) [Stata](#) [SAS](#) [R](#) [MATLAB](#) [JMP](#) [Python](#) [Excel](#) [SQL](#) [Finding Data](#) [Statistical Guidance](#) ▾



NYU LIBRARIES & IT

Statistical Software Comparison

[Overview](#) [SPSS](#) [JMP](#) [Stata](#) [SAS](#) [R](#) [MATLAB](#) [Summary](#) [Evaluation](#)

https://guides.nyu.edu/quant/statsoft?fbclid=IwAR3pEchtXv29trd_9M3pabFCp_O0bphn1Zpvon_S-y9sb_4GtCGgHbmLdwQ

Excel

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LAMBDA A
7 Helper Functions:
MAP SCAN BYCOL BYROW ISOMITTED ISOMITTED MAPARRAY

16:30

3 Old Guys on BMX Bikes
Greendale Lower Meadowland Skate BMX Park Seattle, WA Sunday, Aug 12, 2012

1:28

Sales Report from 2 Tables?
FILTER or SUMPRODUCT

6:59

Power Query Lookup
Exact & Approximate Match
IF, FILTER, SUMIFS or COUNTIFS for OR Logical...

16:31

OR Logical Test: 1 or 2 Columns? SUMIFS, FILTER or IF Functions?
Create & Spill Random Normally Distributed Values

9:05

Excel Magic Trick 1745 Part 2: Create & Spill Random...

1:02

7 LAMBDA Helper Functions: MAR SCAN...
BMX Park Old Guy Sunday Fun at Greenlake Lower...
Advanced Array Formula: FILTER or SUMPRODUCT t...
Exact & Approximate Match Lookup Formulas in Power...
IF, FILTER, SUMIFS or COUNTIFS for OR Logical...
Excel Magic Trick 1745 Part 2: Create & Spill Random...

5.9K views • 6 days ago 1.8K views • 1 week ago 7K views • 1 week ago 9.7K views • 2 weeks ago 8.3K views • 3 weeks ago 4.7K views • 4 weeks ago

