Introduction to statistics using R

Seminar series - Overview

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Why this seminar series?

- Review the basics of Statistical theory
- Provide the tools to critically review data-based information in diverse media
- Promote good habits for designing experiments, collecting data and test hypotheses/predictions
- Enable attendants to run basic analyses using open-source software R in Rstudio

Course content overview

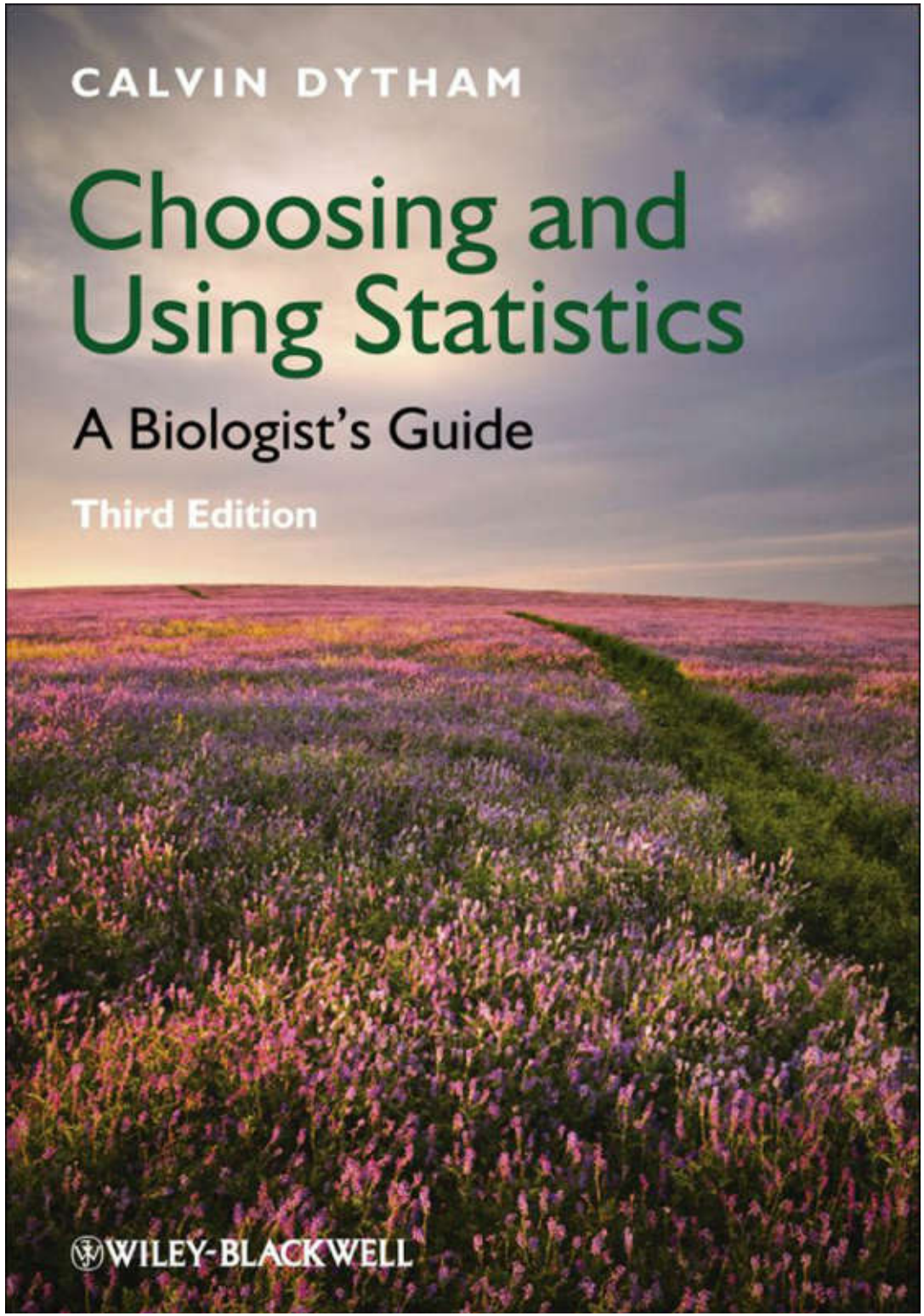
11 sessions based on theory, practice in R, and a short assignment:

- Statistical theory
- Hypothesis testing (prediction)
- Exploratory analysis
- Testing differences
- Testing relationships
- Interpret results
- Display results
- Report results and presentation tips

