Lecture 1.1 – Intro to the Course

Specific Learning Objectives:

None

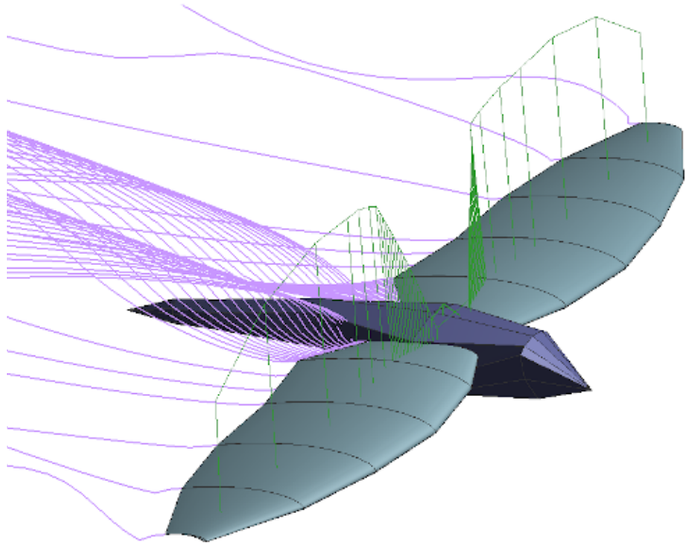
About me

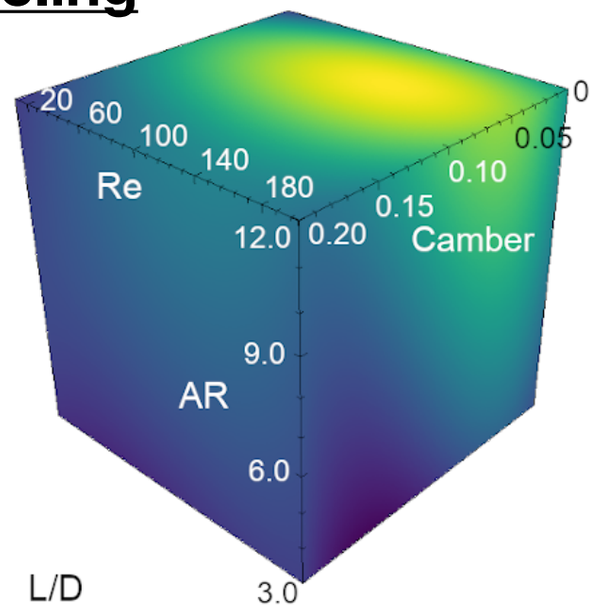
Lindsay Waldrop, Ph.D. (Biological Sciences) http://waldroplab.com