F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
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Per/ intc:15/07/2019	11:33	16/07/2019	11:13:00	12:05:00	12:11	52	IM	N/A	Unrestrict6	Yes	No contri0	N/A	0	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	Aspirin	N/A	N/A	
Intracap:23/11/2019	12:13	25/11/2019	16:50:00	18:20:00	18:25	90	Hemi	Cemente	Unrestrict15	No	No contri0	N/A	0	N/A	1000	1	IV	0	N/A	N/A	Aspirin	N/A	N/A	N/A	N/A	N/A	
Subtroch:12/02/2019	12:10	13/02/2019	12:36:00	15:08:00	15:25	152	IM	N/A	Unrestrict6	No	No contri0	N/A	0	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	
Subtroch:30/11/2019	14:40	5/12/2019	15:34:00	17:35:00	17:43	119	IM	N/A	Unrestrict23	Yes	No contri0	N/A	0	N/A	1000	1	IV	0	N/A	N/A	0	N/A	N/A	Aspirin	N/A	N/A	
Per/ intc:26/11/2019	22:41	27/11/2019	14:13:00	15:03:00	15:13	50	IM	N/A	Unrestrict21	Yes	No contri0	N/A	0	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	
Intracap:07/01/2019	11:21	8/01/2019	14:42:00	15:30:00	15:43	48	THR	Uncemer	Unrestrict3	Yes	No contri0	N/A	0	N/A	1000	1	IV	0	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	
Intracap:29/01/2019	11:29	30/01/2019	11:40:00	12:30:00	12:35	50	SHS	N/A	Unrestrict2	No	No contri0	N/A	0	N/A	1000	1	IV	0	N/A	N/A	0	N/A	N/A	Aspirin	N/A	N/A	
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Subtroch:27/08/2019	21:19	28/08/2019	14:42:00	16:07:00	16:20	85	IM	N/A	Unrestrict7	Yes	No contri0	N/A	0	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	Aspirin	N/A	N/A	
Subtroch:21/04/2019	12:50	22/04/2019	16:15:00	17:18:00	17:23	57	IM	N/A	Unrestrict7	Yes	No contri0	N/A	0	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	Aspirin	N/A	N/A	
Per/ intc:15/07/2019	10:44	15/07/2019	16:05:00	16:57:00	17:00	52	IM	N/A	Unrestrict7	Yes	No contri0	N/A	0	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	
Intracap:09/06/2019	11:31	10/06/2019	12:51:00	13:52:00	14:00	61	THR	Uncemer	Unrestrict5	Yes	No contri0	N/A	0	N/A	1000	1	IV	0	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	
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Subtroch:11/12/2019	10:12	12/12/2019	12:21:00	14:29:00	14:42	128	IM	N/A	Unrestrict5	Yes	No contri0	N/A	0	N/A	1500	1	IV	0	N/A	N/A	0	N/A	N/A	Aspirin	N/A	N/A	
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Intracap:12/12/2019	19:21	13/12/2019	12:22:00	13:56:00	14:02	94	THR	Cemente	Unrestrict4	Yes	No contri0	N/A	0	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	
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Subtroch:25/08/2019	07:43	26/08/2019	13:32:00	14:54:00	15:07	82	IM	N/A	Unrestrict6	No	TE Disease	0	N/A	0	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	
Per/ intc:22/02/2019	20:40	24/02/2019	16:45:00	17:22:00	17:34	37	IM	N/A	Unrestrict6	Yes	No contri0	N/A	0	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	
Intracap:07/07/2019	21:00	9/07/2019	9:26:00	11:14:00	11:18	105	Hemi	Cemente	Unrestrict8	Yes	No Stroke hi 0	N/A	0	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	
Per/ intc:02/05/2019	12:57	NON-OP NON-OP NON-OP	NON-OP	NON-OP	10	50	IM	N/A	Unrestrict48	Yes	Not know No contri0	N/A	0	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	
Per/ intc:30/09/2019	09:44	9/08/2019	10:38:00	11:28:00	11:42	50	IM	N/A	Unrestrict48	No	No contri0	N/A	0	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	
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P		0.01	0.03	0.02	
Chi		7.300 (1df)			
P		0.0069			

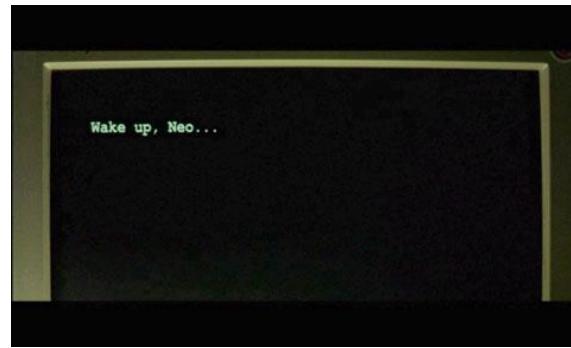


Statistics and Statistics with R Tutorials (All Videos)

MarinStatsLectures-R Programming & Statistics - 1 / 106

- 1 R Tutorial 1.1 What is RStudio and Why Should You Download It? | R... 5:21
- 2 R Tutorial 1.2 Download & Install R and RStudio | R Tutorial 1.2 |... 4:54
- 3 R Tutorial 1.3 Getting Started with R: Basic Arithmetic and Coding in R 7:48
- 4 R Tutorial 1.4 Create & Work with Vector & Matrix 8:35
- 5 R Tutorial 1.5 Import/Copy Data from Excel 6:59
- 6 R Tutorial 1.6 Import Excel Data with RStudio (readxl) 8:12

R in 2 hours
Full Course 2:10:39



summary-stats.Rmd AmesHousing

```
36 head(AmesHousing)
37 
38 
39 
40 
41 ## Displaying the distribution of sales price
42 
43 In lab we saw how to display univariate and bivariate distributions. For example, we can easily create a histogram of the sale price:
44 
45 ``{r}
46 ggplot(data = AmesHousing, mapping = aes(x = SalePrice)) +
47 geom_histogram(fill = "steelblue2", color = "black", binwidth = 10000) +
48 labs(x = "Sale price (in $)")
49 
50 
51 ## Summarizing distributions
52 
53 How much is a typical home in Ames, IA? The median seems like a reasonable choice.
```

