Course overview

Course structure

1. **Online video lectures.** Available through YouTube for you to watch asynchronously (2 hours per week)
2. **Live Zoom Sessions.** Synchronous meetings to work together on practical coding exercises (2 hours per week)
3. (Optional) **Live Zoom Office Hours.** Synchronous meeting to ask questions about course material, homework, etc. (1 hour per week)

Where to find what you need

Online coursebook:

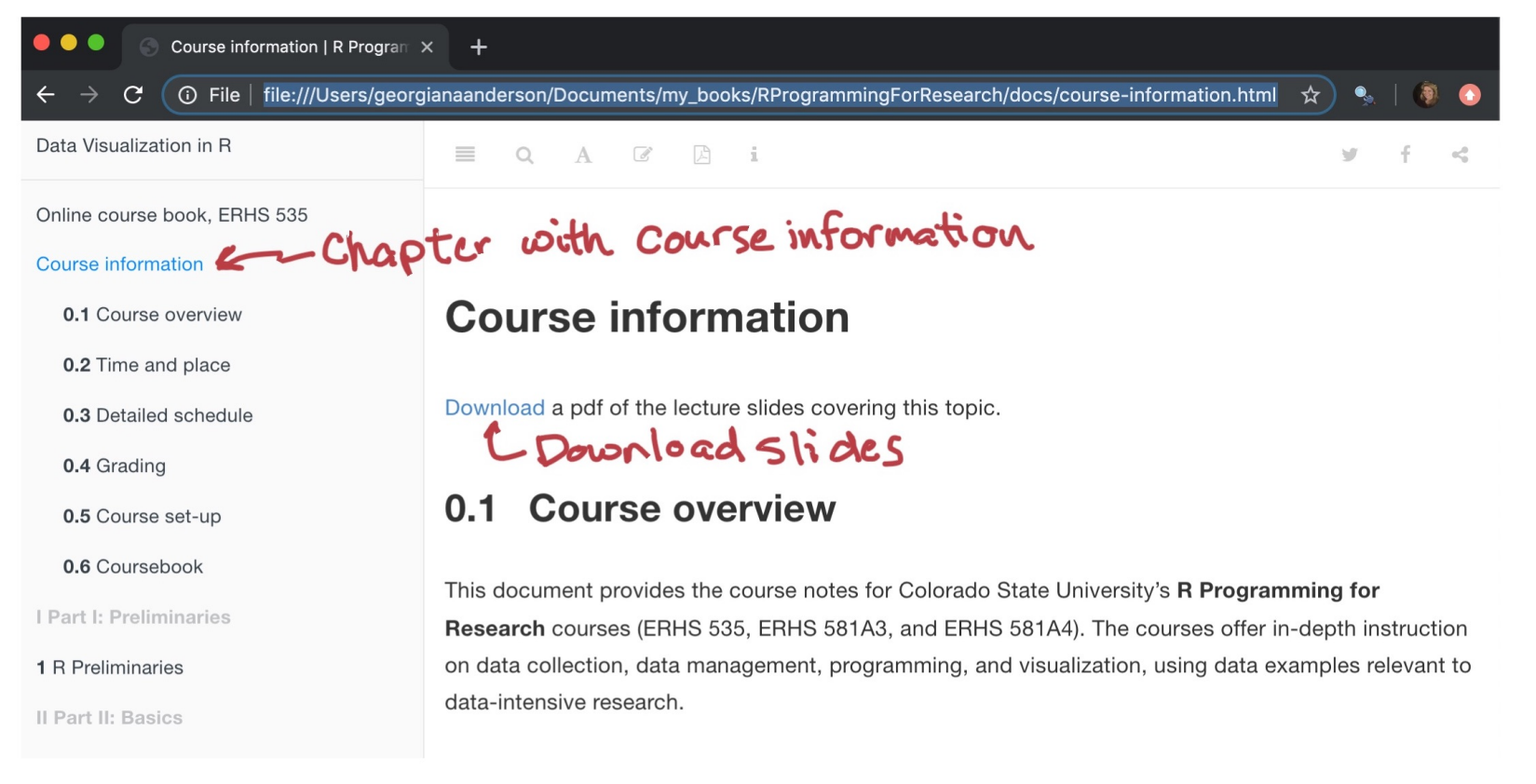
https://geanders.github.io/RProgrammingForResearch/

