Lecture 1.1 – Intro to the Course

Specific Learning Objectives:

None

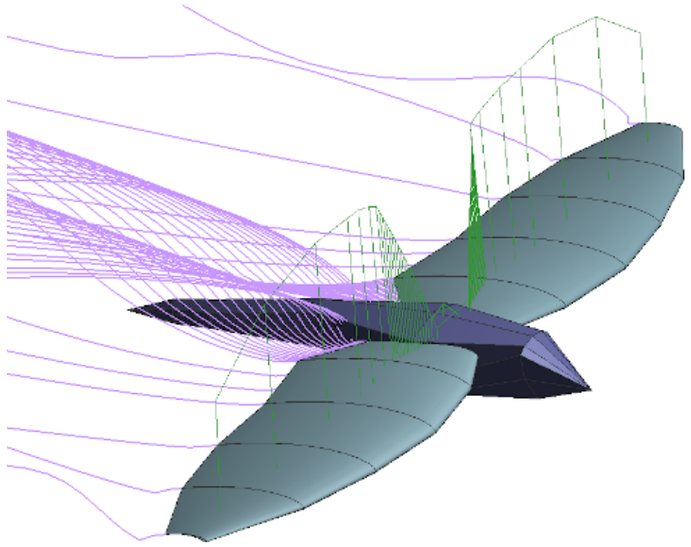
About me

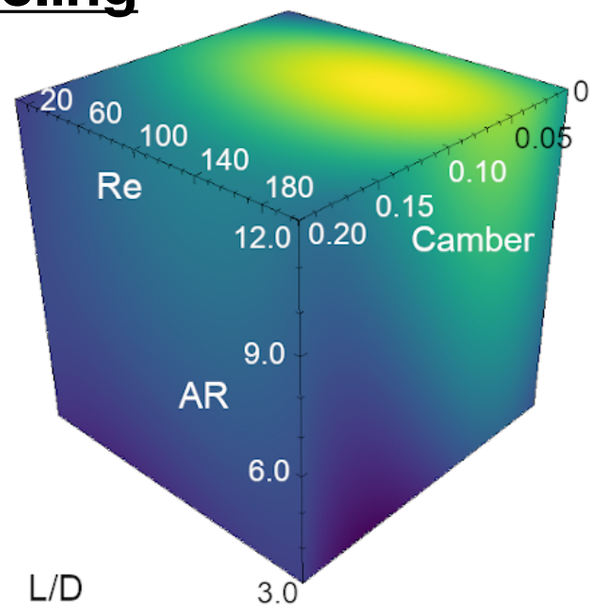
Lindsay Waldrop, Ph.D. (Biological Sciences) http://waldroplab.com

