

1-Introduction to RM&DA

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You should know today:

- How this module is structured
- How to navigate NOW page
- What are the basic set-ups needed on your device
- **Get the dimension** of the work needed

Who am I?



Felipe P.L. Melo

ASSOCIATE PROFESSOR



AFFILIATIONS

[Nottingham Trent University](#)

[Universidade Federal de
Pernambuco](#)

[Associação Brasileira de Ciência
Ecológica e Conservação](#)

[Centro de Pesquisas Ambientais
do Nordeste - CEPAN](#)

- Started at NTU may 2023
- Ecologist/Conservationist
- Tropical Ecosystems
- Applied Sciences

I taught RM & DA before **many times**

more info: [My website](#)

How this module is organized?



Two main workflows

Data Analysis

- Cover all aspects of dealing with data
- Mostly focused on the basics
- Less is More in Statistics

Research Methods

- Cover the theoretical and philosophical aspects of **doing science**
- Focused on making sense of science
- Writing and reading skills

Weekly Schedule

Module program RM & DA	DA - Data Analyses	RM - Research Methods
Week 1	Intro to DA	Intro do RM
Week 2	Data Wrangling	The importance of Research Questions
Week 3	Exploratory Analyses	Scientific Hypotheses
Week 4	Choosing the right Analyses	Hypothetical Deductive Thinking
Week 5	Frequency Tests	How to read science
Week 6	Mean Tests	How to write science
Week 7	Correlations and Models	Titles
Week 8	Categorical Responses	Abstracts
Week 9	Non-linear models	Introduction
Week 10	Multivariate Analyses	Methods
Week 11	Multivariate Analyses	Discussion
Week 12	PCA & NMDS	References (tools for life)

Sessions

Very Important

- Pre-sessions
- Sessions
- Post-sessions

It may vary

Week 2: Scientific method and data exploration	36
Pre-sessions	6
Sessions	6
Post-sessions	24