- Embedded video lectures
- Links to YouTube playlists of lectures
- PDF downloads of lecture slides
- In-class exercise prompts
- Homework assignments
- Quiz vocabulary
- Course information (syllabus equivalent)

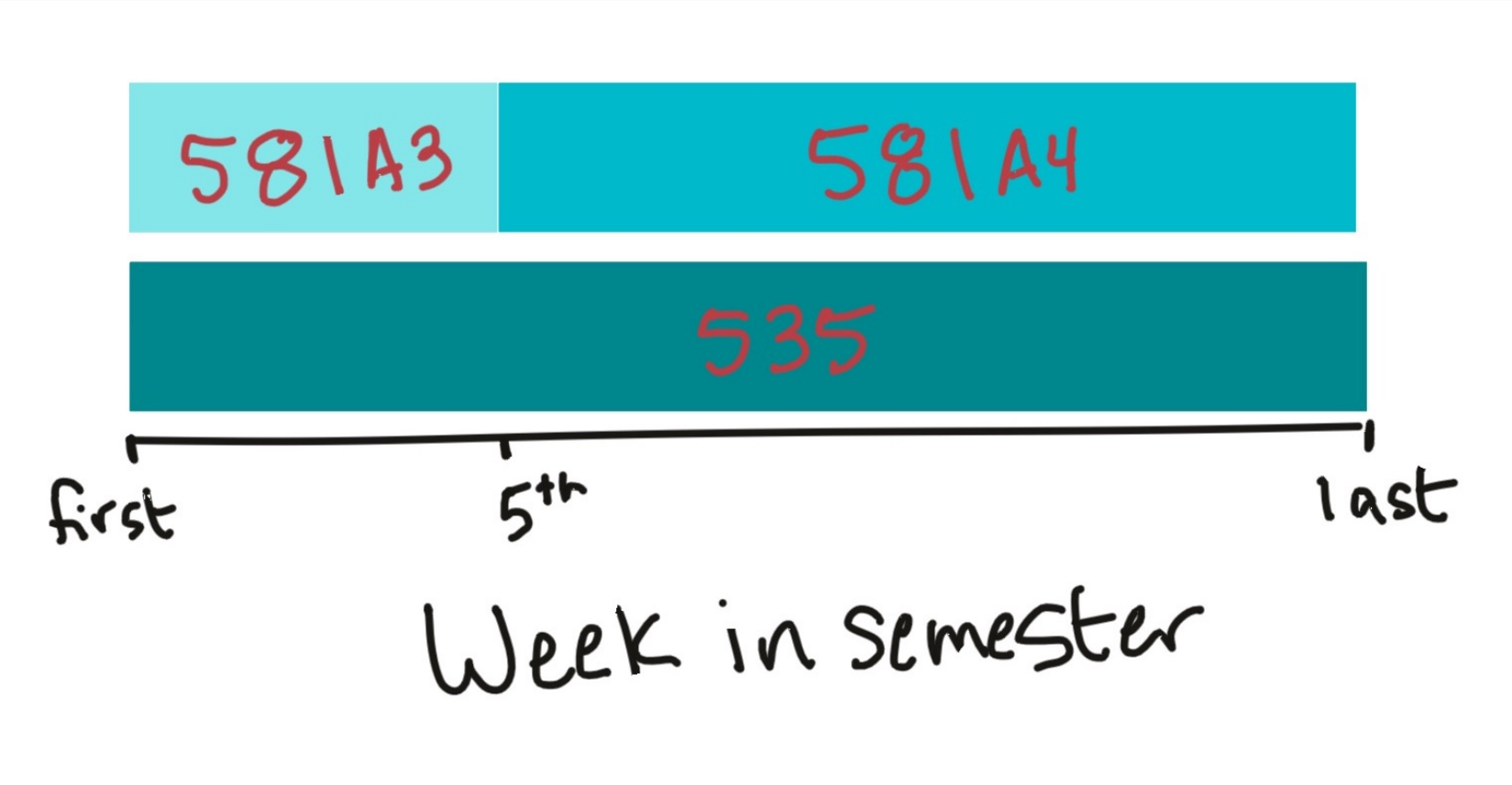
Where to find what you need

- Zoom
  - Regularly scheduled meetings after today
  - Announcements at start of session
  - Breakout groups to do coding exercises in small groups
  - Share code scripts in Chat
  - In-course quizzes through link in Chat
  - Optional weekly office hours
  - Group work for final project
- Email
  - Assignment of video lectures to watch before live meetings
  - Repeat of major announcements
  - Homework submission, grades, and feedback
  - Quiz grades and feedback