Exploring the evolution of biological fluid-structure interactions

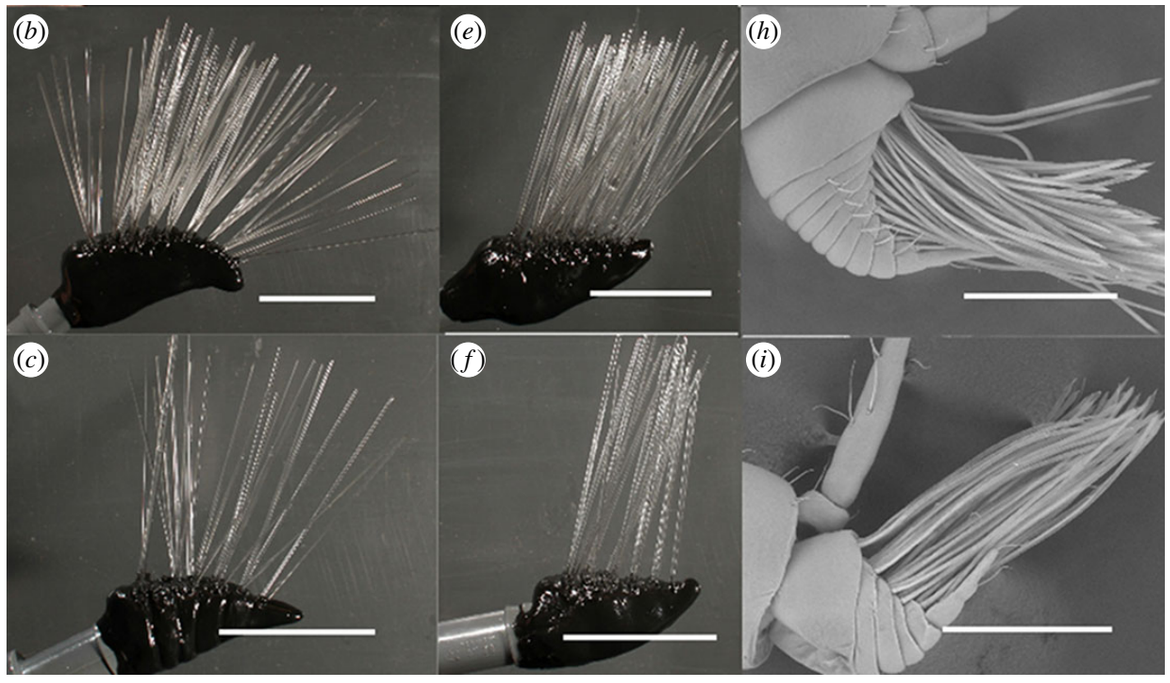
High-speed videography

Computational fluid dynamics modeling

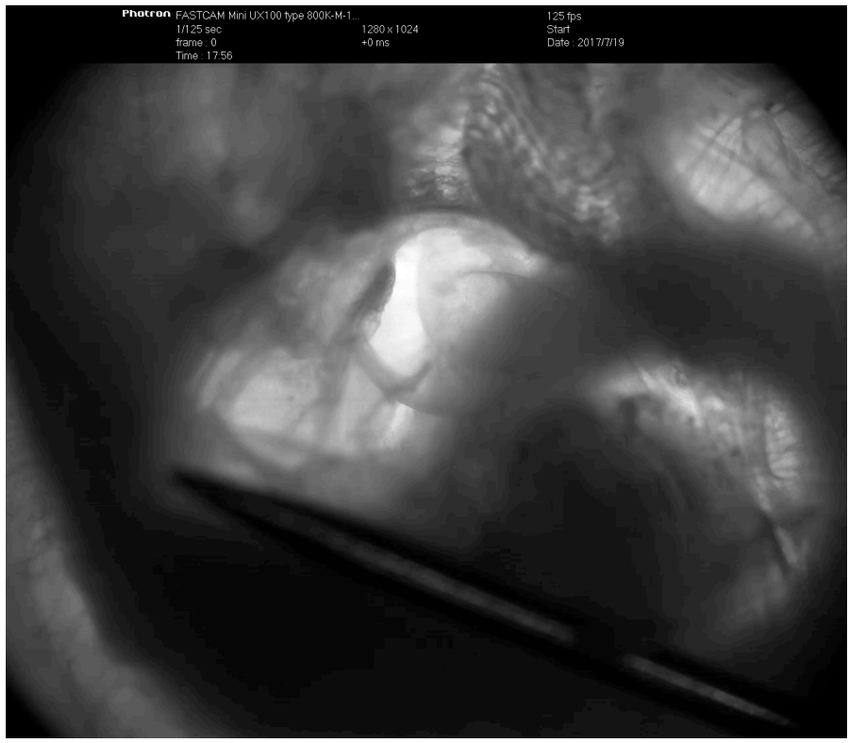




Morphometrics



Experimental fluid dynamics



Student Office Hours

I am away to recover from surgery for the first couple of weeks!

Katherine will give you Office Hours on the board

What are office hours and why should you come?

- Office hours are for students! You are not bothering or interrupting us, this is time we set aside every week for my students!
- They are a great place to get clarification on content, ask questions, listen to other students ask questions, practice work, etc.
- They are also a great space for mentorship: career advice, info on graduate schools, exploring things that interest you, connecting with research, etc!

