Week 0 Module 1: Setting Up

CSCI E-5a Spring 2022

Module Preview

Hello! And welcome to **CSCI E-5a:** *Programming in R*.

In this module, we'll set up our system in preparation for the rest of Week 0.

- In Section 1, we'll create a dedicated folder for all the content for CSCI E-5a.

- In Section 2, we'll download the Week 0 ZIP bundle and unzip it.

- In Section 3, we'll preview the rest of Course Orientation.

When you've completed this module, you'll be able to:

- Set up a dedicated folder for all the content for CSCI E-5a.

- Download the Week 0 ZIP bundle and unzip it.

- Explain how content in CSCI E-5a is organized into modules.

- Explain the remaining modules for Week 0.

All right! Let's get started by setting a dedicated folder for all the content for CSCI E-5a.

Section 1: Creating a CSCI E-5a Folder

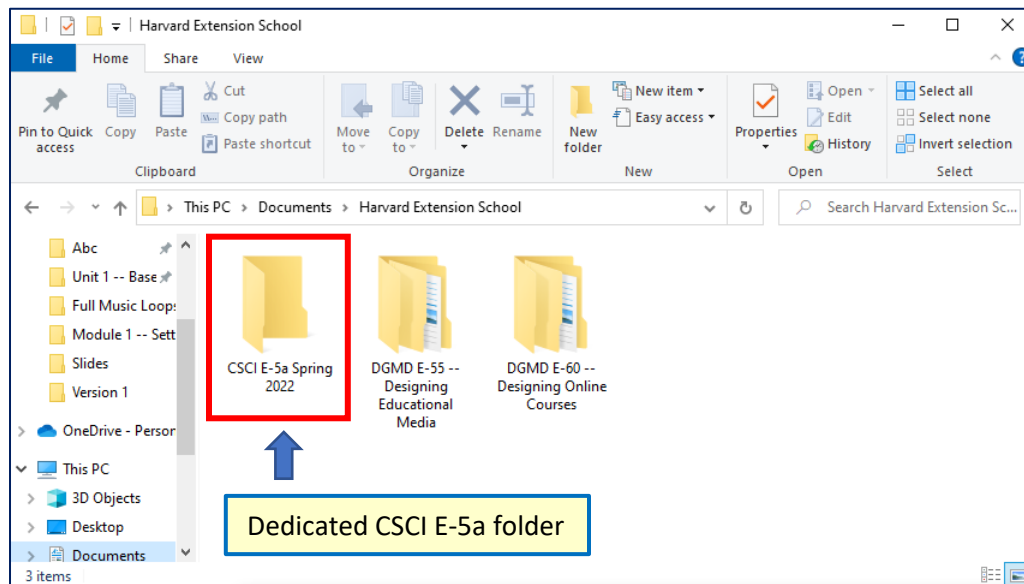**Main Idea:** *We can create a dedicated folder for all the content for CSCI E-5a.*

In this section, we'll create a dedicated folder for all the content for CSCI E-5a.

The course content for CSCI E-5a is distributed over a large number of files, and these are structured in a hierarchical system of folders. Each week, I'll distribute these files as a single ZIP file, which I call a "ZIP bundle". By using a ZIP bundle, it's possible for me to deliver the files to you in a package that's easy for you to work with.

I recommend setting up a dedicated folder to hold all the content for CSCI E-5a. Then you can simply download the weekly ZIP bundles, unzip them, and all the files will be set up in the proper structure. There are many different ways to do this, and it all depends on how you personally like to organize your files, so I can't make a definitive recommendation. Instead, I'll

show you how I like to set up the CSCI E-5a folder, and you can use this approach if you think it's useful.

First, I'm running a Windows 10 computer, so in the Documents folder I've created a folder called "Harvard Extension School" to hold all the materials for my Harvard Extension School courses. In this folder, I create a subfolder called "CSCI E-5a":

Figure 1: Creating a dedicated CSCI E-5a folder

Of course, you don't have to follow this procedure, and you might have a very different approach to how you organize your files. That's fine. However, I strongly recommend that you have one folder somewhere that contains all the course content for CSCI E-5a, and the course materials are distributed with that assumption.