Online coursebook



ERHS 535 vs. ERHS 581A3 / A4



Time, place, and secondary instructor

- Time: Mondays and Wednesdays, **either** 10:00 am–11:00 am **or** 11:00 am–12:00 pm
- You will have a chance later today to let me know if you prefer one of the two cohorts. I will try to accomodate as many people's preferences as possible in assigning cohorts.
- Exceptions:
  - There will be no meeting on Labor Day (Monday, Sept. 7).
  - There are no course meetings the week of Thanksgiving (week of Nov. 23).
- Place: Online through Zoom, YouTube, and online coursebook

Office hours

- Office hours: Fridays, 10:00 am–11:00 am, online through Zoom (starting Friday, Sept. 4)
- If needed, I will arrange a second time for weekly office hours to accommodate those who have a course or other formal obligation (regular lab meeting, regular experimental schedule) during the Friday morning office hours. You will have a chance later today to let me know if you need that accommodation.

Computer

- You will need access to a computer and a reliable internet connection for this course.
- If you do not have access to one of these, email me and we can try to figure something out.
- If you are taking 535 or planning to continue to 581A4, we will be working with some large datasets. Please talk to me before the fifth week of class if you have limited space on your computer.

Content

We will cover four large themes in this course:

- Entering and cleaning data
- Exploring data
- Reporting data results
- Reproducible research

Content

The first week covers preliminaries, and after that there will be "cycles" of covering these topics:

- **Preliminaries** Week 1
- **Basic** Weeks 2–5 (ERHS 581A3 ends here)
- **Intermediate** Weeks 6–9
- **Advanced** Weeks 10–15
- **Final** Week 16

A detailed course schedule is available in the online course book.

Grading—ERHS 535

If you are taking ERHS 535, your grade will be determined based on the following components:

Assessment component	Percent of grade
Final group project	30
Weekly in-class quizzes, weeks 2–10	25
Homeworks 1–6	25
Attendance and class participation	10
Weekly in-course group exercises	10

Grading—ERHS 581A3

If you are taking ERHS 581A3, your grade will be determined based on the following components:

Assessment component	Percent of grade
Weekly in-class quizzes, weeks 2–5	40
Homeworks 1 and 2	30
Attendance and class participation	10
Weekly in-course group exercises	20

Attendance and class participation

You will meet twice each week in a live Zoom meeting.

There will be two "cohorts" for these meetings. Half of the students will meet live each week from **10:00 AM–11:00 AM on Mondays and Wednesdays**. The other half of the class will meet live each week **11:00 AM–12:00 PM on Mondays and Wednesdays**.

You will be assigned to one of these two groups. Starting this Wednesday, you will only attend the live session for your cohort. In other words, you will be attending two hours of live Zoom meetings a week.