Course Navigation

- ***Where do I find course information?***

  Github repository: https://github.com/CPSC-292-Fall-2022/CPSC292-CourseInfo

  - syllabus
  - course learning objectives
  - lecture notes
  - course schedule
  - course assignments
  - sample code

- ***Where do I find and turn in assignments and see my grades?***

  Course Canvas sites:

  MWF 11 - 12 (Section 01): https://canvas.chapman.edu/courses/44305

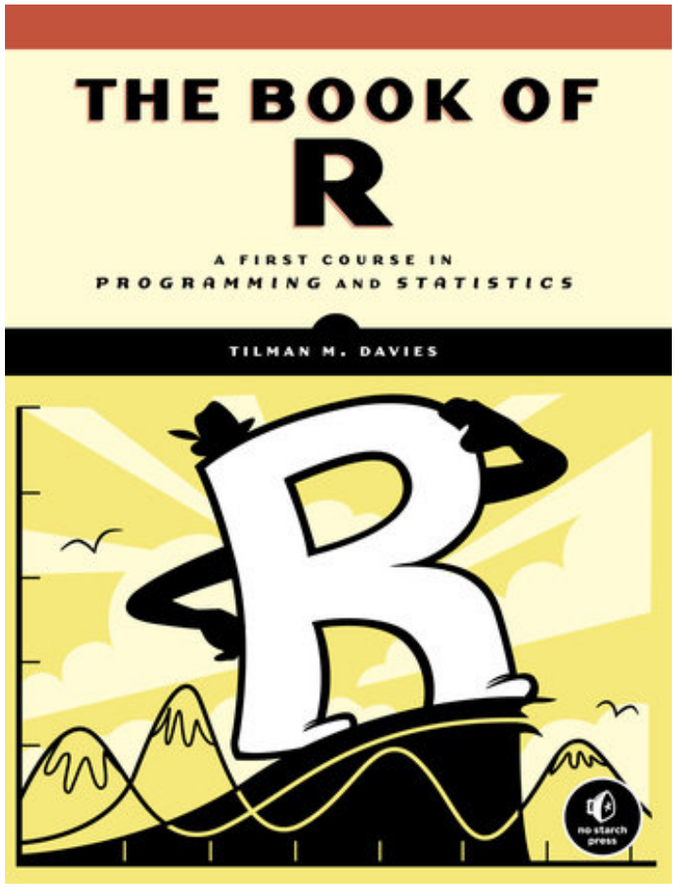
  MWF 12 - 1 (Section 02): https://canvas.chapman.edu/courses/44167

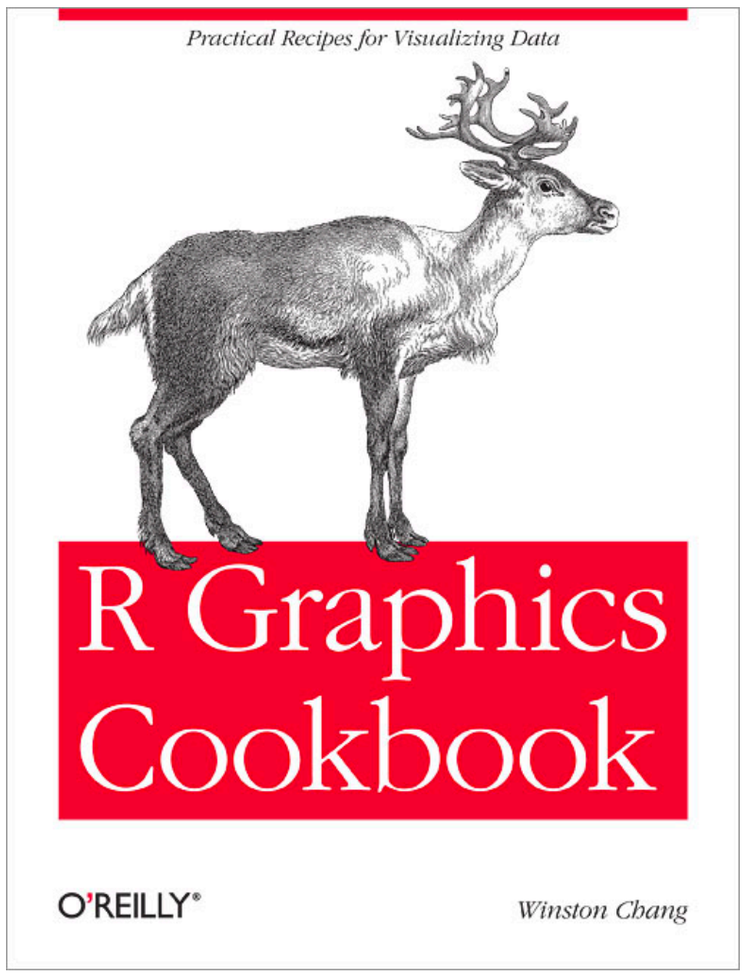
- ***What is the best way to communicate?***

  Slack Channel! Link in Canvas Announcement!

