

Introduction to statistical methods and theory

Dr. Dejan Draschkow

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Week 1 – *usually* Computer Lab, Basement of Biochemistry ;(

Course Structure

Lectures: Pre-recorded and available on Canvas

Workshops: Tuesdays 10.00 - 12.00

Please make sure to request access to our Team, by following this link:

<https://teams.microsoft.com/l/team/19%3a7ab92536ed5a4c4a82accfa82b38513c%40thread.tacv2/conversations?groupId=0d49808e-a7fc-47b5-a9a5-6e44c0f4a910&tenantId=cc95de1b-97f5-4f93-b4ba-fe68b852cf91>

MSc assessment: 4 x 2000 word reports, mark pass/fail

This term:

Regression (by 14.12.2020) and
ANOVA (by 18.01.2021)

Unseen examination (pass/fail)

Next term deadlines: Multilevel Modelling (by 22.03.2021) and
Model Selection (by 26.04.2021)

Literature



Discovering Statistics Using R

[Andy Field](#) - University of Sussex, UK

[Jeremy Miles](#) - RAND Corporation, USA

[Zoë Field](#) - University of Sussex, UK

Additional resources:

[Docs](#) » Scientific Methods for Open Behavioral, Social and Cognitive Sciences [Edit on GitHub](#)

Scientific Methods for Open Behavioral, Social and Cognitive Sciences

Editors: Sage Boettcher | Dejan Draschkow | Jona Sassenhagen | Martin Schultze

Maintainers: Aylin Kallmayer | Leah Kumle | Lella Zacharias

Citation: Boettcher, S.E.P., Draschkow, D., Sassenhagen, J., & Schultze, M. (Eds.). *Scientific Methods for Open Behavioral, Social and Cognitive Sciences*. <https://doi.org/10.17605/OSF.IO/X4BCZ>

Also have a look at the reading list in the general resources...

Resources & Materials

You can find the materials for this course on Canvas.

Please contact Vinca Boorman vinca.boorman@psy.ox.ac.uk in case you face troubles accessing the course content.

Check it regularly! You will find the materials for the upcoming week on the weekend.

Tentative Course Schedule

MT

- wk1. Introduction to statistical methods and theory / Installing and getting to know R
- wk2. Exploring data and assumptions (transformations) / Data exploration and visualization
- wk3. Sampling, Correlation & Aggregation
- wk4. **Linear regression – assessment**
- wk5. Contrast coding & Logistic regression,
- wk6. Comparing means (t -test) / effect size
- wk7. **Analysis of variance – assessment**
- wk8. Planned and post-hoc contrasts

HT

- 09. (wk1) Recap / Multilevel models I
- 10. (wk2) Multilevel Models II
- 11. (wk3) **Multilevel Models – assessment**
- 12. (wk4) Dimensionality reduction I – Factor Analysis
- 13. (wk5) Data visualization
- 14. (wk6) **Model comparisons – assessment**
- 15. (wk7) Non-parametric tests
- 16. (wk8) Q&A session

The Team



Sage Boettcher



Triin Ojakaar



Oana Gurau



Dejan Draschkow

The Team



Sage Boettcher



Triin Ojakaar



Oana Gurau



Dejan Draschkow

Support from demonstrators during weeks 1,2 and 3 comes in 45min time slots

Triin

Times: Wed, 13:00 | Thu, 13:00 | Fr, 10:00

Link: <https://us04web.zoom.us/j/71029554978?pwd=eDJ3Q1RlZDV0RkV5dGxzWW5GdXMwUT09>

Oana

Times: Tue, 14:30 | Wed, 09:00 | Fr, 11:00

Link: <https://us02web.zoom.us/j/81167139380?pwd=bXFpMHJWakpXYXZVcHFZaDZFTjVzUT09>

APA Style

<http://www.apastyle.org/manual/related/sampleexperiment-paper-1.pdf>

Pearson's Chi-square:

There was a statistically significant association between smoking and lung-carcinoma, $\chi^2(1) = 30.94, p < .001$.

Odds Ratio:

There was an significant increase in the risk of lung-carcinoma associated with smoking, $OR = 2.25, 95\% CI [1.68, 3.00]$.

t test:

There was a significant difference in the test scores achieved by men ($M = 61.94, SD = 11.69$) and women ($M = 74.27, SD = 14.74$), $t(45) = 3.17, p = .003$.