Exploring the evolution of biological fluid-structure interactions

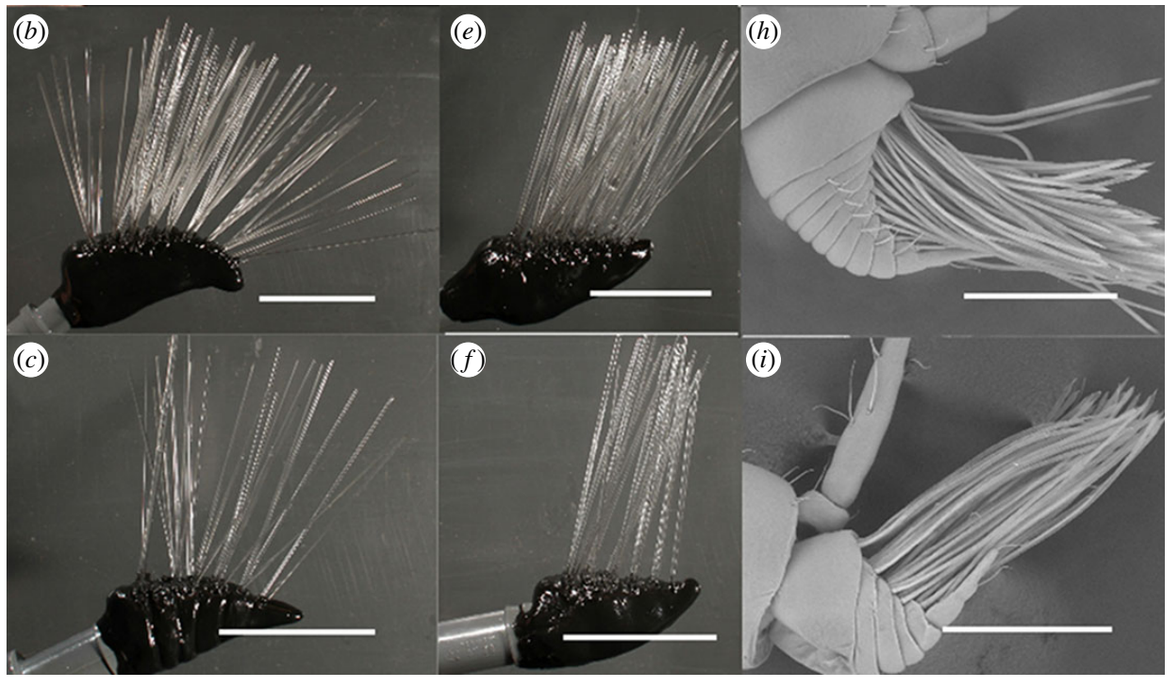
High-speed videography

Computational fluid dynamics modeling

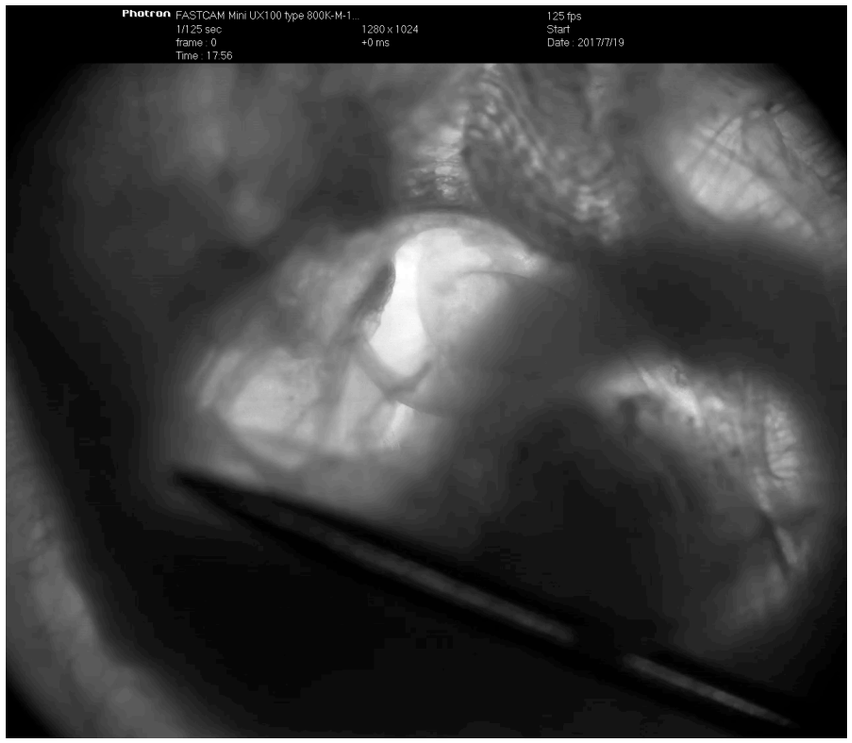




Morphometrics



Experimental fluid dynamics



Student Office Hours

Tuesdays 9 – 11 am **Fridays 2 – 3 pm** **By Appointment**

- **Office:** 268 Keck

- **Online** in my Personal Meeting Room: https://chapman.zoom.us/j/6794112215

What are office hours and why should you come?

- Office hours are for students! You are not bothering me or interrupting me, this is time I 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/CPSC292-Fall2021/CPSC292-CourseInfo

  - syllabus
  - course learning objectives
  - lecture notes
  - course schedule
  - sample course contract
  - 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/34433