Course Materials

- **Required Text:** *The Book of R* by Tilman Davies.
  First Edition, No Starch Press. ISBN-13: 978-1-59327-651-5.
  Link to publisher website: https://nostarch.com/bookofr
  (Between Aug. 15 and Oct. 15 use code ACDCPSC292 to receive 30% off purchase through the NoStarch Press website.)





- **Suggested Text:** *R Graphics Cookbook* by Winston Chang.
  First Edition, O'Reilly Media. ISBN 9781491978603.
  Online at: https://r-graphics.org/

How this course works

- This is a **labor-based** and **mastery-based** course.
- Your grade in this course will be determined by:

    1. Your labor and participation.

    2. Completion of work will indicate level of mastery of course material.

Grading System (Labor)

- All work is assessed on a three-tiered scale:
  - **Completed and Satisfactory** (score of 1)
  - **Completed and Unsatisfactory** (score of 0) - you will receive feedback and have another opportunity to achieve satisfactory level.
  - **Not Completed** (score of 0) - no late work will be accepted.

- **Life Happens Clause**: request a new deadline for any assignment within 48 hours of the deadline. Request via Slack to your instructor. Be sure to include the new deadline you are requesting.

Grading System (Labor)

- **Rescoring work:** You are allowed 3 attempts for each work item (except Projects).
    - Each attempt must be made within 3 business days of receiving feedback from the instructor.
    - **It is critical that you keep up-to-date with material** (especially in Unit 1).

- **Participation is required at all levels.** Non-participation is marked only. Reasons: absence, excessive lateness (>10 mins), off task, distraction, etc.

Grading System (Mastery)

- Work is designed to demonstrate levels of mastery in the material.

  - **Assignments (C-level)**: Designed to assess *basic competence* of learning objectives covered. Flexible number.

  - **Skill Checks (B-level)**: Designed to assess *advanced competence* of learning objectives covered. Usually involve synthesis of concepts and more independence than assignments. 6 in total.

- **Projects (A-level)**: Designed to assess *mastery* of learning objectives covered. Work will involve synthesis, creativity, independence, and originality. 3 in total.

Grading System (Mastery)

Final Course Grade	Projects completed (A-level)	Skill Checks completed (B-level)	Assignments completed (C-level)
A	3	6	100 %
B	1	6	100 %
C	0	2	100 %
D or F	0	< 2	< 90 %

Other Course Policies

- Please wear a mask during class and in office hours.
- Come prepared to learn and participate!
- Final project policy: you MUST participate in the final project.
- Group work is encouraged unless the assignment is an *individual evaluation*.
- Communication: Please Slack instead of email. Expect replies between 9 am and 5 pm during the regular work week.

What if you need help?

- ***Please contact us!*** We want to help, whether it is situational, financial, or academic. We are prepared to be very flexible, including issuing course incompletes (which can be finished later).

- The Dean of Students can help connect you with services, no matter what type of problem you have!

- If you are struggling mentally, please talk to me or seek help through Student Psychological Counseling Services: https://www.chapman.edu/students/health-and-safety/psychological-counseling/

Course Learning Objectives

Main Learning Objectives:

1. Understand the basic structure and function of the *R* programming language.

2. Create visualizations and data analyses in the *R* programming language.

3. Independently perform basic data analysis and visualizations in a way that communicates ideas clearly.

Detailed learning objectives (and how they are assessed) are in the file CLO.pdf!

Why Learn *R*?

- Biology today involves lots and lots and lots of data!