Attendance and class participation

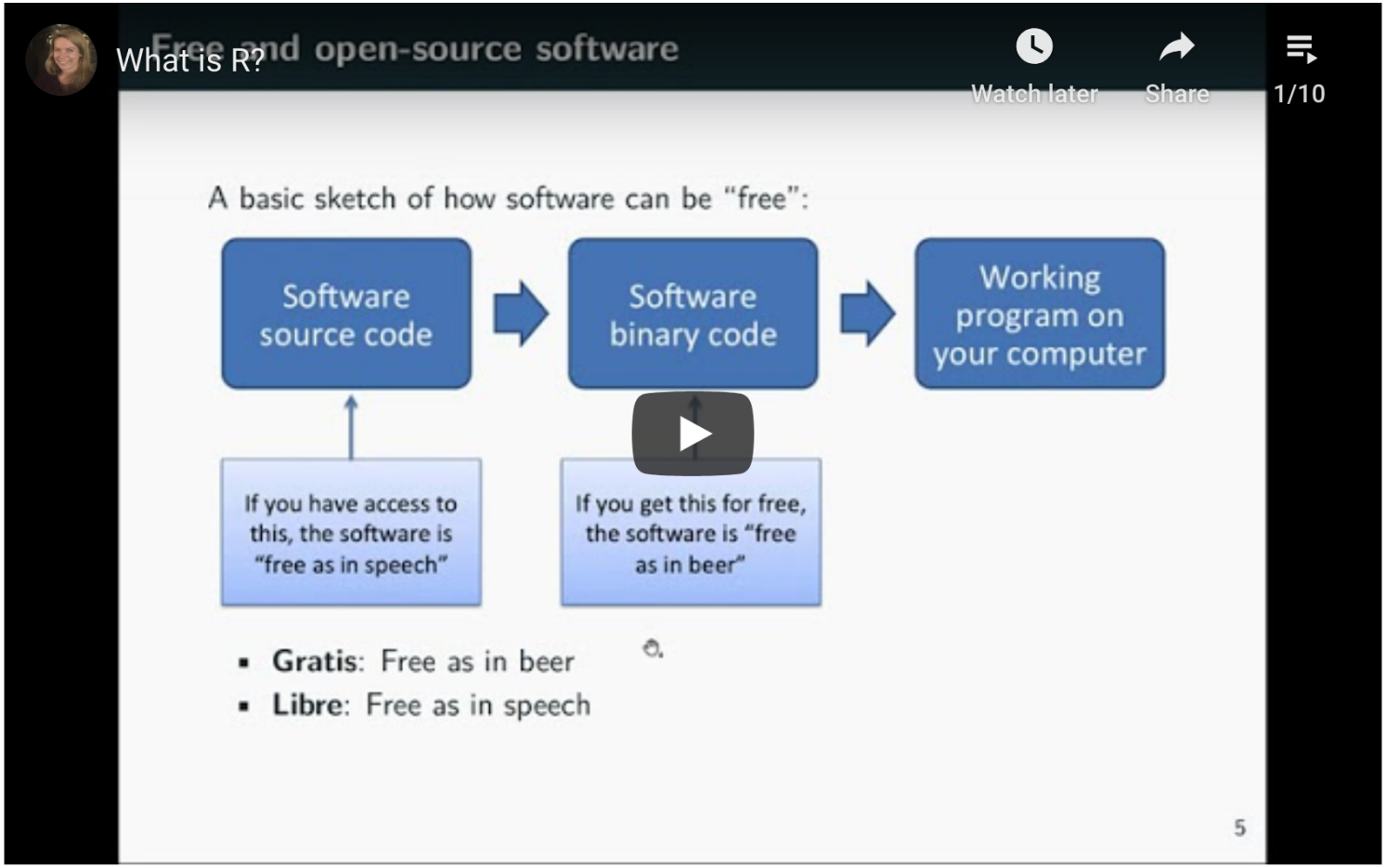
Because so much of the learning for this class is through interactive work in class, it is critical that you join for the "live" meetings of our course. I will take attendence for each of these live meetings.

On days that you have a quiz, the quiz will also be used to assess attendance. On other days, you will fill out an "Exit Ticket" when you leave the class.

Attendance and class participation

Lectures will be shared through YouTube. They are embedded in the online course book within each chapter. At the start of each chapter, you can also find a link to a YouTube playlist with all videos for the chapter.