Console ~/Documents/m107/scripts/class-examples/

Misc.Feature	Misc.Val	Mo.Sold	Yr.Sold	Sale.Type	Sale.Condition	SalePrice
<NA>	0	5	2010	WD	Normal	215000
<NA>	0	6	2010	WD	Normal	105000
Gar2	12500	6	2010	WD	Normal	172000
<NA>	0	4	2010	WD	Normal	244000
<NA>	0	3	2010	WD	Normal	189000
<NA>	0	6	2010	WD	Normal	195500

```
> View(AmesHousing)
> ggplot(data = AmesHousing, mapping = aes(x = SalePrice)) +
+ geom_histogram(fill = "steelblue2", color = "black", binwidth = 10000) +
+ labs(x = "Sale price (in $)")
```



Medical statistics using R in less than 90 minutes
7.6K views • 2 years ago

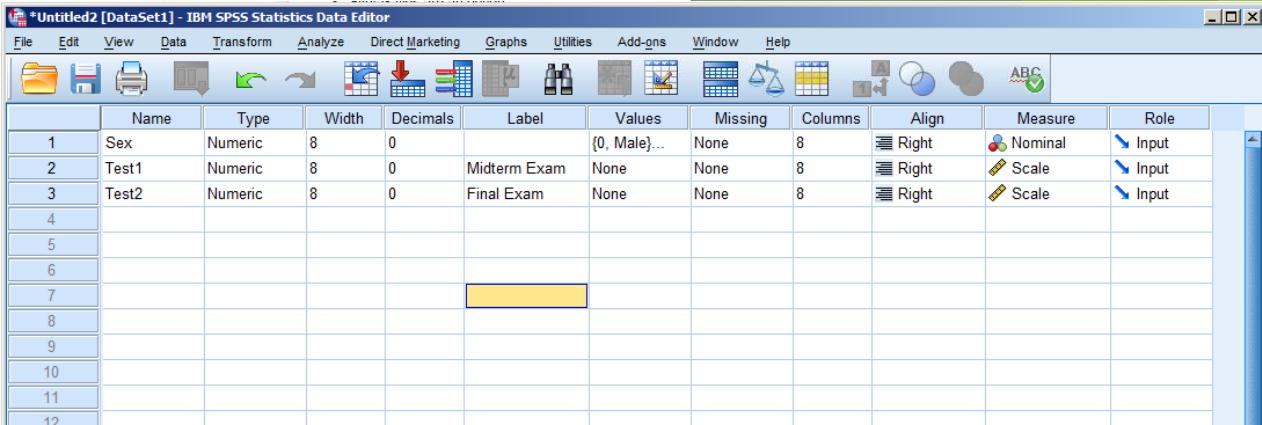
Dr Juan Klopper

In this video I introduce you to the fundamentals of R for biostatistics (a get ...

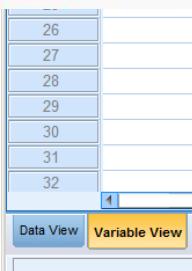
- ▶ <https://www.youtube.com/watch?v=riONFzJdXcs&list=PLqzoL9-eJTNBDdKgJgJzaQcY6OXmsXAHU>
- ▶ https://www.youtube.com/watch?v=_V8eKsto3Ug
- ▶ <https://www.youtube.com/watch?v=zrXPG1onjiE>

SPSS

- ▶ Old faithful
 - ▶ Middle of the ground
 - ▶ <https://www.youtube.com/user/RStatsInstitute>
-
- ▶ WORKED EXAMPLE TIME



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Sex	Numeric	8	0	(0, Male)...	None	8	Right	Nominal	Input	
2	Test1	Numeric	8	0	Midterm Exam	None	8	Right	Scale	Input	
3	Test2	Numeric	8	0	Final Exam	None	8	Right	Scale	Input	
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Diving Deeper into SPSS for Beginners Introduction (Ep.1)