rbtl - Research Beyond the Lab

Welcome to the course!

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Welcome! 

Goals for today

You...

...know a bit about me and I know a bit about you.

...know the learning outcomes and competencies you gain in this course.

...are aware of the tools that we use for this course.

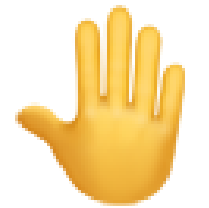
...know where to find the link to the course website.

...understand the grading scheme for this course.

...are motivated to do your homework and come back next week.

Lars Schöbitz

- Environmental Engineer
- Open Science Specialist
- Instructor for Data Science with R
- Online: @larnsce

You, hands-up: 

Who has used **R** before? 

Who has used **any programming language** before? 👋

Who think they know what **version control software** is? 🖐

Who has an account for **Slack**?

Who has an account for **GitHub**?

Who uses **macOS** as an operating system? 🖐

Who uses **Microsoft Windows** as an operating system? 🖐

Learning outcomes

Learning outcomes of this course

At the end of this course, students will be able to:

- practice Open Science principles and publish data projects reproducibly
- work collaboratively with Git and GitHub
- understand the concept of Tidy Data
- conduct Exploratory Data Analysis
- help themselves and others in learning more about data science with R

Toolbox 

Toolbox

Course work

- Classroom
- Field work
- Slack for support (not yet decided)

Data Science

Programming

- R
- RStudio (Cloud)
- tidyverse R Packages
- R Markdown

Version control and Collaboration

- Git
- GitHub

rbtl-fs22.github.io/website/ 

Grading scheme

Grading scheme - Summary

type	percent
homework	20
project	30
exam	50

Grading scheme - Homework

- 10 assignments, submitted weekly
- Assignment submitted in time: 2%
- Assignment submitted late: 1%
- Assignment not submitted: no progress

Grading scheme - Group reserarch project

- 30% for final group project report, submitted in Week 15
  - 20% for technical parts of final report
  - 10% for intellectual framing of the results
- All items that we grade will be communicated on the website

Grading scheme - Exam

- 50% for end-of-semester Exam in Week 16
- Two hour programming exam
- Free use of course material and online material
- Tests for technical aspects taught during the course

Why take this course?