1.2 R and R Studio



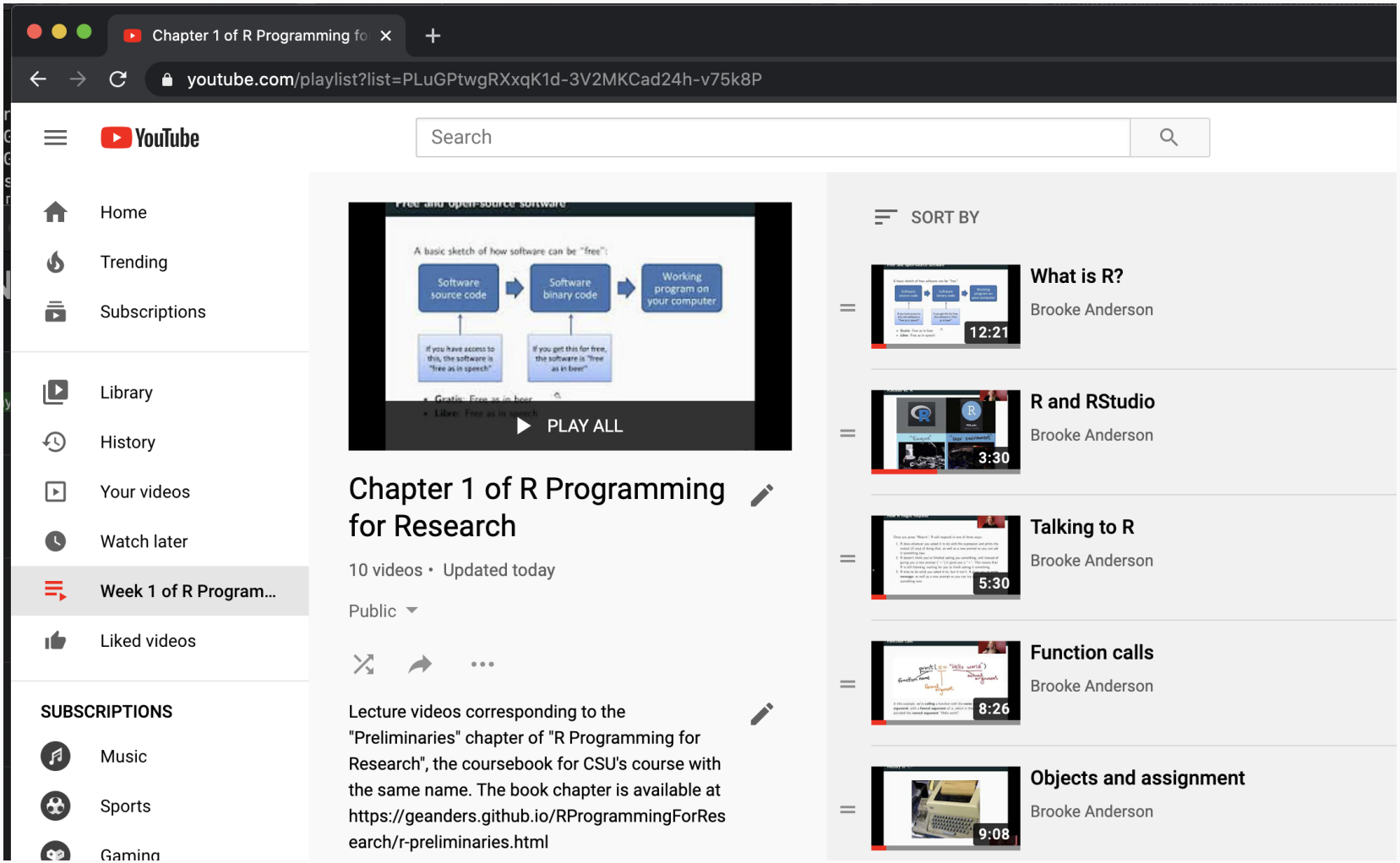
Download a pdf of the lecture slides for this video.

Attendance and class participation

Chapter 1 R Preliminaries

The video lectures for this chapter are embedded at relevant places in the text, with links to download a pdf of the associated slides for each video. You can also access a full playlist for the videos for this chapter.

Attendance and class participation



Attendance and class participation

You will be responsible for watching certain videos *before* you attend each live Zoom session. You will receive an email reminder with the list of videos you need to watch before each meeting. There will be about two hours worth of video lectures each week, broken into videos about 10–15 minutes each.

This week, you will be responsible for watching the first nine videos in Chapter 1 ("R Preliminaries")

Attendance and class participation—ERHS 535

If you are in **ERHS 535**, out of a possible 10 points for class attendance, you will get:

- **10 points** if you miss two or fewer classes
- **8 points** if you miss three classes
- **6 points** if you miss four classes
- **4 points** if you miss five classes
- **2 points** if you miss six classes
- **0 points** if you miss seven or more classes

Attendance and class participation—ERHS 535

If you are in **ERHS 581A3**, out of a possible 10 points for class attendance, you will get:

- **10 points** if you miss one or fewer classes
- **8 points** if you miss two classes
- **6 points** if you miss three classes
- **4 points** if you miss four classes
- **2 points** if you miss five classes
- **0 points** if you miss six or more classes

Attendance and class participation

Excused absences:

- Attendance today (August 24) will not be counted
- CSU-related: This is typically missing to attend a conference or for a field study for your research. To be excused, this requires a letter from your adviser.
- Serious medical issue: To be excused, this requires a letter from a doctor or other medical professional.
- For an absence to be excused, you must email me a copy of the letter by 5:00 pm the Friday afternoon following the class you missed.

