Fundamentals of Bioinformatics workshop

Owen M. Wilkins, PhD

Bioinformatics scientist

Center for Quantitative Biology, Geisel School of Medicine at Dartmouth

Email: DataAnalyticsCore@groups.dartmouth.edu

Website: https://sites.dartmouth.edu/cqb/projects-and-cores/data-analytics-core/

December 2020

Who are we? The Data Analytics Core

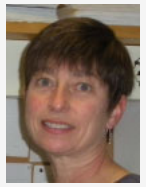
Mission statement

Facilitate advanced genomic & bioinformatic data analysis solutions to CQB faculty & the Dartmouth research community

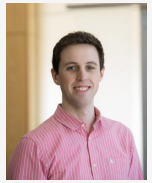
James O'Malley, PhD
Director

Shannon Soucy, PhD
Senior Research Scientist

Tim Sullivan, BS
Bioinformatics Research Scientist



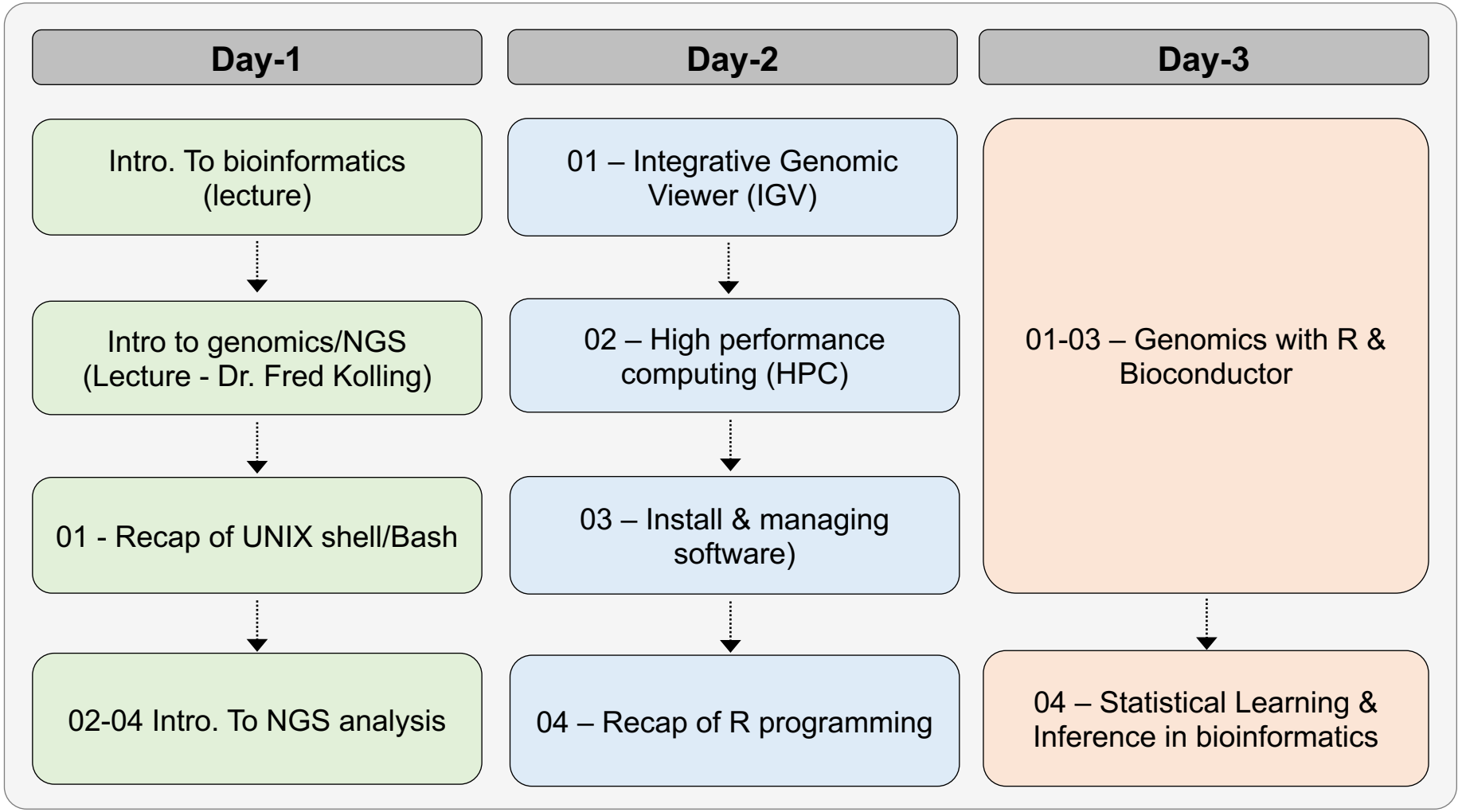
Carol Ringelberg
Data analyst