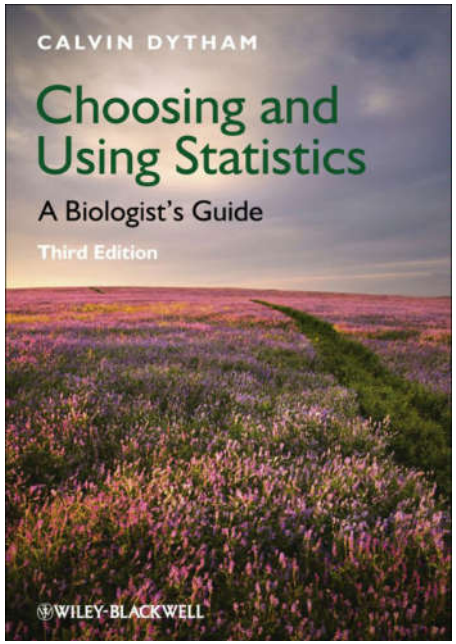
Tentative schedule

1. Basic statistical concepts using R
2. Basic statistical concepts – continued – and hypothesis testing using R
3. Experimental design and the different tests using R
4. Introduction to R and data wrangling in R
5. Data wrangling in R
6. Introduction to linear and Generalized linear models in R
7. Linear and Generalized linear models in R – continued
8. Plotting data and results in R
9. Introduction to Generalized linear **mixed** models in R
10. Introduction to non-linear models and project presentations
11. Project presentations and Q&A session

Recommended Reading



Why this Book?