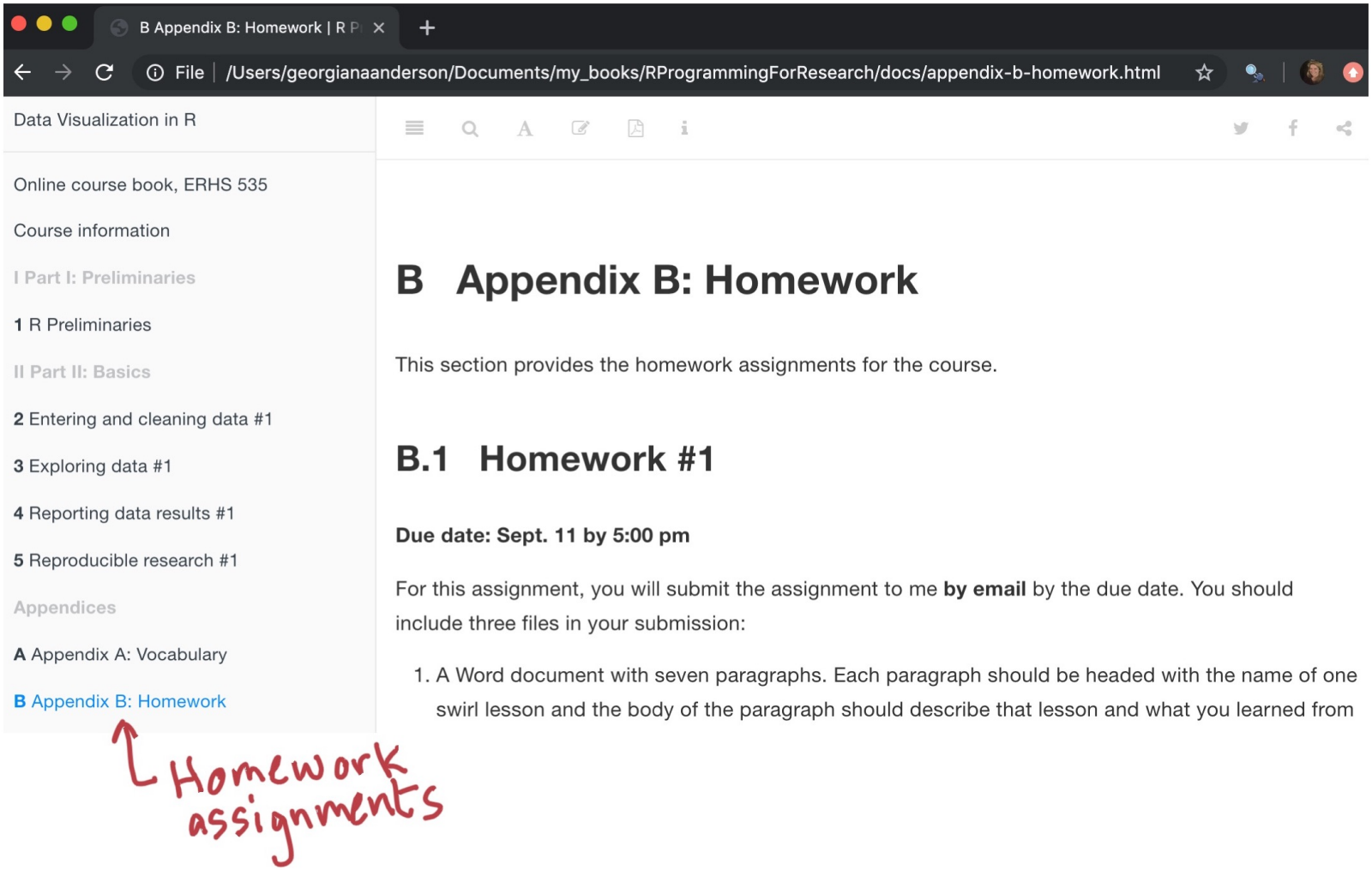
Weekly in-course group exercises

- As long as you attend the Zoom session and participate in these exercises, you will get full credit for this component.
- **If you miss a Zoom meeting,** to get credit towards this component of your grade, you will need to turn in a few paragraphs describing what was covered in the exercise and what you learned.
- To get credit for this, you must submit it to me by email by 5:00 pm the Friday afternoon after the class you missed.
- All in-class exercises are included in the online course book at the end of the chapter on the associated material.