Main tools

Microsoft Teams

- Used to deliver sessions
- Drop-in sessions
- Group activities



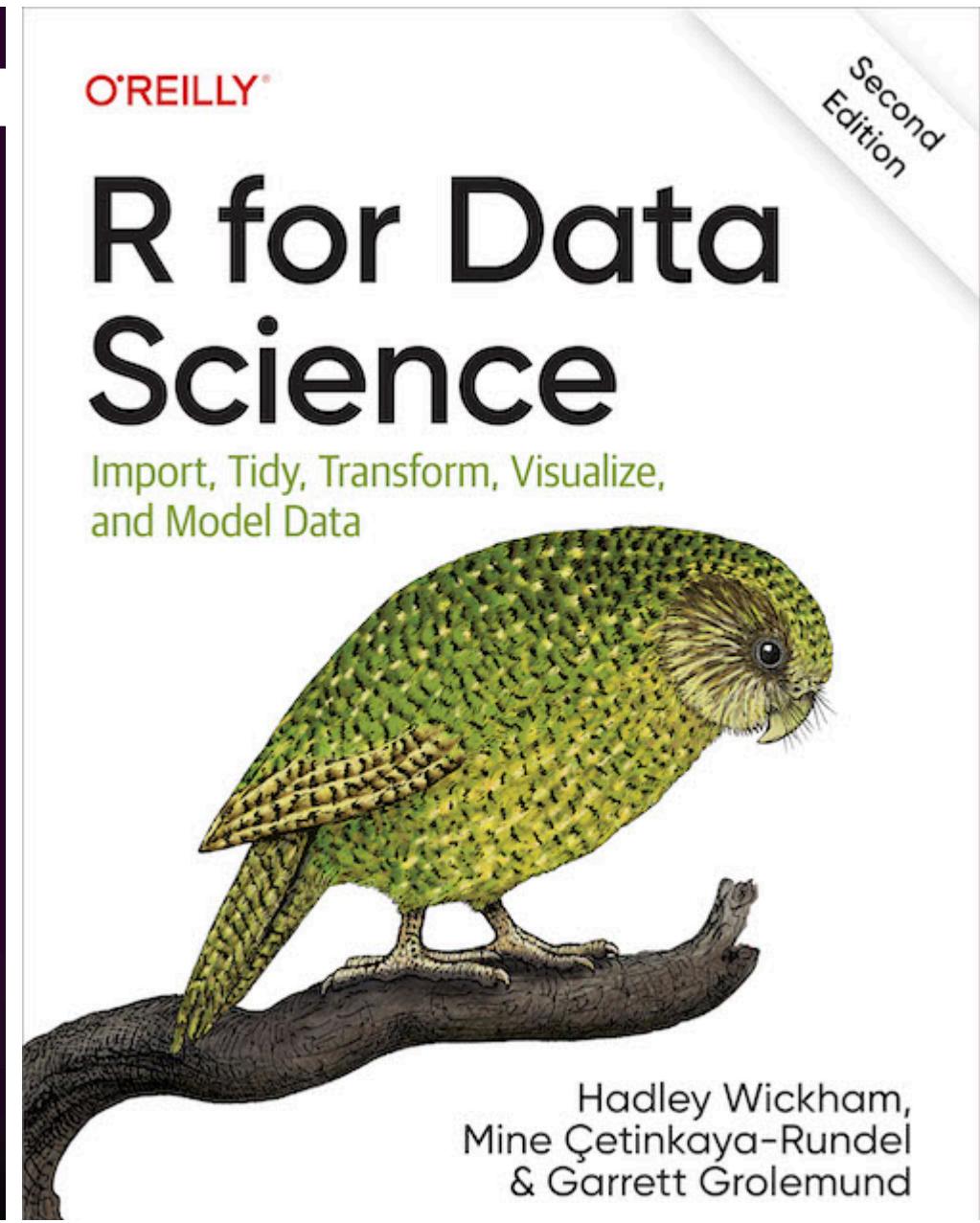
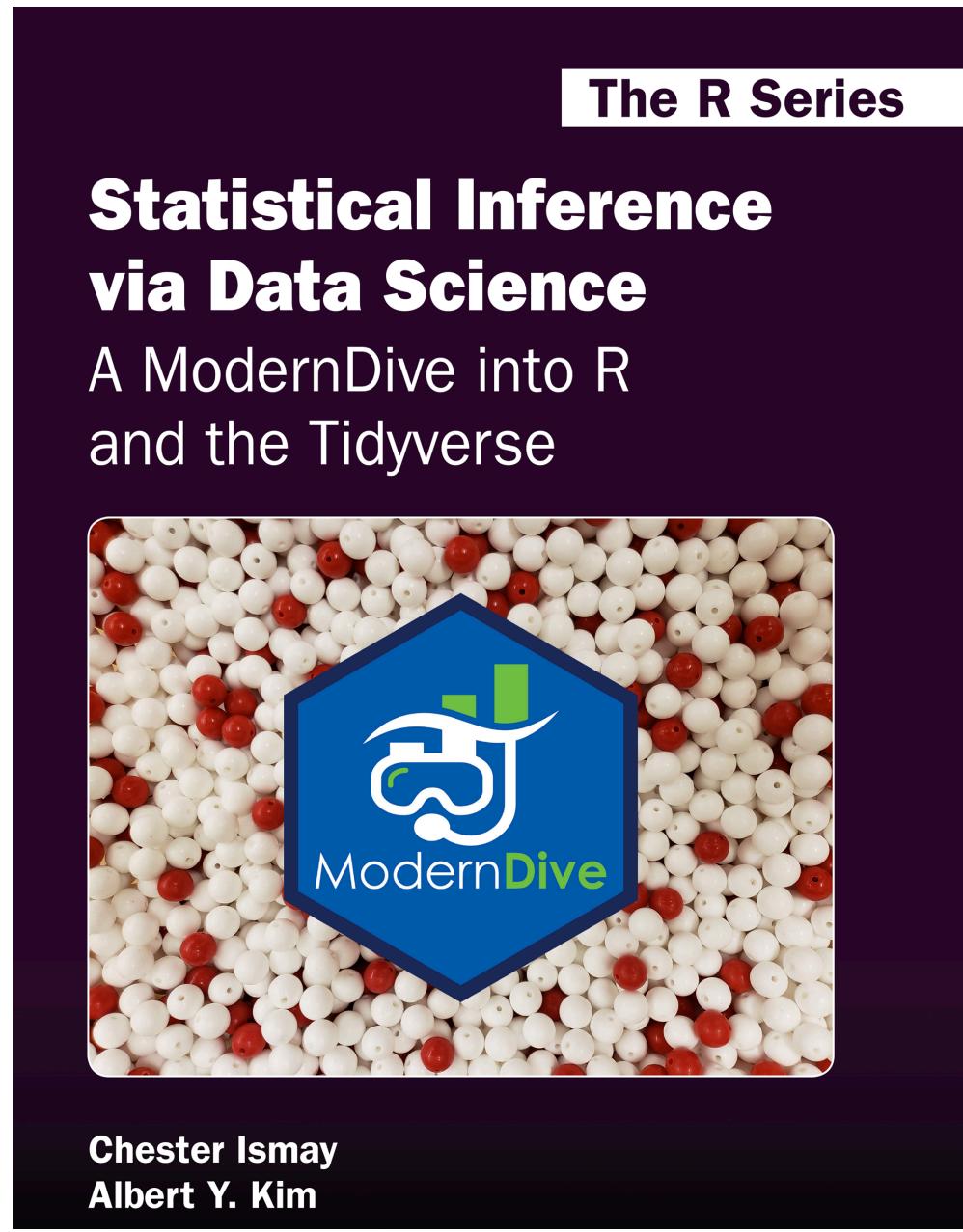
Microsoft Teams