Owen Wilkins, PhD
Bioinformatics Research Scientist

- **Genomic data analysis**
  - Analytical support for Dartmouth researchers
  - Pipeline development & maintenance
- **Bioinformatics consulting**
- **Publication & grant support**
  - Writing for methods & results sections
  - Letters of support
- **Training**
  - One-on-one analysis
  - Group workshops

Workshop outline



Schedule

- Can be found at: https://github.com/Dartmouth-Data-Analytics-Core/Bioinformatics_workshop/blob/master/schedule.md
- 12pm-5pm each day
- Schedule is best guess, and we may deviate from it based on time
- If you will be absent for a session, just let us know

Logistics I

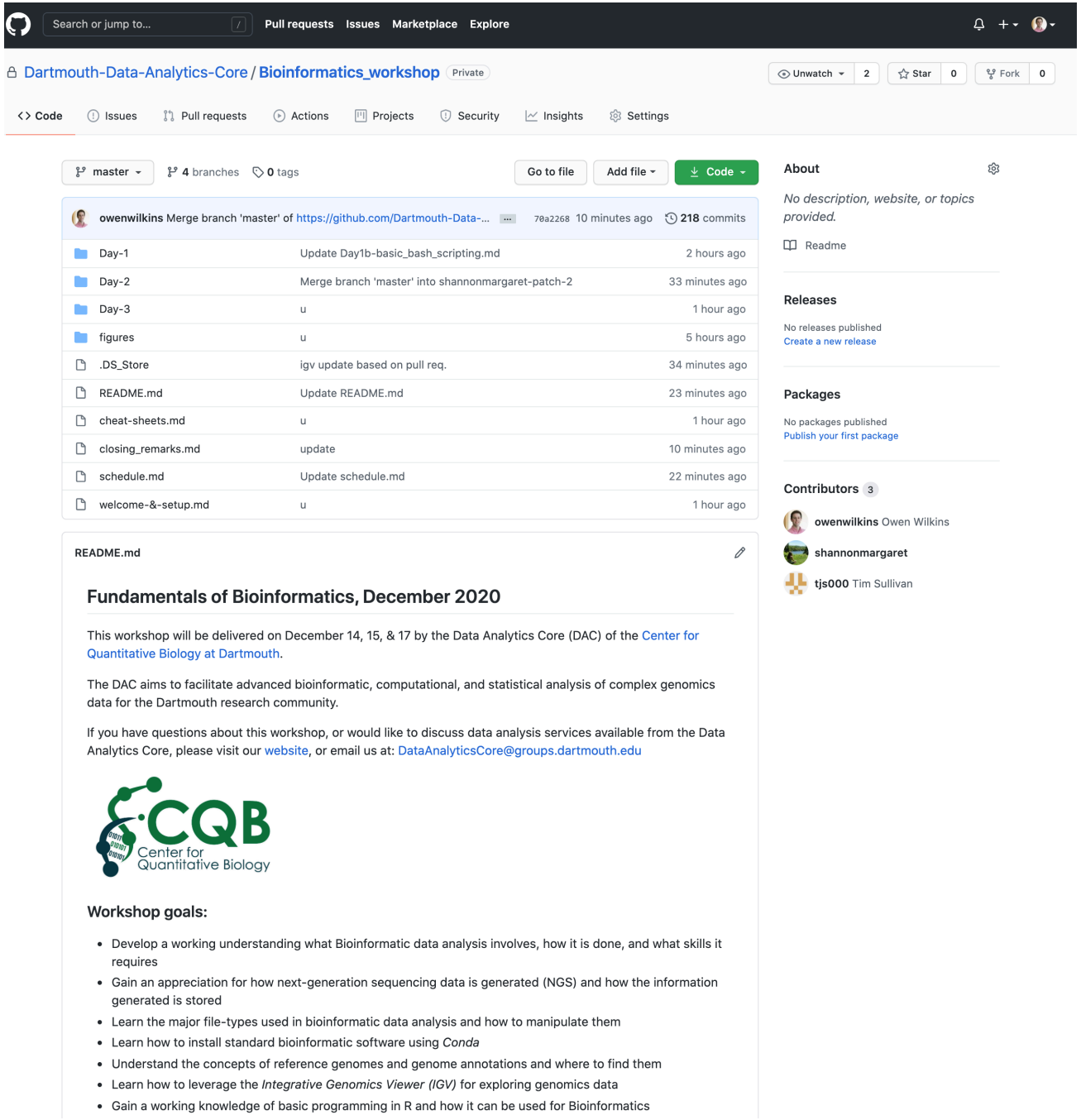
- Course materials are all online (and will stay there):