Homework

- In the first five weeks, there will be two homework assignments (see detailed schedule in the online course book).
- These should be done individually.
- Homeworks will be graded for correctness, but some partial credit will be given for questions you try but fail to answer correctly. Some of the exercises will not have "correct" answers, but instead will be graded on completeness.

Homework


B Appendix B: Homework | R P
File | /Users/georgianaanderson/Documents/my_books/RProgrammingForResearch/docs/appendix-b-homework.html
Data Visualization in R
Online course book, ERHS 535
Course information
I Part I: Preliminaries
1 R Preliminaries
II Part II: Basics
2 Entering and cleaning data #1
3 Exploring data #1
4 Reporting data results #1
5 Reproducible research #1
Appendices
A Appendix A: Vocabulary
B Appendix B: Homework
B Appendix B: Homework
This section provides the homework assignments for the course.
B.1 Homework #1
Due date: Sept. 11 by 5:00 pm
For this assignment, you will submit the assignment to me by email by the due date. You should include three files in your submission:
1. A Word document with seven paragraphs. Each paragraph should be headed with the name of one swirl lesson and the body of the paragraph should describe that lesson and what you learned from
Homework assignments

Homework

- Homework is due to me by email by 5:00 pm on Fridays (Friday, Sept. 11, and Friday, Sept. 25 are the due dates for the first five weeks of class).
- Your grade will be reduced by 10 points for each day it is late, and will receive no credit if it is late by over a week.

In-class quizzes

- You will have quizzes weekly, starting next Wednesday (Sept. 2)
- Quizzes will be on **Wednesdays, 10:50 AM–11:10 AM**.
  - For students in the 10 AM cohort, the quizzes will be at the end of class (starting at 10:50 AM), and they will be allowed to continue working on the quiz until 11:10 AM.
  - For students in the 11 AM cohort, the quizzes will be at the end of class (starting at 10:50 AM) you should plan to join Zoom early on Wednesdays (10:50 AM). Quizzes will start at this time, and you will have until 11:10 AM to finish the quiz.
- For students in ERHS 535, quizzes will continue until week 10 of the course

In-class quizzes

- Quizzes will be conducted through Google Forms. They will be immediately graded, and you will get back your grade and feedback as soon as you submit the quiz.
- You must stay on Zoom while you complete the quiz.
- A link to the quiz will be provided at 10:50 AM in the Zoom chat.

In-class quizzes

- Quiz questions will be multiple choice, matching, or similar styles of questions. The questions are designed so that each can be answered fairly quickly.
- If you miss a class with a quiz, you may make it up during office hours on the week of the missed quiz. Except in exceptional circumstances, this will be the only time when make-up quizzes will be offered.

In-class quizzes

- There will be *at least* 10 questions per quiz. Usually, there will be 12–15.
- If you get, on average, 10 correct questions per quiz, you will get the maximum possible points for the quiz component of your grade.

In-class quizzes

For ERHS 535 (nine quizzes total):

$$\text{Quiz grade} = 25 * \frac{\text{Number of correct quiz answers}}{90}$$

For ERHS 581A3 (four quizzes total):