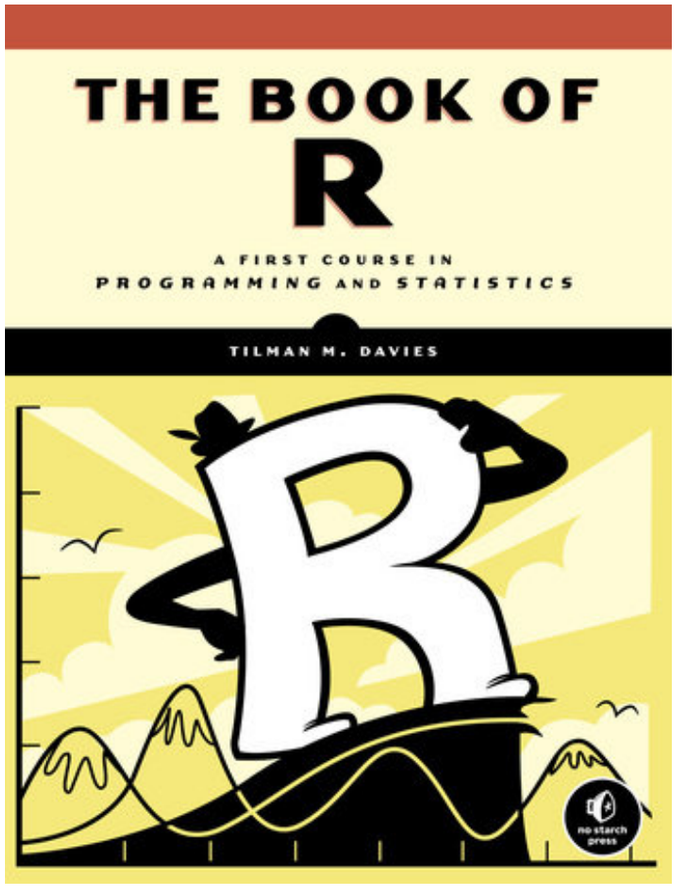
  MWF 12 - 1 (Section 02): https://canvas.chapman.edu/courses/34437

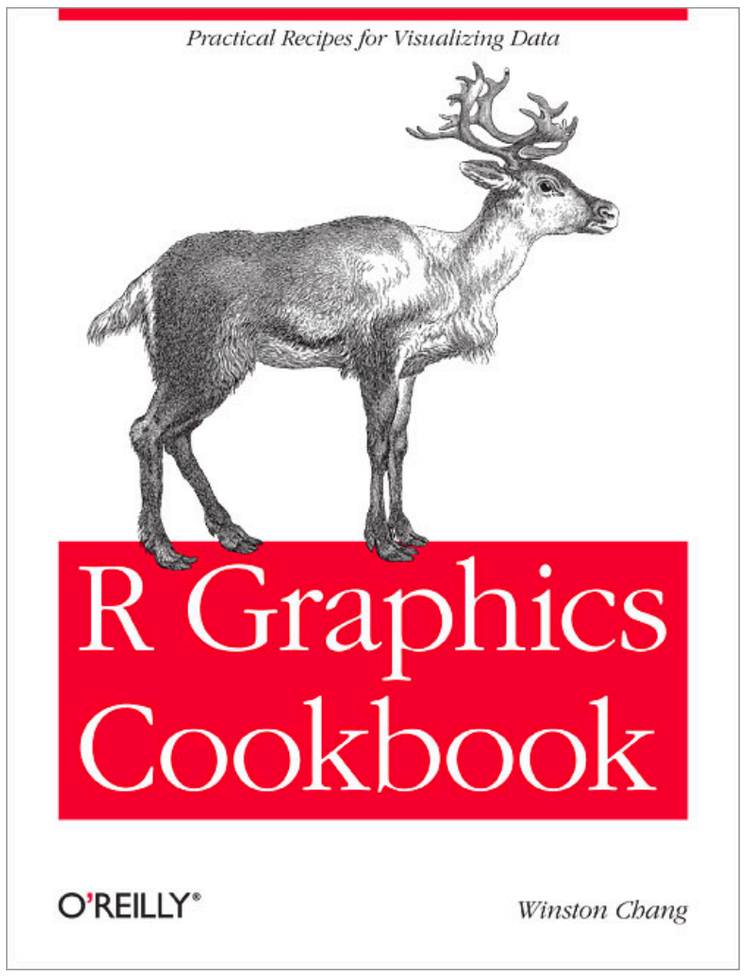
- ***What is the best way to communicate with Dr. Waldrop and my classmates?***

  Slack Channel: https://join.slack.com/t/slack-qus5088/shared_invite/zt-uo7x0cwm-lenR41SM8ahsGtdL933rTA

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

- Course will be contract-based grading scheme.

    1. Your labor and participation will determine your grade.

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

- You will pick what course grade you'd like to receive and create a contract that we'll both sign. **Complete the work in the contract and you will receive your desired grade!**

Labor-based grading system (1)

- 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) - If w/in 48hrs of deadline, will be late.

Final Course Grade	**Number of late assignments**
A	3 B- or C-level items, 1 A-level items
B	5
C	7
D or F	>7

Labor-based grading system (1)

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

Final Course Grade	Number of days not participating in class
A	4
B	7
C	9
D or F	>9

Mastery-based grading system (2)

- 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.