  https://github.com/Dartmouth-Data-Analytics-Core/Bioinformatics_workshop

- You should have the repo downloaded locally

- Day 1 we will be copying Bash code from markdowns (.md) into the terminal, or into R Studio

- This is deliberate, and will help you learn how to organize code



Logistics II

➢ **When working in the terminal:**

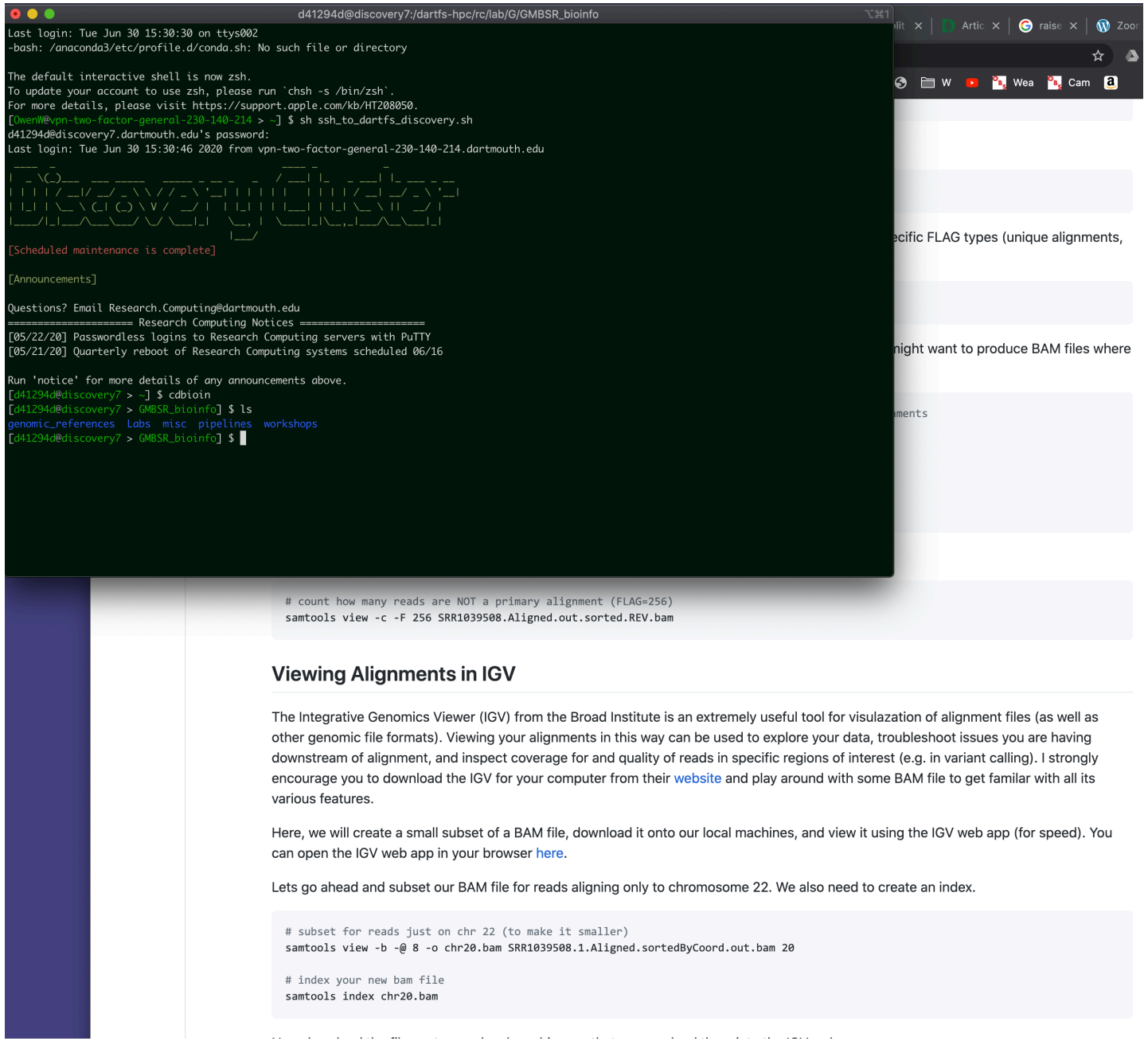
- Multiple tabs open

- Terminal window
  (ssh to discovery7)

