

Intro into R workshop

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Overview of Day 1

- Objective-driven science
- What is R, RStudio [Git and Github]
- Getting & staying organized with data analysis in R: Best practices
- Basics of coding in R

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Working in RStudio

- Console (entire left)
- Environment/History (tabbed in upper right)
- Files/Plots/Packages/Help (tabbed in lower right)

Working directory

- `getwd()` / `setwd()`

R Projects

- File/New project/New directory

Benefits of project-oriented R analysis

- Keep everything related to your analysis (scripts, data, raw data...) in the same working directory
- uses “relative paths” `"~/PSEC-R-workshops/hey.csv"`
- vs “ absolute paths” `"C:/Users/Ania/R_coding/PSEC-R-workshops/hey.csv"`




More advice on this from Jenny Bryan @RStudio here (see Day 1 PDF slides)

<https://github.com/jennybc/what-they-forgot#readme>

Let's practice some basic Commands

Create some objects (RULES)

R script & annotate

1. Write your script, piece by piece   
2. Test each piece before you move onto the next piece
3. Refresh R studio often
4. Close your R project now
5. Re-start, re-joice!

How to develop best practices for doing work with R

- Check out R scripts & R projects of experts in the field
- e.g. Hadley Wickham (<https://github.com/hadley>)
- Jenny Bryan (<https://github.com/jennybc>)
- Julia Silge (<https://github.com/juliasilge>).....list goes on
- Advice for code syntax: <http://style.tidyverse.org/syntax.html>



Allows hosting of your repository on a remote server (sharing R scripts online)

Workflow advice: <https://github.com/jennybc/what-they-forgot#readme>

My workflow

1. Import raw CSV file
2. Inspect how variables were imported
3. Prep data for plotting with ggplot (exploratory)
4. Plot the data
5. Do your stats
6. Document/metadata

Folder within R project

Data/Raw data

Data/Wrangling

Figures

Statistics

Docs



Figures

Fig1_ Bact-Cu-growth.R

Fig1_ Bact-Cu-growth.R

Fig2_ Bact-CNSP-quotas.R

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Data

01_Bact-growth-rates-tidydata.csv

01_Bact-P-norm-metals-tidydata.csv

02_Bact-CNSP-tidydata.csv

R basics

- Objects vs variables
- Functions
- Vectors & data types
- Packages (R base and add on)