Mastery-based grading system (2)

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 %

Creating Your Contract - Sample Contract

I, Your Name Goes Here, have set a target grade of **A** in the course CPSC 292-01 Intro to Exploratory Data Analysis. According to the guidelines set forth in the course syllabus, I agree to participate in class, including being present for the final exam period, and complete to following items of work to demonstrate the appropriate level of mastery:

- **Assignments**: I will complete **100** % of assignment items.
- **Skill Checks**: I will complete **6** of the skill checks.
- **Projects**: I will complete **3** of the projects.

I agree to turn these work items in by the stated deadline, except for **3 B- or C-level items and 1 A-level item** which can be considered late but completed within 48 hours of the deadline. For any work that is completed on time but marked unsatisfactory, I will make changes suggested by the instructor and resubmit within one week of receiving feedback.

In addition, I pledge to not participate in class **4** days or fewer, which does not include the final exam period, which I will attend.

The instructor agrees to confer the target grade if all items of the contract are completed and obligations satisfied. I understand that failing to meet these obligations will result in a lower grade than the target I have set for myself, to be determined by the instructor at the end of the course. I also understand that pluses and minuses attached to the target course grade are to be determined solely by the instructor.

Student Signature: *Your Name* Date: *9/3/2021*

Instructor Signature: *Lindsay Waldrop* Date: *9/3/2021*

Contracts are due in Canvas by Friday 9/3 at 5 pm!

Other Course Policies

- Please wear a mask during class and in office hours.
- Come prepared to learn!
- Life Happens Clause: unlimited extension requests (COVID)
- 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. I usually reply between 9 am and 5 pm during the regular work week.

What if you need help?

- ***Please contact me!*** I want to help, whether it is situational, financial, or academic. I am 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!

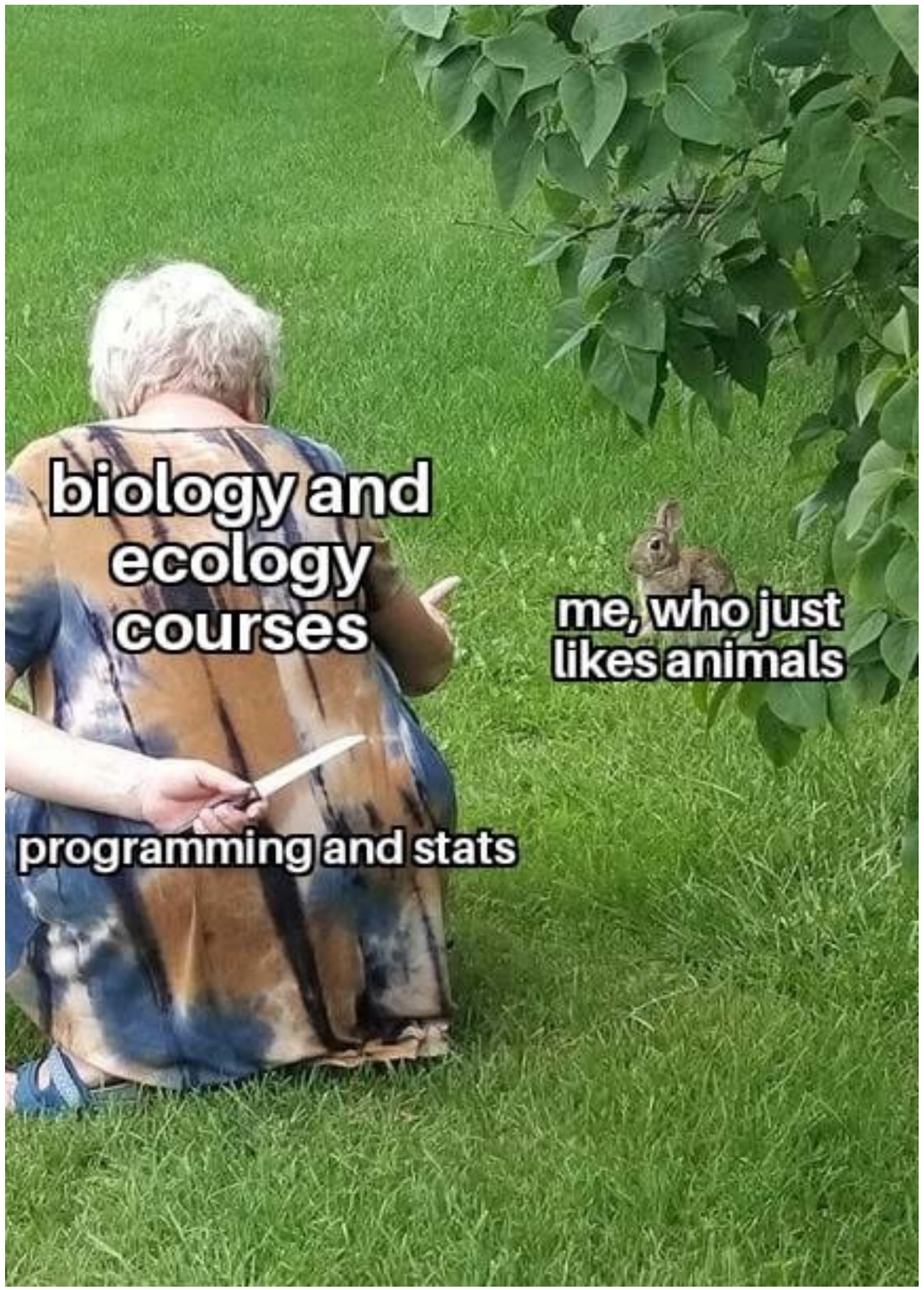
- Most disciplines require skill in handling and analyzing data.