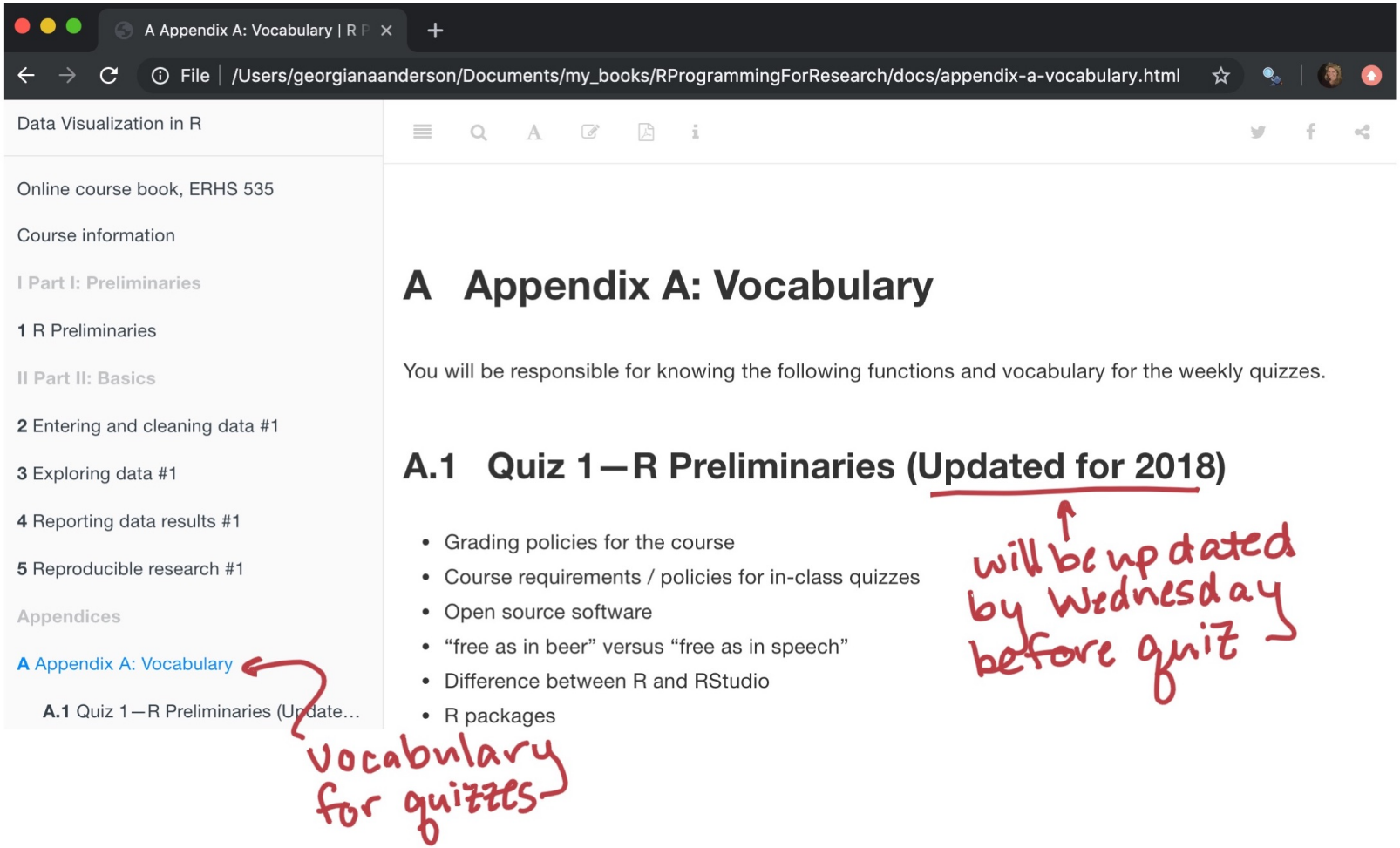
$$\text{Quiz grade} = 40 * \frac{\text{Number of correct quiz answers}}{40}$$

Note: You can not get more than the maximum of for this component quiz component (25 points for ERHS 535 students, 40 points for ERHS 581A3 students).

In-class quizzes

- The "Vocabulary" appendix of our online book has the list of material for which you will be responsible for this quiz.
- Most of the functions and concepts will have been covered in class, but some may not.
- You are responsible for going through the list and, if there are things you don't know or remember from class, learning them. To do this, you can use help functions in R, Google, StackOverflow, books on R, ask a friend, and any other resource you can find.

In-class quizzes



In-class quizzes

An example of the vocabulary list:

- `mean()`
- `read_csv`, argument `skip =`
- R object
- open source software
- Hadley Wickham

In-class quizzes

- Using R frequently in your research or other coursework will also help you prepare.
- Working on your homework assignments will also help you prepare.

What you have due soon

- Wednesday, Sept. 4, during class: First in-class quiz. The "Vocabulary" appendix of our online book has the list of material for which you will be responsible for this quiz (Quiz 1 list).
- Friday, Sept. 13: First homework is due by 5:00 pm by email.