OK, so that's how to create a dedicated folder for all the course content for CSCI E-5a. Now let's see how to download the Week 0 ZIP bundle and unzip it.
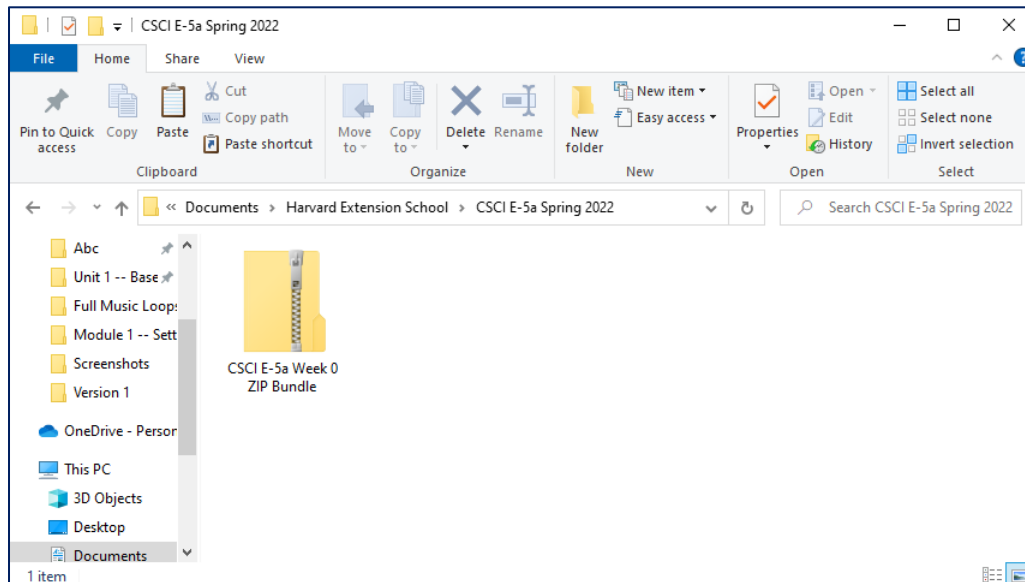
Section 2: Downloading the Week 0 ZIP Bundle

Main Idea: *We can download the Week 0 ZIP bundle and unzip it.*

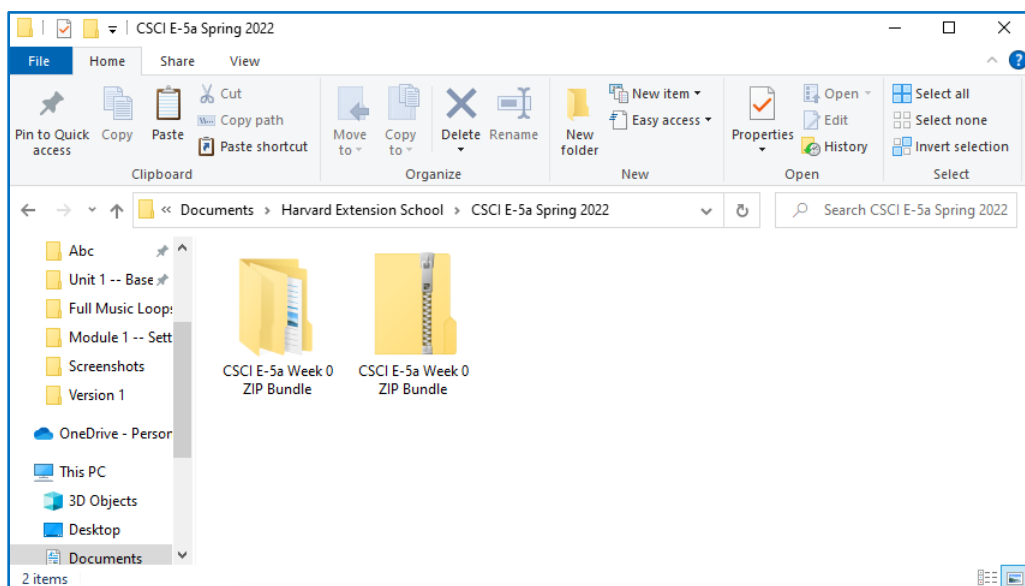In this section, we'll learn how to download the Week 0 ZIP bundle and unzip it.

