RHUL Psychology Statistical modelling notebook

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2022-04-04

Contents

Chapter 1

About

This book is maintained by Matteo Lisi and is meant to be a shared resource for the Department of Psychology of Royal Holloway, University of London. It will contain a miscellanous set tutorial, examples, case studies, workshops materials and any other useful material related to data analysis and modelling.

Chapter 2

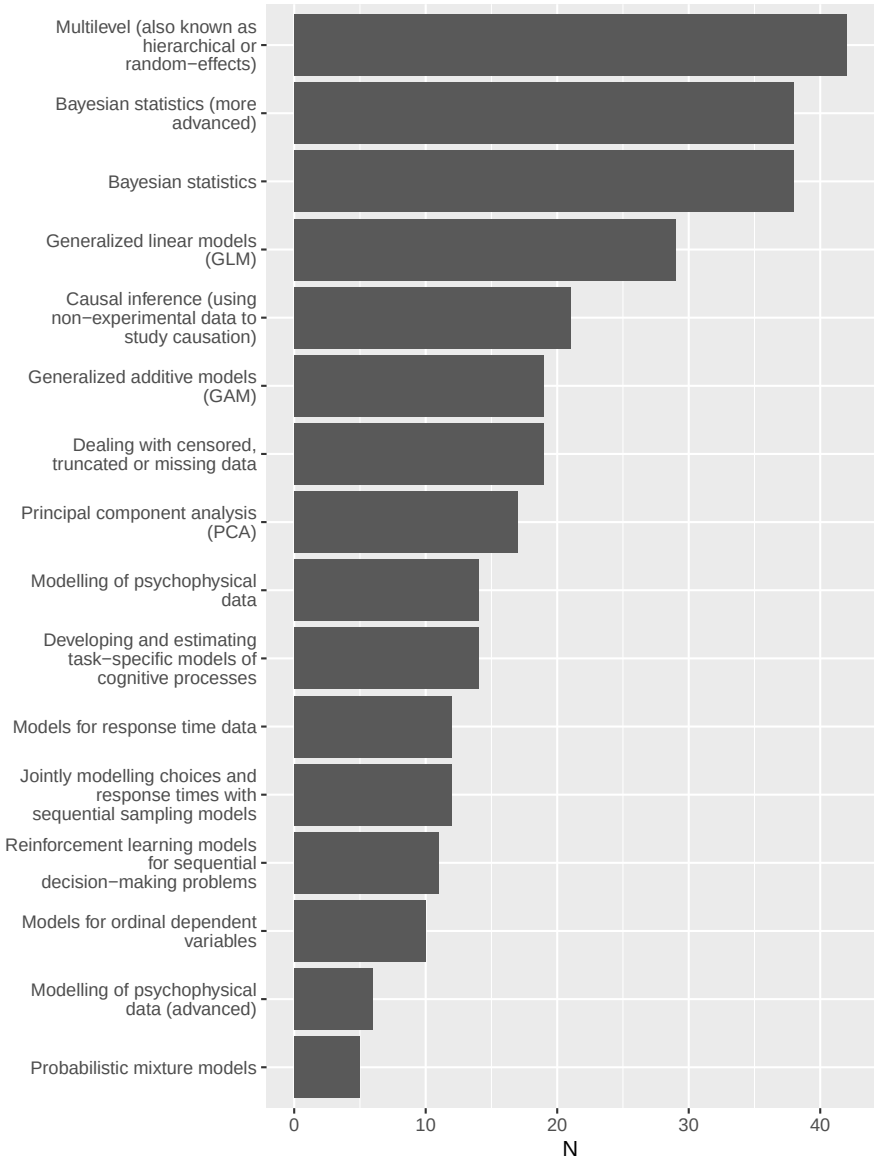
Departmental survey about statistical methods

I used an anonymous survey to ask colleagues some questions about which topics may be more interesting or useful in their research.