- Web browser to GitHub repo

- If you finish: edit the code, try different options, generate scripts

- Use the ***cheat sheets!***



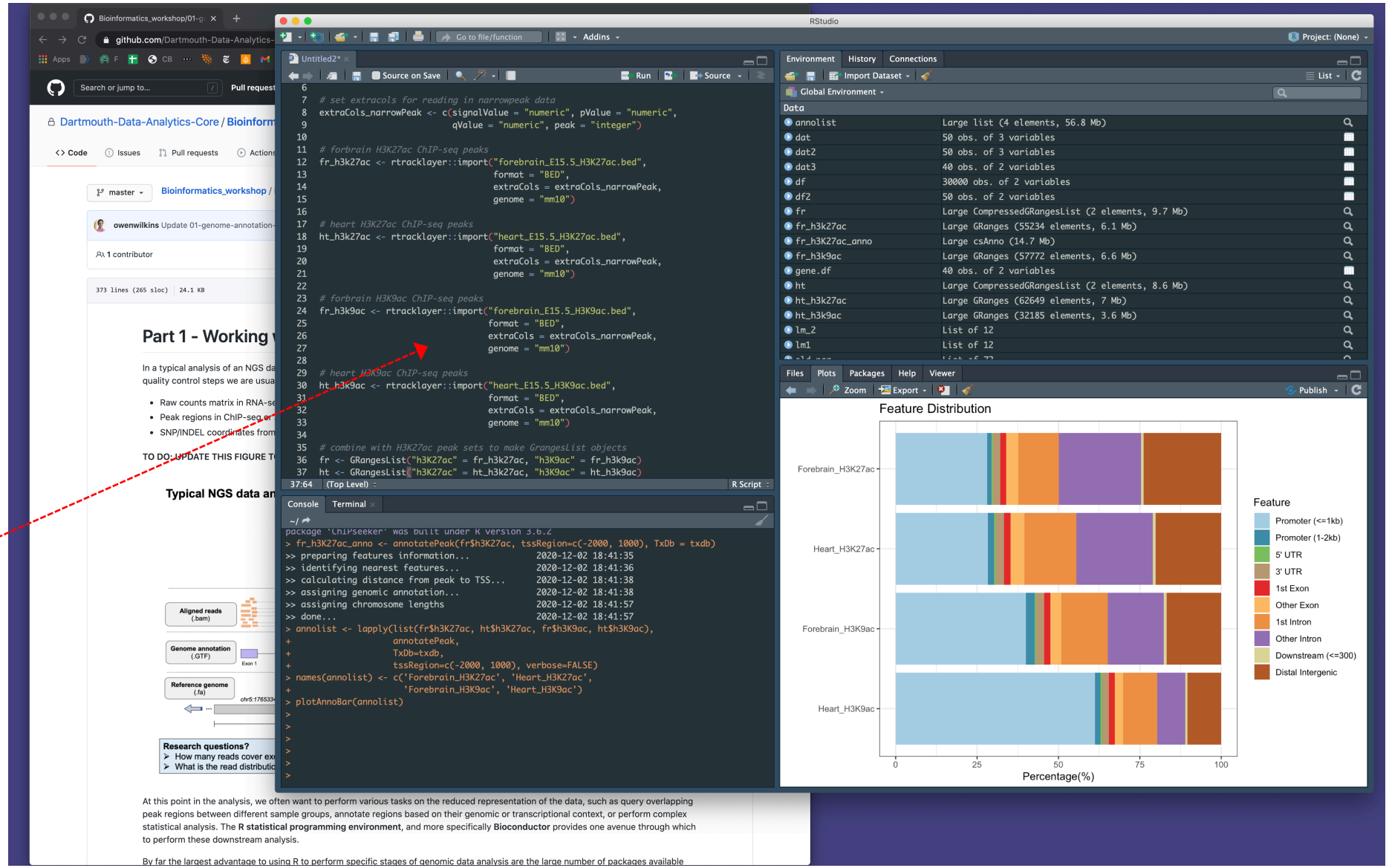
Logistics III

- **When working in R/Rstudio:**

- Multiple tabs open (including GitHub repo)

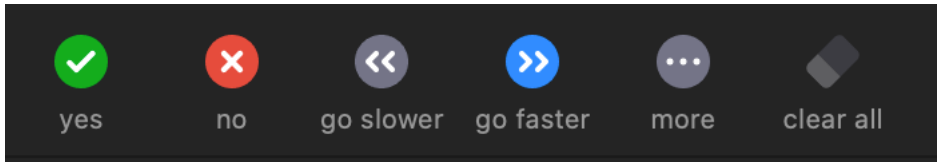
- Copy and paste R code into scripting window

- Save the scripts you generate as .R files

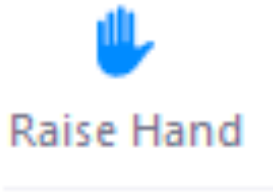


Logistics IV

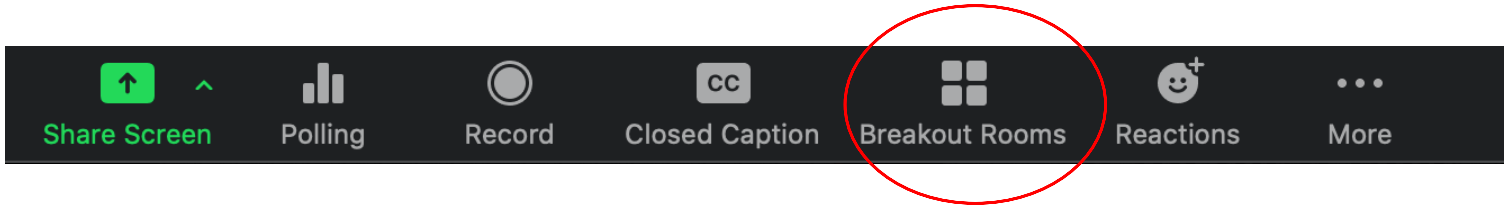
- **Use buttons in *Participants* tab in zoom**



- **You'll be muted, but if you want to ask a question, just raise your hand**



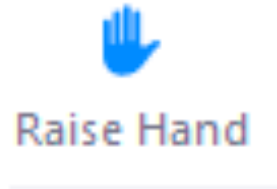
- **We'll be using *breakout rooms (BRs)***
  - We will use these when we split up to run code independently
  - We've tried to pair everyone based on experience
  - If your stuck, message us, and we will come help you in your (BR)
  - When we are going to move on, breakout rooms will close



- **Please be courteous on zoom..**

How to get help?

- **Raise your hand in zoom** (bottom right, participants tab)



- **Use the slack channel to message one of us or the TAs**
  - Use the ***general*** channel if it might benefit everyone
  - Message us directly if its specific

- **If all else fails, email us:**
  - DAC: DataAnalyticsCore@groups.dartmouth.edu
  - Shannon Soucy (Shannon.Margaret.Soucy@Dartmouth.edu)
  - Tim Sullivan (Timothy.J.Sullivan@dartmouth.edu)
  - Owen Wilkins (omw@Dartmouth.edu)

Questions?

…then.. Introductions!

Name, department/program, why are you taking the workshop?