NOW page

- All Resources
- Virtual learning tools
- Submission of exams



Resources (... and many more online)



Finding help

We can help you with

- Activities
- Software troubles
- Stats (after some proof of individual effort)



What we cannot

- Mark exams twice
- Comment on unsubmitted Formative assessment
- Solve exercises for you



Feedback and Assessment

- Feedback opportunities throughout the module
- Formative assessment: multiple opportunities
- A more ‘formal’ opportunity that will help you to understand the standard required and guidelines of a scientific journal (and make you read a paper!).

Your Workbook

```
---  
title: "Hello, Quarto"  
format: html  
editor: visual  
---
```

```
{r}  
#| label: load-packages  
#| include: false  
  
library(tidyverse)  
library(palmerpenguins)
```

Meet Quarto

Quarto enables you to weave together content and executable code into a finished document. To learn more about Quarto see <https://quarto.org>.

Meet the penguins

The `penguins` data from the [palmerpenguins](#) package contains size measurements for `nrow(penguins)` penguins from three species observed on three islands in the Palmer Archipelago, Antarctica.

The plot below shows the relationship between flipper and bill lengths of these penguins.

```
{r}  
#| label: plot-penguins
```

Hello, Quarto

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The plot below shows the relationship between flipper and bill lengths of these penguins.