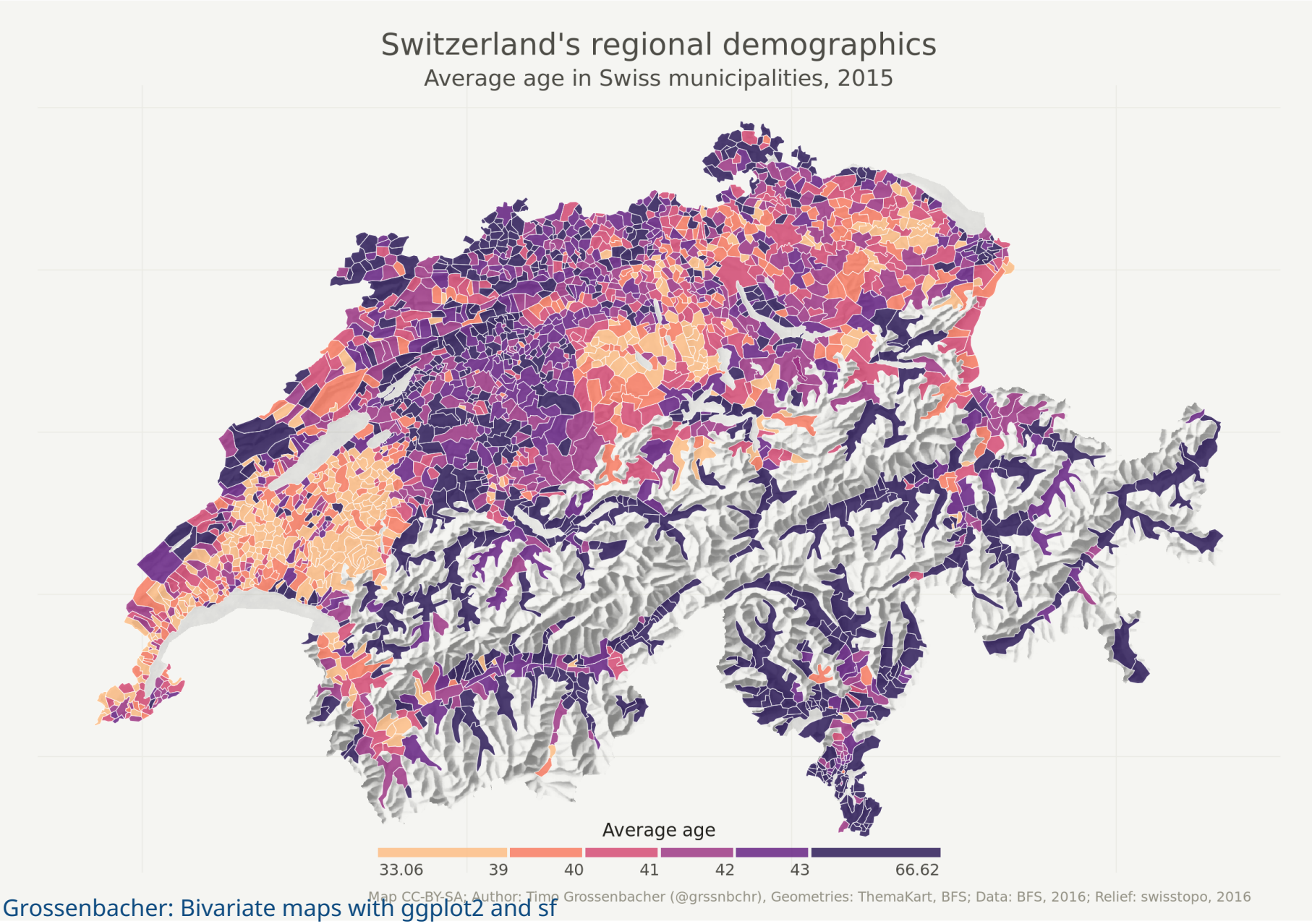
Artwork from @juliesquid for @openscapes (illustrated by @allison_horst).

Awesome things you can do with R

Slides Code Code output Interactive output

These slides are made with R. They can include:

- Code
- Its output
- Interactive output



From: Timo Grossenbacher: Bivariate maps with ggplot2 and sf

GLOBAL
HEALTH
ENGINEERING

LinkedIn Twitter GitHub Email Homepage

From: https://rbtl-fs22.github.io/website/

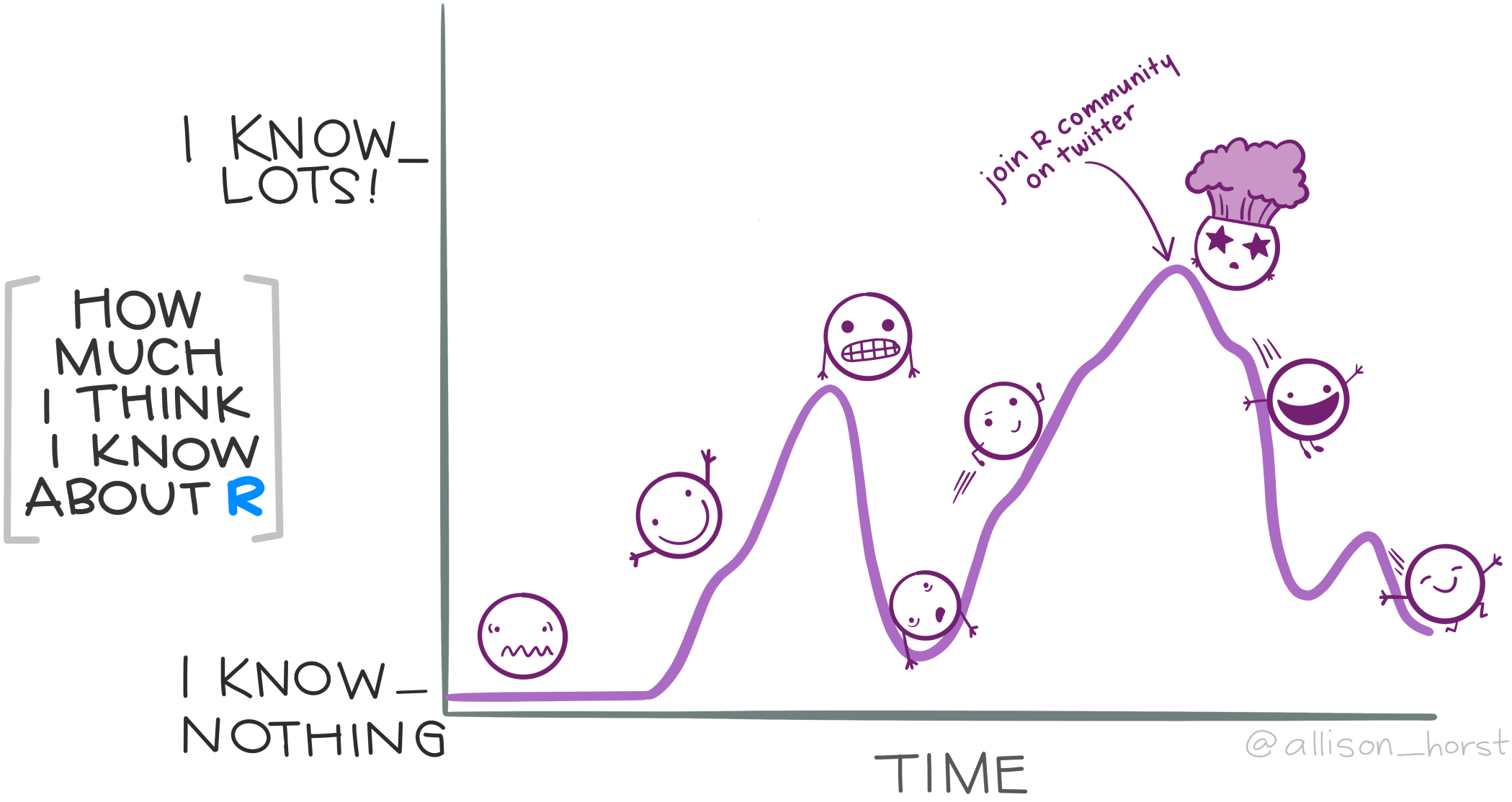
Research Beyond the Lab: Open Science and Research Methods for a Global Engineer

Thursday at 15:00 - 18:00 IFW A 32.1
151-8102-00L
4 ECTS

Prof. Elizabeth Tilley
Lars Schöbitz

From the proverbial 'field' to the heart of Zurich, engineering research is guided by the same fundamental principles. With the goal to improve the human condition with technology, we designed this course to teach learners how to conduct a research project out of the lab, and apply open science principles to their data analysis projects.

Over the course of the semester, students will develop a research project and learn the necessary quantitative methods required to collect data from people. We will use tidyverse R packages to work with data, and git and GitHub as tools for version control and collaboration. By the end of the course, students will have a complete overview of how a typical field-based research project is designed,



Artwork by @allison_horst

Code of Conduct

- ETH - The Respect Code of Conduct: respekt.ethz.ch/
- Diversity and inclusion
- Names and pronouns
- Inappropriate behaviour
- Learning process

Photo by: Sharon McCutcheon

Thanks! 🌻

Slides created via the R packages:

xaringan
gadenbuie/xaringanthemer

The chakra comes from remark.js, **knitr**, and R Markdown.

Access slides as PDF on GitHub