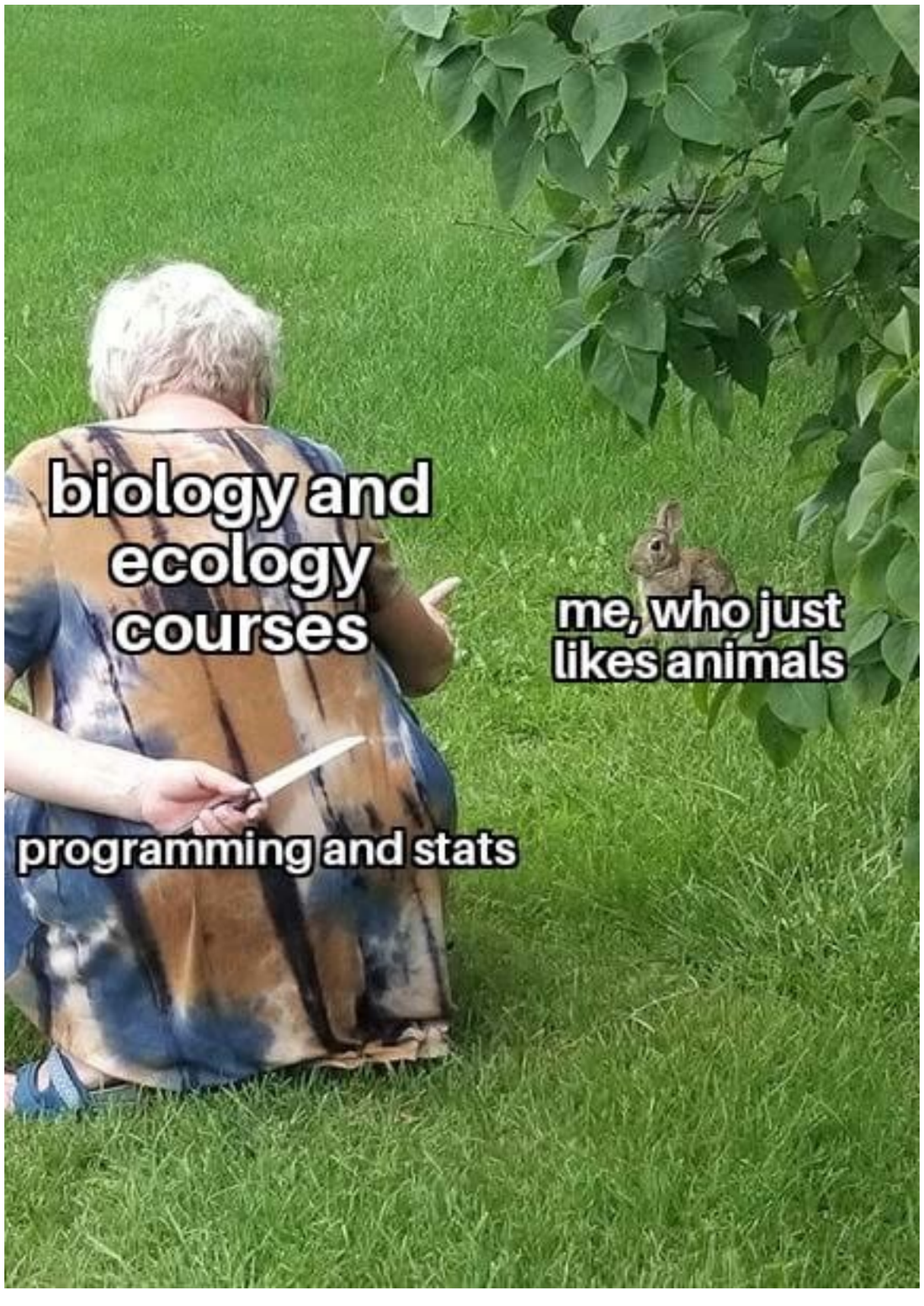
- Most disciplines require skill in handling and analyzing data.

- *R* is a high-level yet powerful programming language that can assist with statistics, analysis, and visualization.

- *R* is free and open-source, making analyses replicable.