2.1 March 2022

2.1.1 Question 1

In the first question people indicated topics of interests. The winner are multi-level models, followed closely by Bayesian statistics.



There were some additional suggestions.

```
#> [1] "power analyses using Shiny apps"
#> [2] "agent-based models"
#> [3] "this may be covered in the above, but approaches to analysing experience sampli
#> [4] "Methods for longitudinal analyses"
#> [5] "Network modelling"
#> [6] "Neural networks, Markov processes"
```

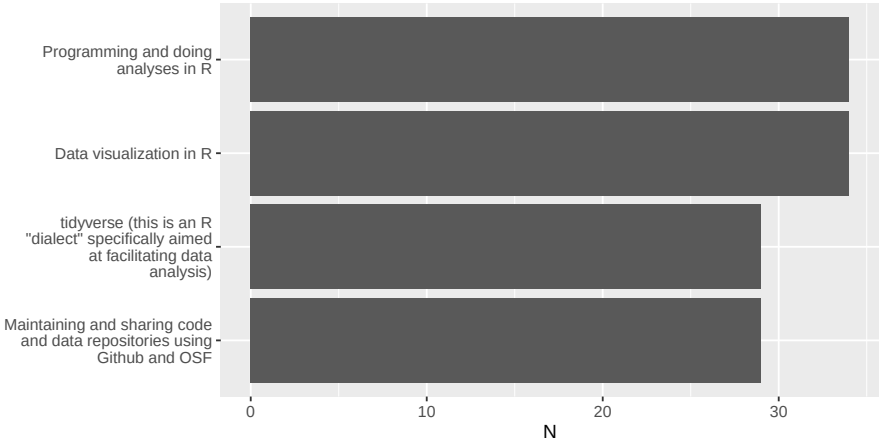
```
#> [7] "Random forests and related"
#> [8] "causal modelling using regression models - path models etc"
#> [9] "prediction modelling"
```

A few other topics were mentioned in the comment section:

- Shiny apps
- Network modelling
- Longitudinal analyses
- Random forests
- Neural network

2.1.2 Question 2

Here people indicated their interest for topics related to data analysis.