- *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.

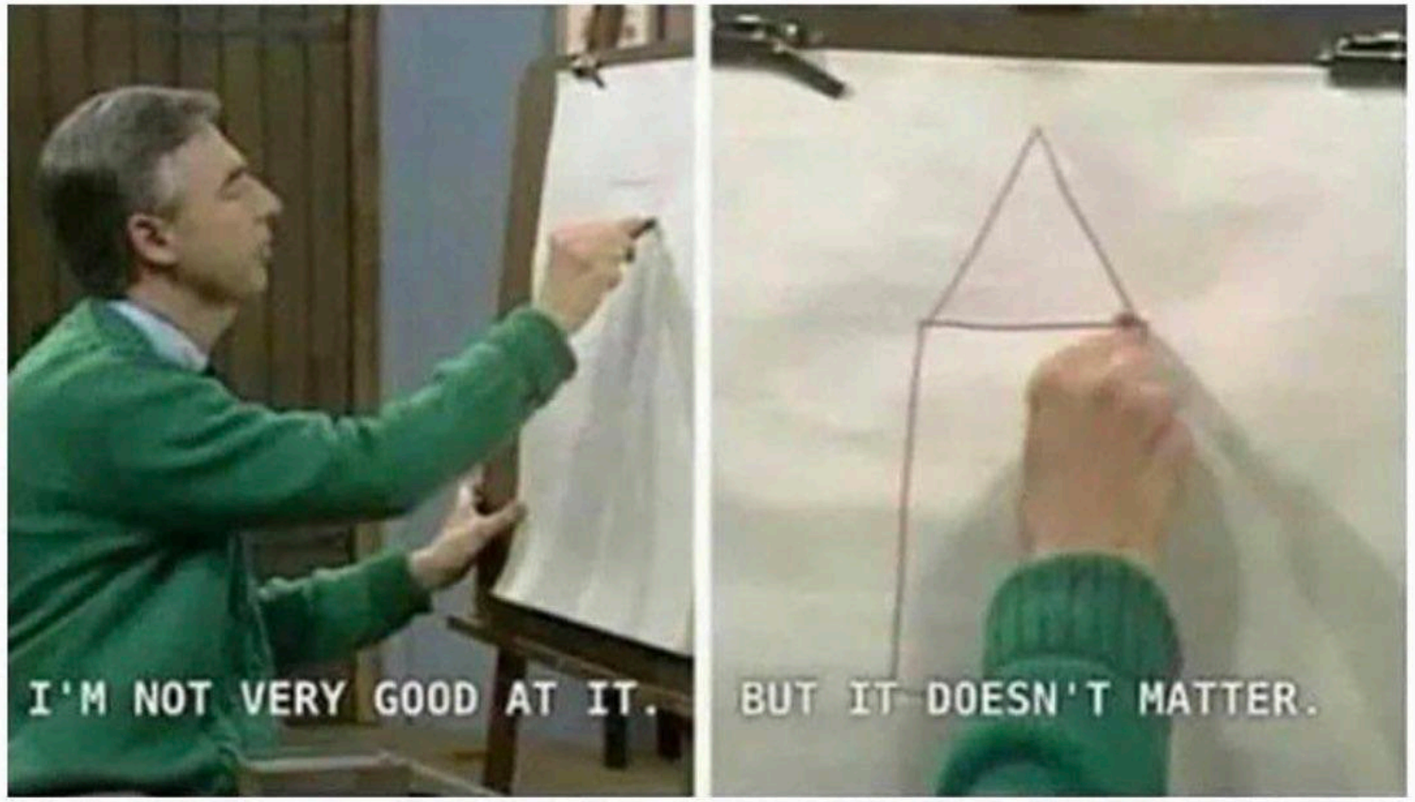
- *R* is flexible and has a huge community working on new stuff!