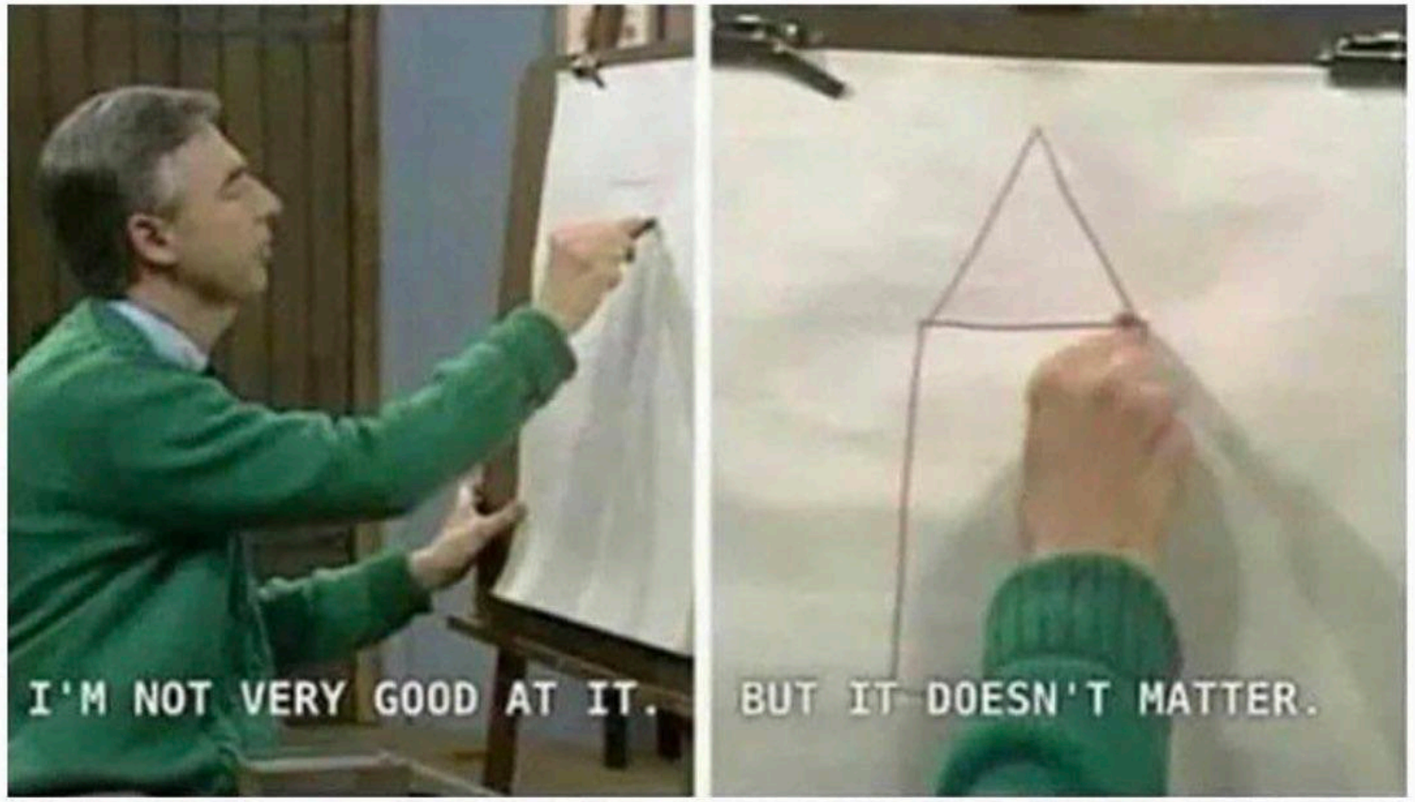
- *R* is flexible and has a huge community working on new stuff!