Flipper and bill length
Dimensions for penguins at Palmer Station LTER

Penguin species

- Adelie
- Chinstrap

Every week

Tuesdays

- Some data analyses
- Some research methods

Thursdays

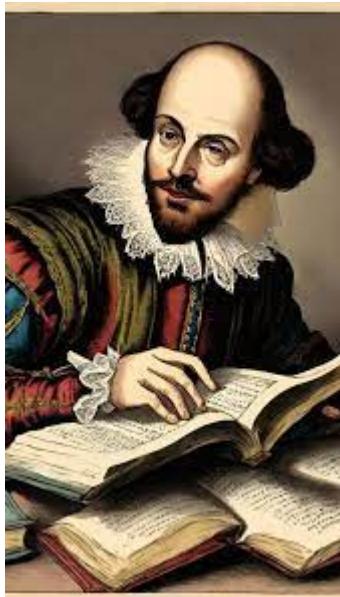
- Drop-in sessions
- Tutorials

 **Important**

But it may vary, depending on how “hard” is the week

Doing Science

Is not a gift

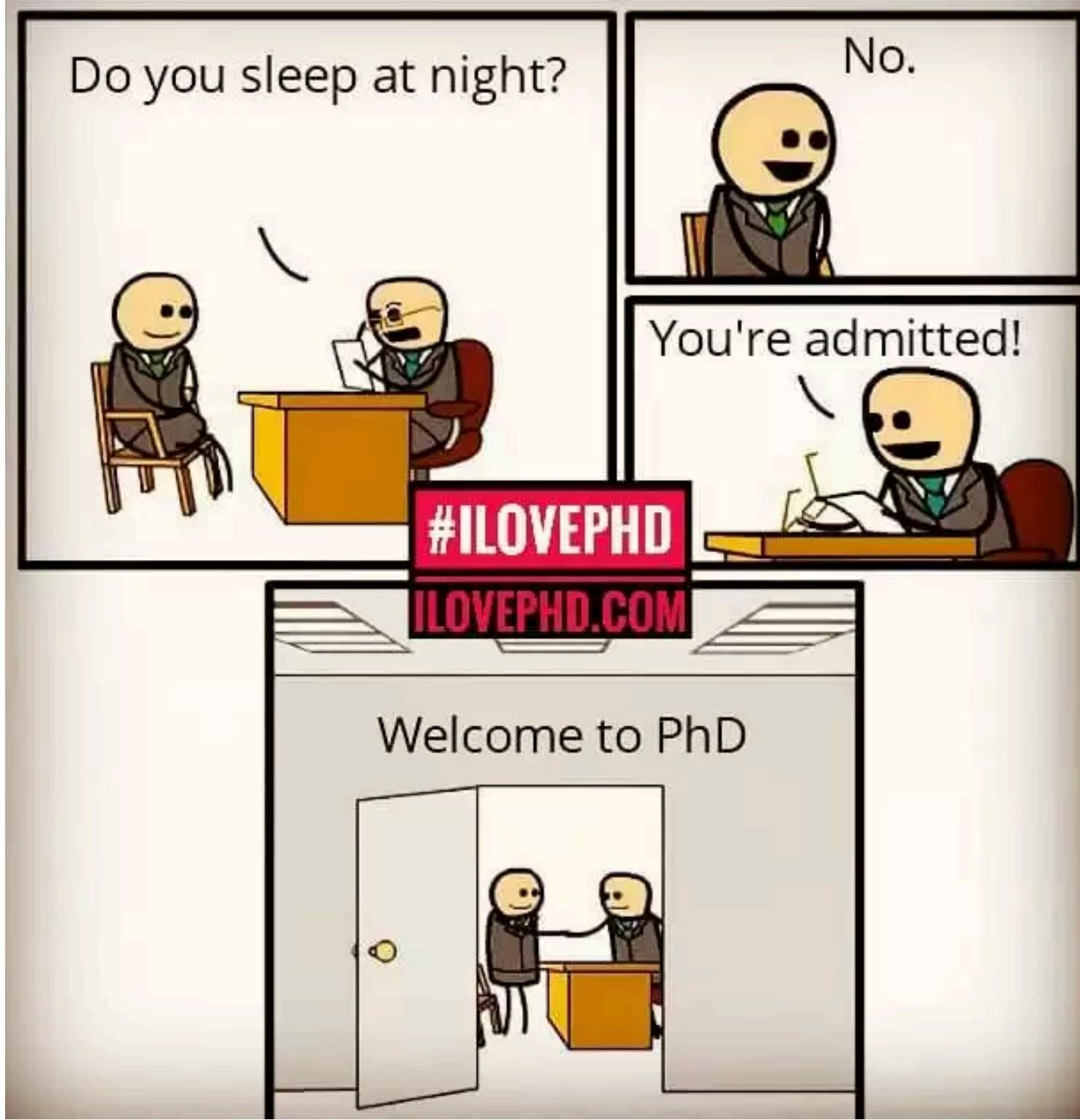


Effort and repetition



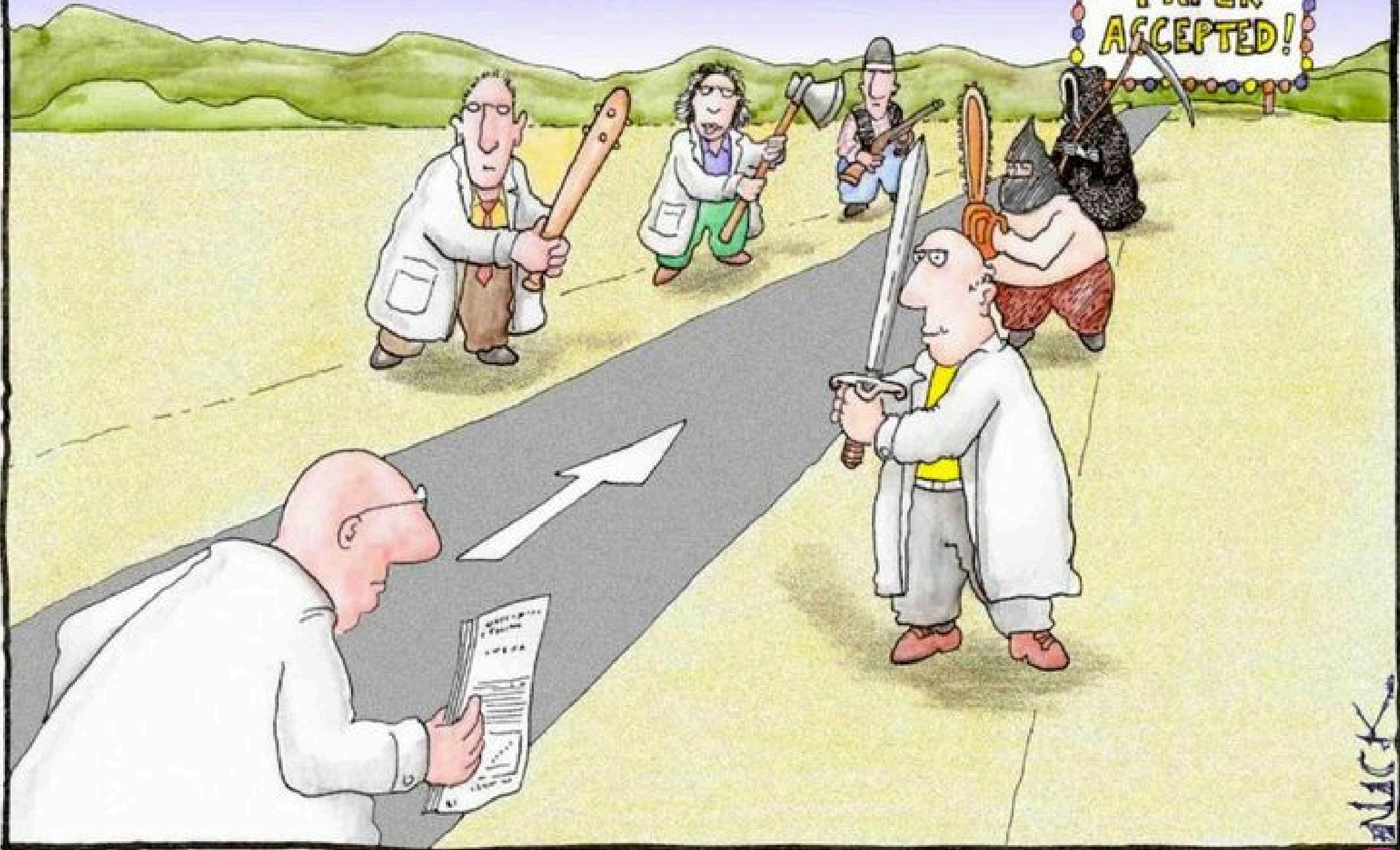






PAPER
ACCEPTED!