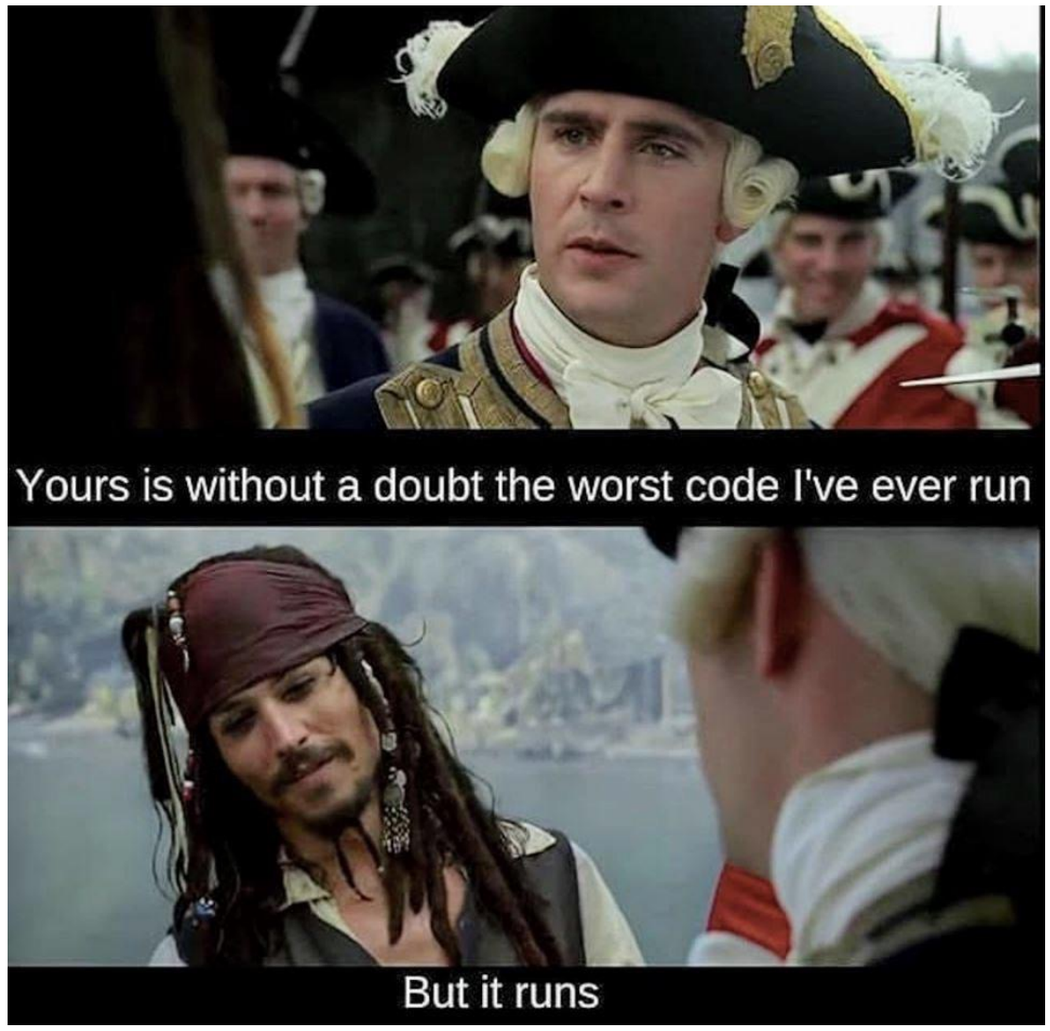
It's true. Sorry :(



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.

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 9/8!**

2. **Submit your course grade contracts by the end of the week (Friday 9/3 5 pm).**