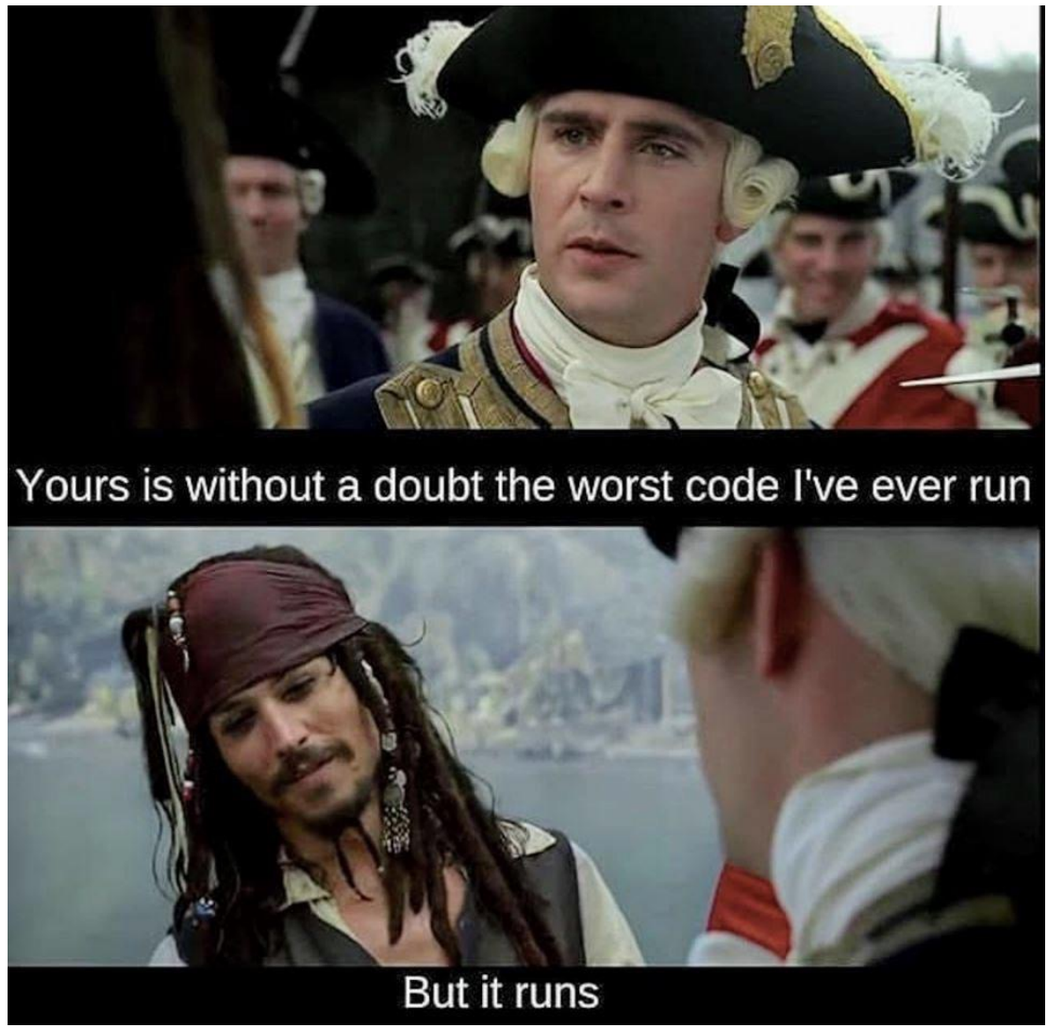
It’s true. Sorry :(



Don’t fret - You can do it

- You really don’t have to be good at it, but you’ll definitely get better!

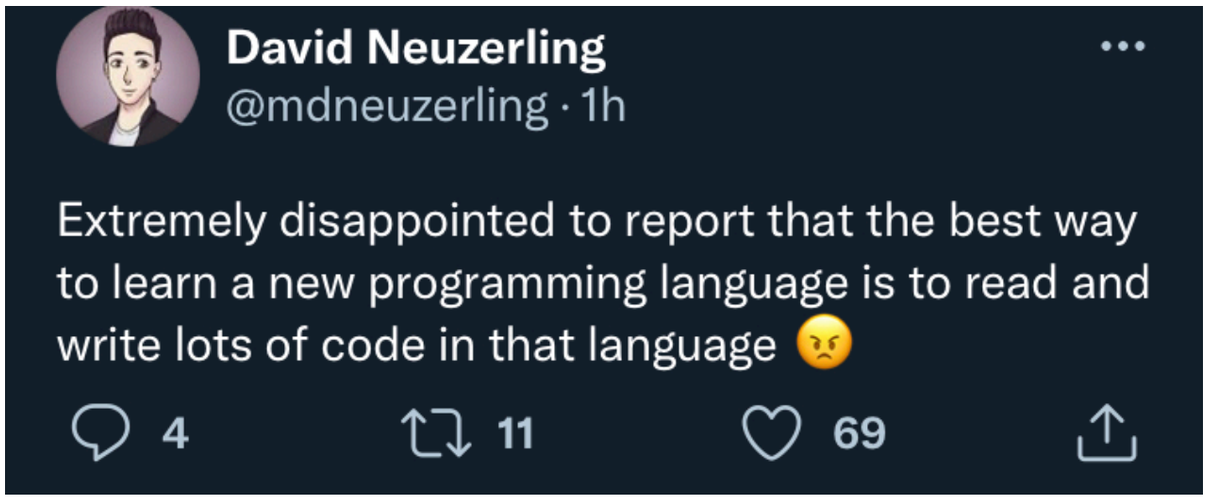




- It ain’t got to be pretty, it’s just got to work.

