Introduction to Data Analysis with R

Instructor: Selina Baldauf

Freie Universität Berlin - Theoretical Ecology

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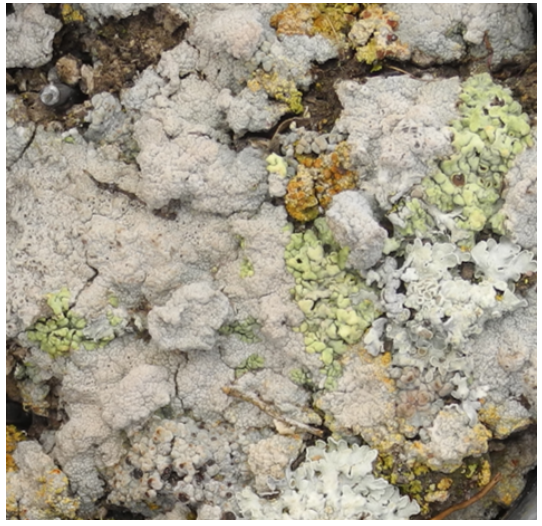
Artwork by Allison Horst

Who am I?

- Scientific modeller with ecology background
- Working in the theoretical ecology group at Freie Universität
- PhD student at Freie Universität Berlin
    - Topic: Modelling the impact of biological soil crusts on dryland hydrology



Teaching

- Statistics with R for Biology Master students
- Workshops on R packages, R development, ...

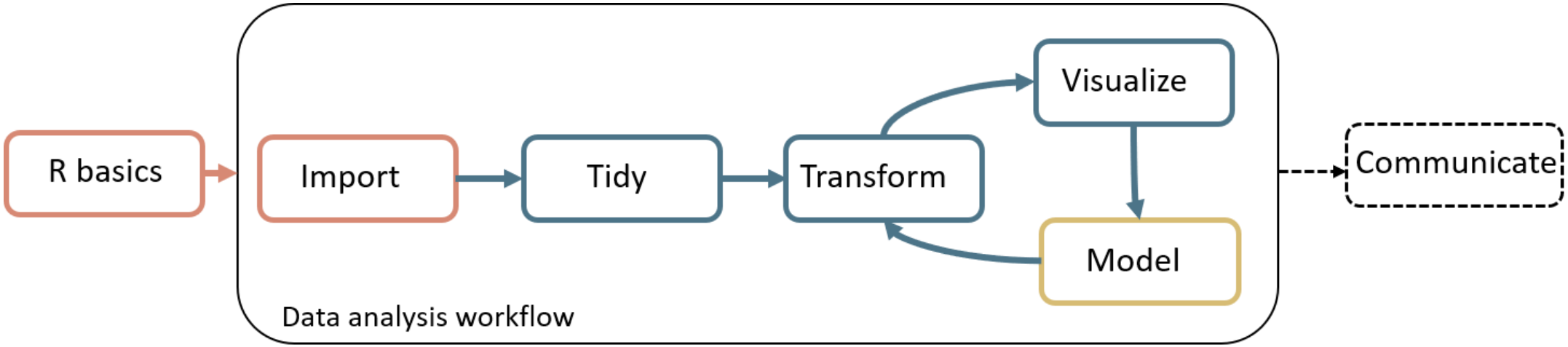
What do I use R for?

- Short answer: everything
- Long answer:
  - Cleaning data
  - Visualizing data
  - Wrangling data
  - Performing statistical analyses
  - Modelling biocrusts
  - Writing documents
  - Presentations
  - Workflow automation
  - ...

Who are you?

Results of questionnaire

The Workshop: Topics



Day 1: Introduction to R and RStudio and data import

Day 2: Data analysis with the tidyverse

Day 3: Statistical tests and models with R

Day 4: Bring your own data

Image adapted from Wickham & Grolemund: R for Data Science

The Workshop: Schedule and Organization

🕘 9 a.m. - 4 p.m. (🥪 ~ 12 a.m. - 1 p.m.)
📍 We will meet in the `General` meeting on Webex

Organization

- Input sessions
  - Presentation and demonstration of a topic
  - Some examples
- Tasks regarding this topic
  - Solve them in small groups
- Joint discussion of tasks and additional questions

The Workshop: Material

- All material can be found on the workshop's website
  - Presentations
  - Tasks
  - Solutions
  - Additional resources
- The complete material can be downloaded from the website after the workshop

Bring your own data

On the last workshop day, you can work with your own research data. I will also provide some real life data sets from different topics.

Learning by doing

- Get started on using R for your analyses
- Use any of the methods from the course or try new things, ...
- Present/discuss your results, questions and problems at the end of the day

Bring your own data - preparation

- Keep the last workshop day in mind during the next days
  - Remember if you learn something that might be applicable to your data
  - Think of questions that you would like to answer for your data set
- Add your name and the methods that you would like to use to the joint document

Before we get started I

Any feedback and questions are very welcome.

I am curious to know

- What you liked/disliked
- Which topics or methods you missed
- Which tasks were too easy/too difficult or just right
- ...

You can give feedback by

- Telling me
- Adding it to the feedback section of the joint document
- Remember it until the end of the workshop and put in in the evaluation

Before we get started II

Did anyone have problems installing R and RStudio?

Download and install R from https://cran.r-project.org

Download and install RStudio from https://www.rstudio.com

Before we get started III

How to use Webex teams

- Different groups for the tasks later
- Use the chat in the groups for questions
- Meet in your groups and solve the tasks jointly (if you want)