18



Most scientists regarded the new streamlined peer-review process

SCIENTISTS



what my mom
thinks I do



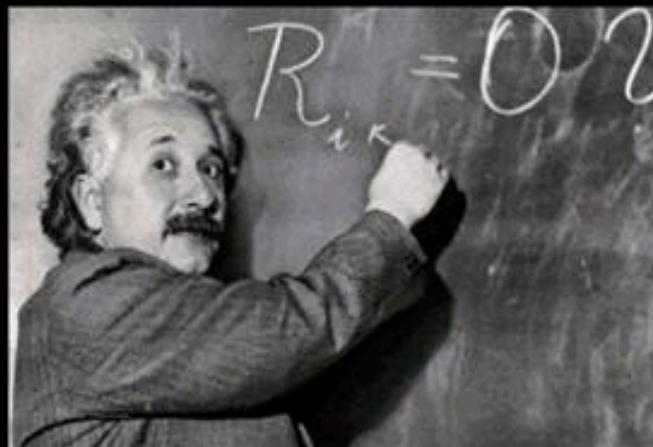
what my friends
think I do



what society
thinks I do



what my boss



what I think

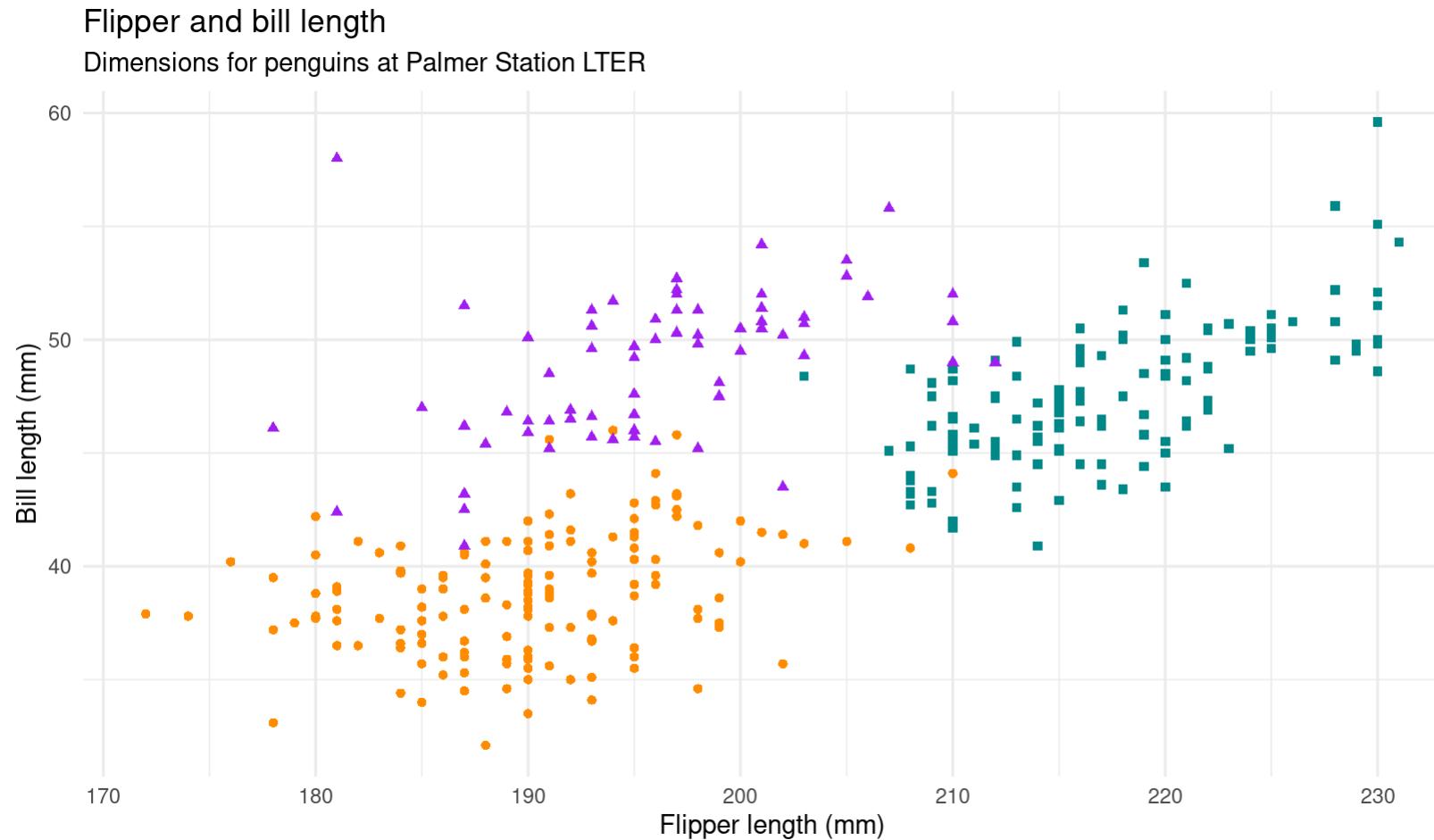


What I really

How to have fun with data?

```
1 ggplot(penguins,
2         aes(x = flipper_length_mm, y = bill_length_mm)) +
3   geom_point(aes(color = species, shape = species)) +
4   scale_color_manual(values = c("darkorange", "purple", "cyan4")) +
5   labs(
6     title = "Flipper and bill length",
7     subtitle = "Dimensions for penguins at Palmer Station LTER",
8     x = "Flipper length (mm)", y = "Bill length (mm)",
9     color = "Penguin species", shape = "Penguin species"
10    ) +
11   theme_minimal()
```

How to have fun with data?



Quarto Website

Research Methods & Data Analyses

AUTHOR

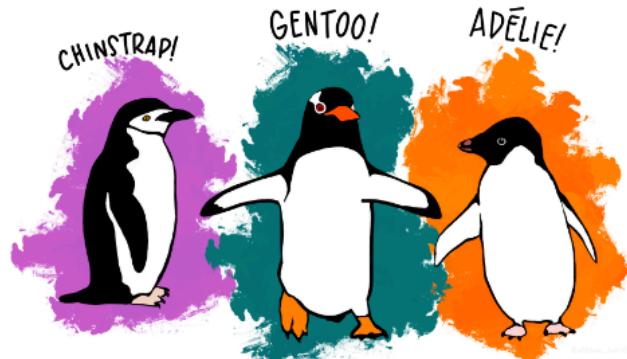
Felipe Melo

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The plot below shows the relationship between flipper and bill lengths of

Your Quarto Website is your workbook for this module

[Example Here](#)

What are your expectations?

The end