The Bad News is…

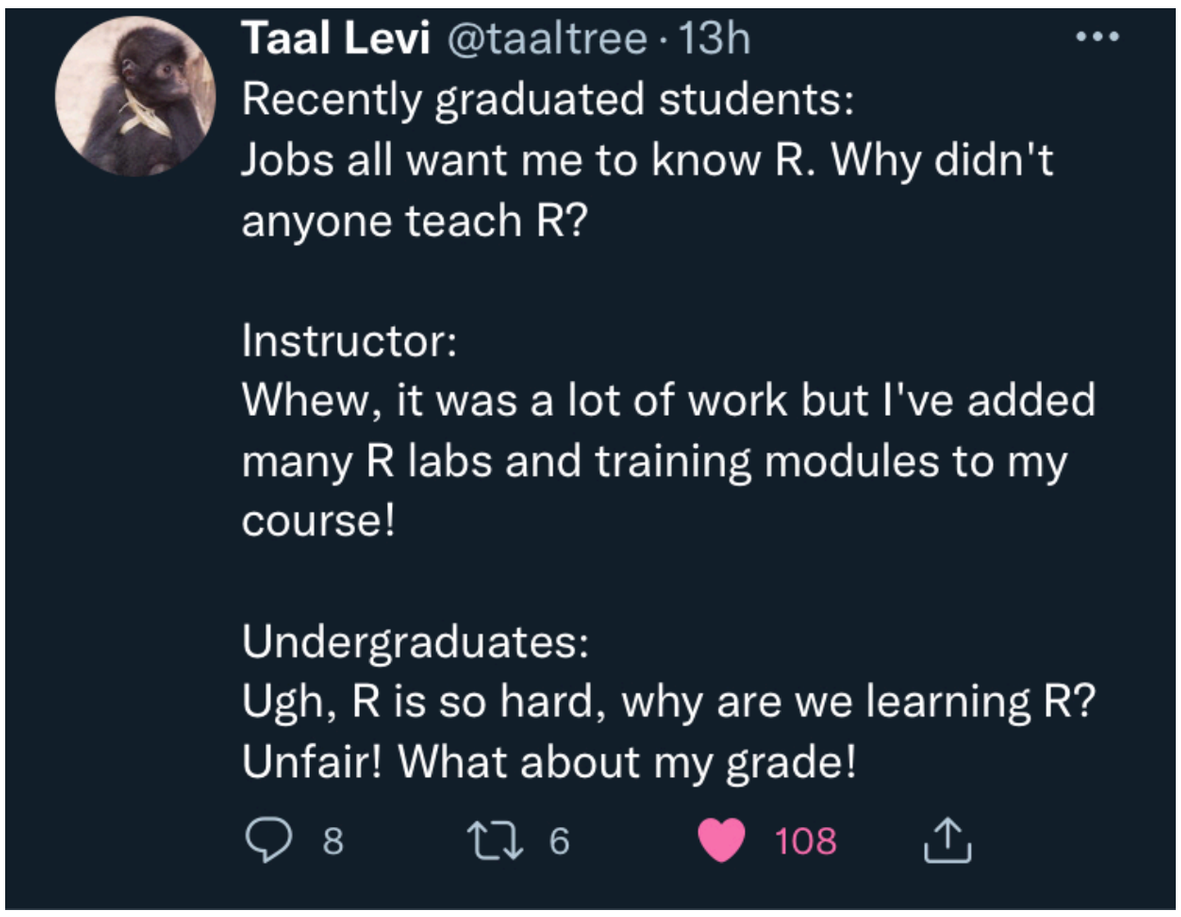
- The only way to learn a new programming language is to practice. A LOT.



The GOOD News is…

- These skills are in high demand from employers and potential graduate school advisers.

  IT WILL BE WORTH IT!



Downloading *R* and RStudio

Download *R*: https://www.r-project.org/

1. **Go to https://cloud.r-project.org/**
2. **Select your operating system.**
3. **Select the latest release that is "notarized and signed."**
4. **Save and open the file, follow the instructions to install.**

Download RStuido: https://rstudio.com/products/rstudio/download/

1. **Select the RStudio Desktop version.**
2. **Download, open, and follow instructions to install.**
3. **Open RStudio to get started!**

Action Items

1. **Have R and RStudio installed on your personal computer by next Wed 9/7!**

2. **If you are having trouble with a laptop, please tell Katherine ASAP!**