Once we've set up a dedicated CSCI E-5a folder, the next step is to download the Week 0 ZIP bundle. There are a number of ways to obtain the Week 0 ZIP bundle, and we'll learn more about these methods in Module 2: Canvas Website. For right now, the simplest way to obtain the Week 0 ZIP bundle is to use the download link in the announcement for Week 0 that you

received in your email. Click on the link for the download, and save the file to your dedicated CSCI E-5a folder, which should now look something like this:
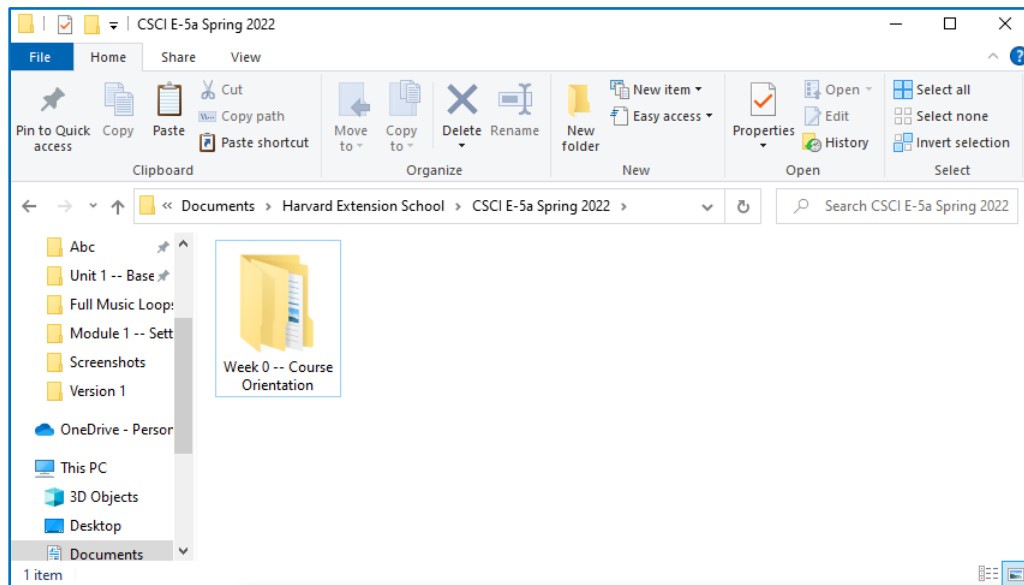

Figure 2: Downloading the CSCI E-5a Week 0 ZIP bundle

Now for a very important step: you **must** unzip the ZIP bundle! You can't work with the files in the bundle while it's compressed, so you have to unpack it first. There are many different ways to do this, depending on how your computer is set up and what operating system you're using, so I can't give you explicit instructions on exactly one way to do this. However, the procedure is standard on most computers, so you shouldn't have too much trouble doing this, for both Windows and Mac computers. When you're all done, your folder should now look something like this:

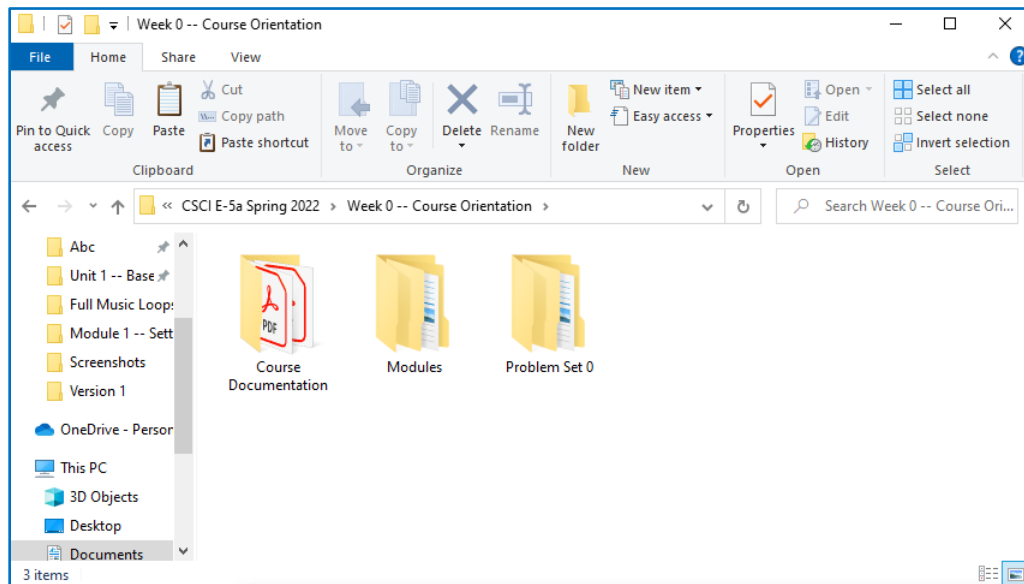**Figure 3:** Unzipping the CSCI E-5a Week 0 ZIP bundle