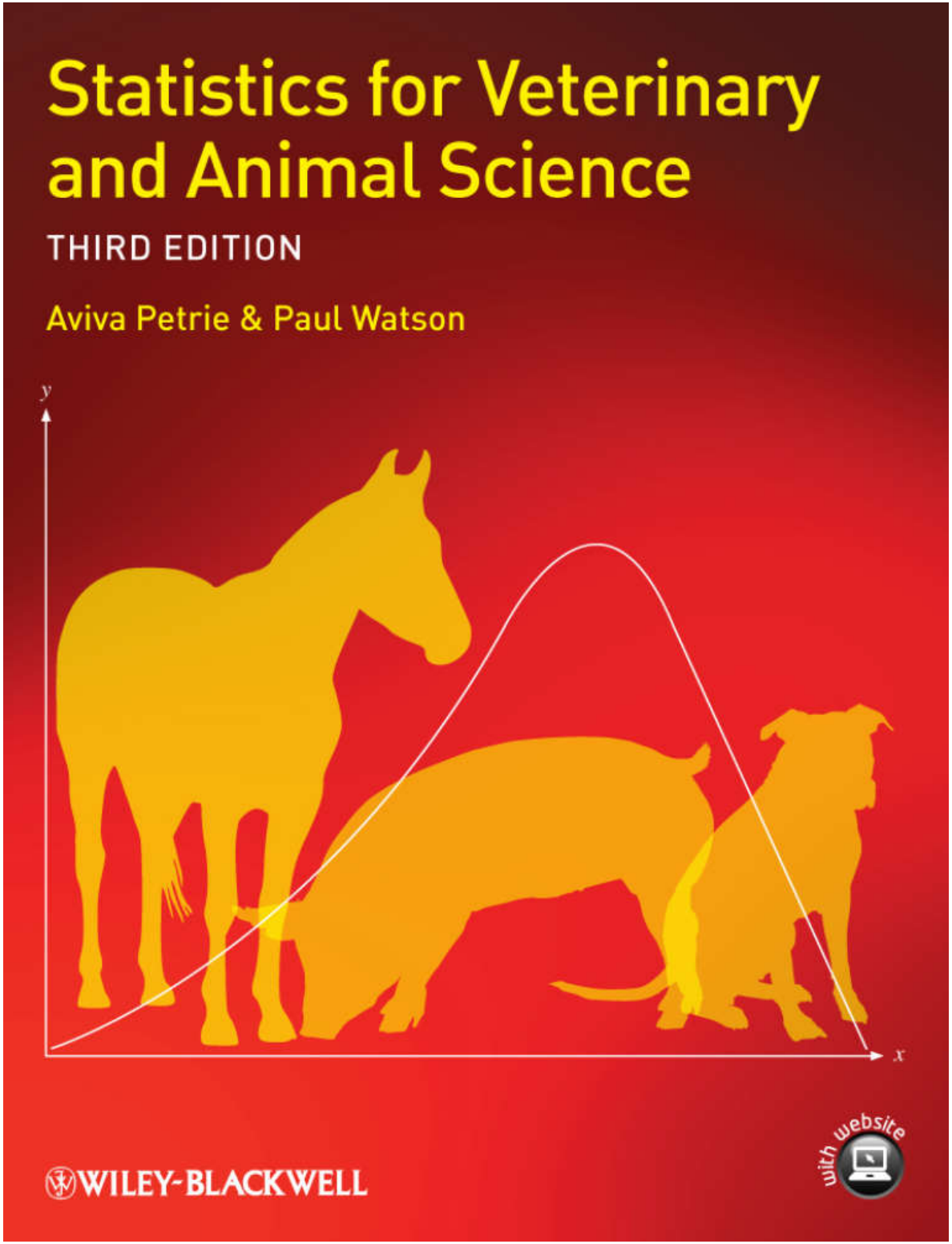


"My aim was to produce a statistics book with two characteristics:

- To assume that the reader is using a computer to analyse data
- and to contain absolutely no equations"

- 8 steps to successful data analysis
- Hints and tips (p. 285-288)

Recommended Reading



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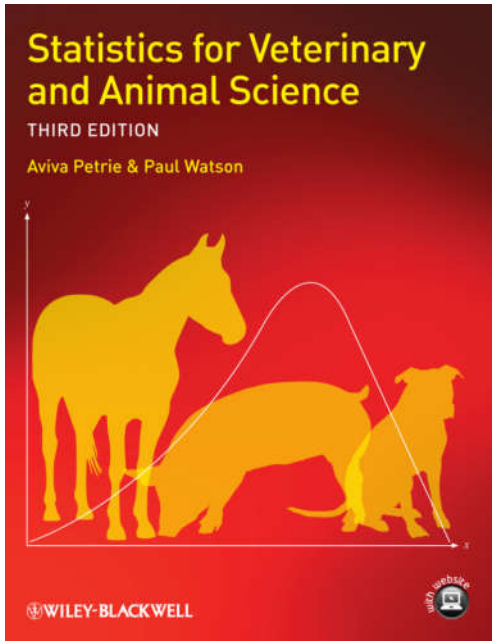