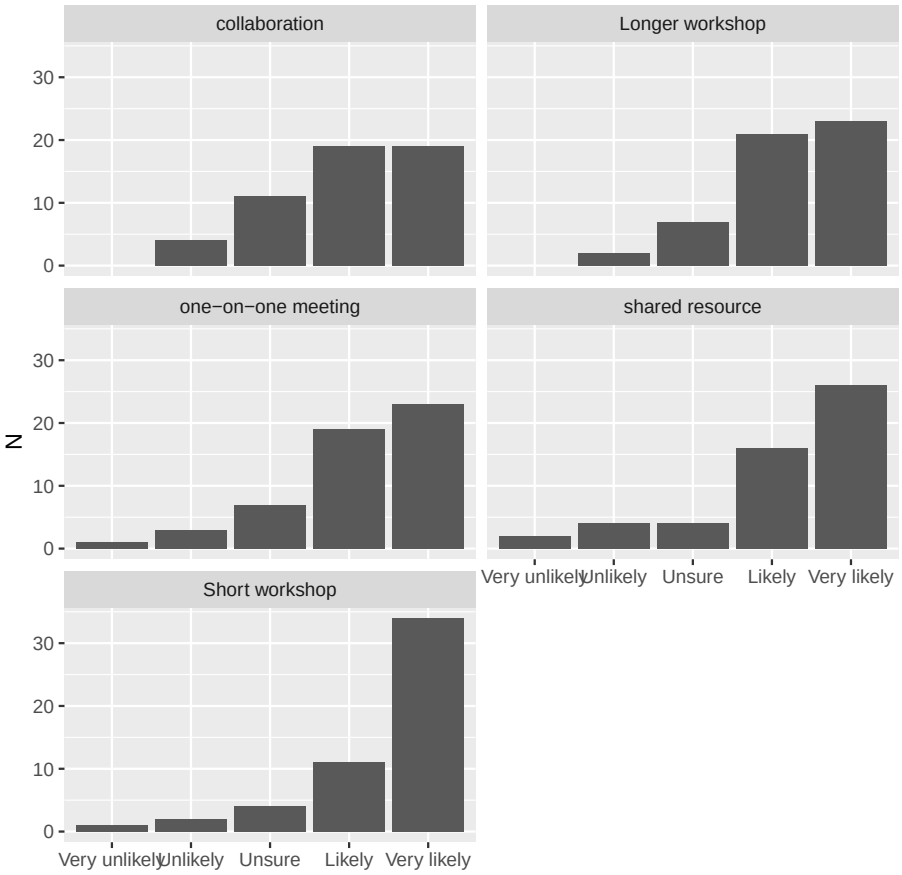


Other things mentioned in the comments were:

- SPM
- Docker
- Python

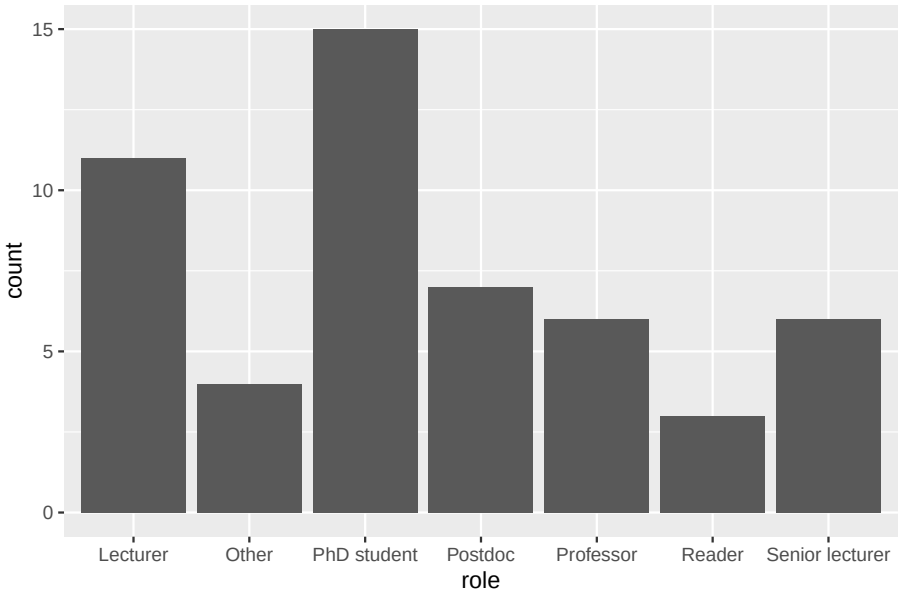
2.1.3 Question 4

This question was about likelihood of using different formats of support



2.1.4 Respondents' status

The final questions asked about the status / career level.


15
10
5
0
count
Lecturer
Other
PhD student
Postdoc
Professor
Reader
Senior lecturer
role

Chapter 3

Meta-analyses

For running meta-analyses, we recommend checking the `metafor` package for R (link 1, link 2).

A comprehensive, hands-on guide on how to use this package is freely available in the book by Harrer and colleagues (Harrer et al., 2021), freely available at this link.

An alternative to the `metafor` package is to Bayesian multilevel modelling. This is also discussed in (Harrer et al., 2021). A more technical discussion of Bayesian multilevel modelling for meta-analyes is provided in this paper (Williams et al., 2018).

Bibliography

Harrer, M., Cuijpers, P., A, F. T., and Ebert, D. D. (2021). *Doing Meta-Analysis With R: A Hands-On Guide*. Chapman & Hall/CRC Press, Boca Raton, FL and London, 1st edition.

Williams, D. R., Rast, P., and Bürkner, P. C. (2018). Bayesian meta-analysis with weakly informative prior distributions.