Once you've extracted the files from the ZIP bundle, you don't need it anymore, and I recommend deleting the bundle and then renaming the unzipped folder to something like "Week 0 – Course Orientation". Now your CSCI E-5a folder should look something like this:

Figure 4: Cleaning up the folders

Let's take a look inside the Week 0 folder. When you open the folder, you should see three folders:
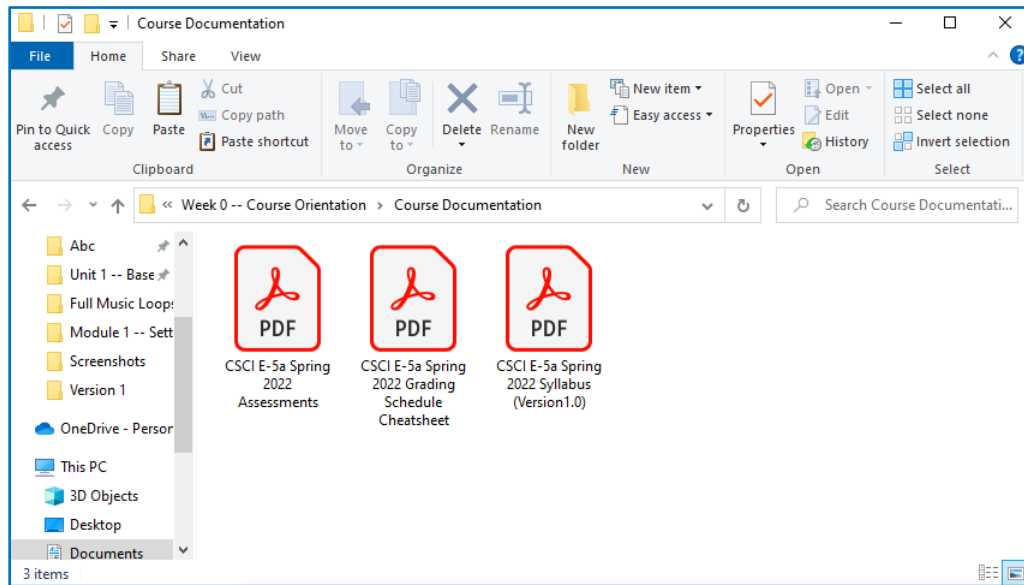
- The Course Documentation folder