Adapted to Veterinary and animal Science

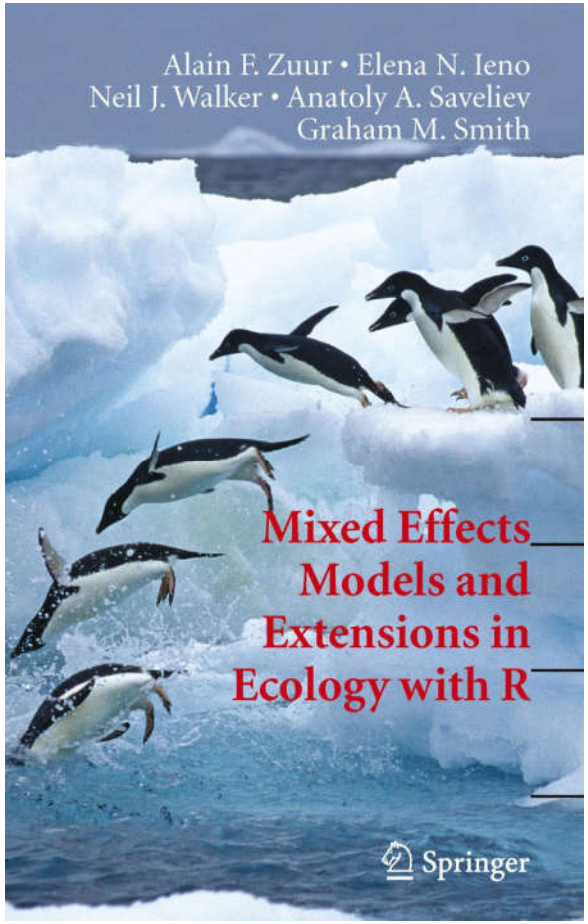
Well organized

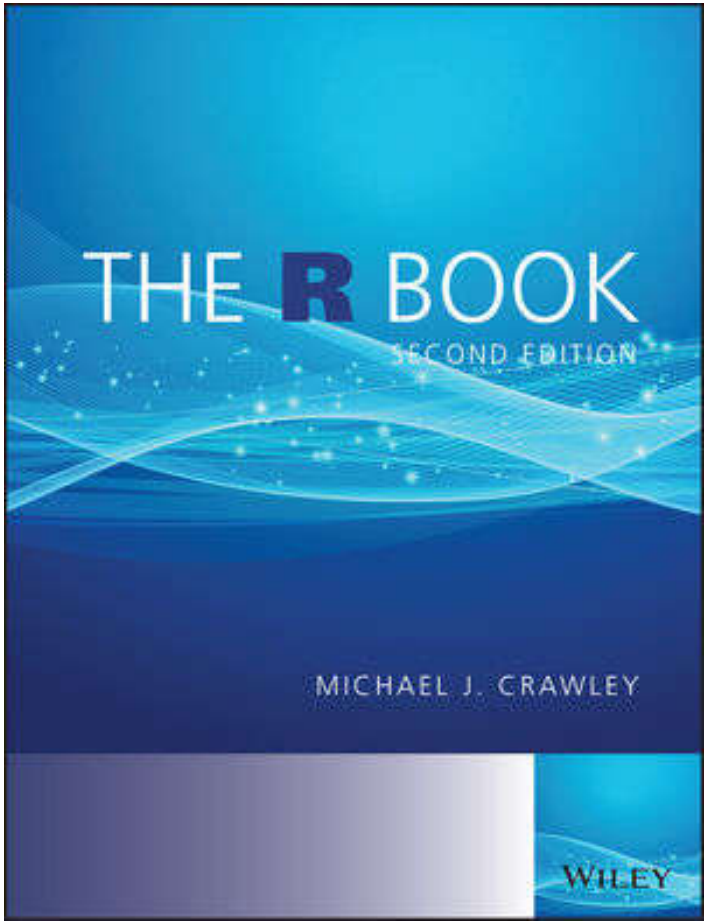
Learning objectives stated clearly at the beginning of each chapter

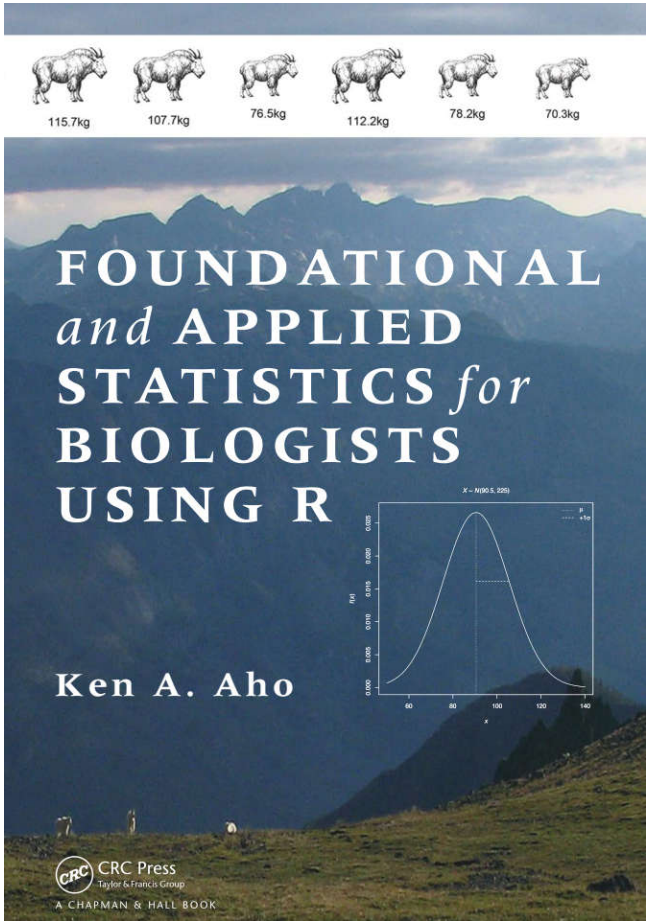
Short exercises at the end of each chapter

Just ignore the references to SPSS since we're using R

Other recommended books







R resources

https://stackoverflow.com/ questions about how to solve specific problems. If you use R, you'll use this site pretty much every time you run into an issue. Whatever you're facing, others probably had that problem too

http://www.cookbook-r.com/ a collection of common manipulations with code explained: great for beginners.

https://www.r-bloggers.com/ gather articles from hundreds of blogs that deal with R: you'll certainly need it at some point

http://www.sthda.com/english/ website for data analysis and visualization using R. Lots of very useful tutorials

https://www.geeksforgeeks.org/r-tutorial/ Platform for computer science. Lots of R resources

https://r-podcast.org/ Some podcast are designed for R beginners

https://stackexchange.com/ similar to stackoverflow but more stat than coding oriented

https://www.pluralsight.com/search?q=R R basics

And of course, my favorite R resource:

Almighty Google

"How to ..... in R"

And if you want to go further