- The Modules folder

- The Problem Set 0 folder

Figure 5: Contents of the Week 0 – Course Orientation folder

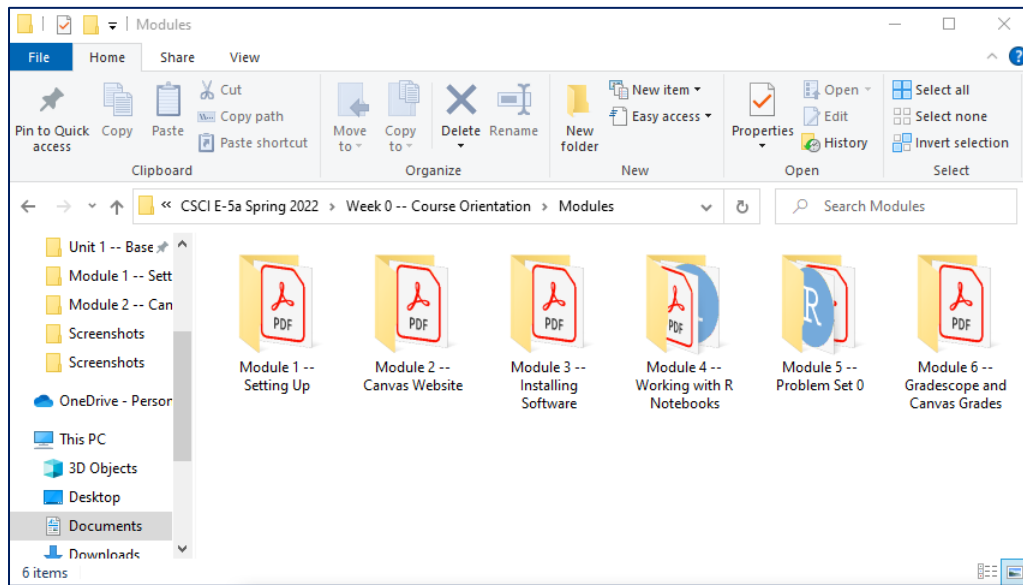The Course Documentation folder contains three PDF files:

- The Assessments policies, named "CSCI E-5a Spring 2022 Assessments.pdf".

- The grading schedule cheatsheet, named "CSCI E-5a Spring 2022 Grading Schedule Cheatsheet.pdf"

- The official course syllabus, named "CSCI E-5a Spring 2022 Syllabus (Version 1.0).pdf".

Figure 6: Course Documentation folder contents

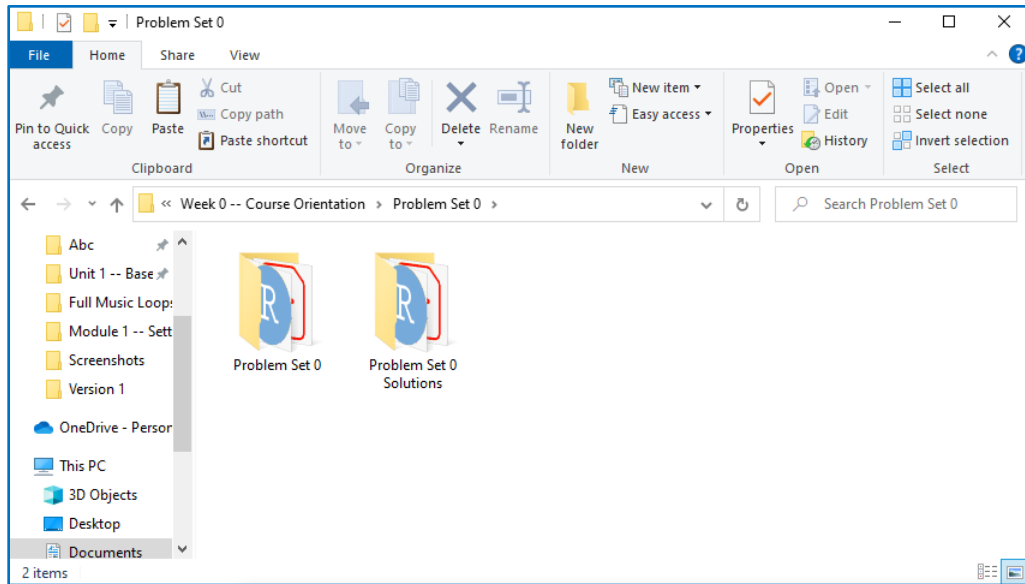The Modules subfolder contains subfolders for six modules:

- Module 1: Getting Started

- Module 2: Canvas Website

- Module 3: Installing Software

- Module 4: Working with R Notebooks

- Module 5: Problem Set 0

- Module 6: Gradescope and Canvas Grades

Figure 7: Contents of the Modules subfolder

Finally, the Problem Set 0 folder contains two subfolders:

- A folder for the Problem Set 0 notebook that you will <mark>complete</mark> and <mark>submit</mark>

- A folder for sample solutions to Problem Set 0

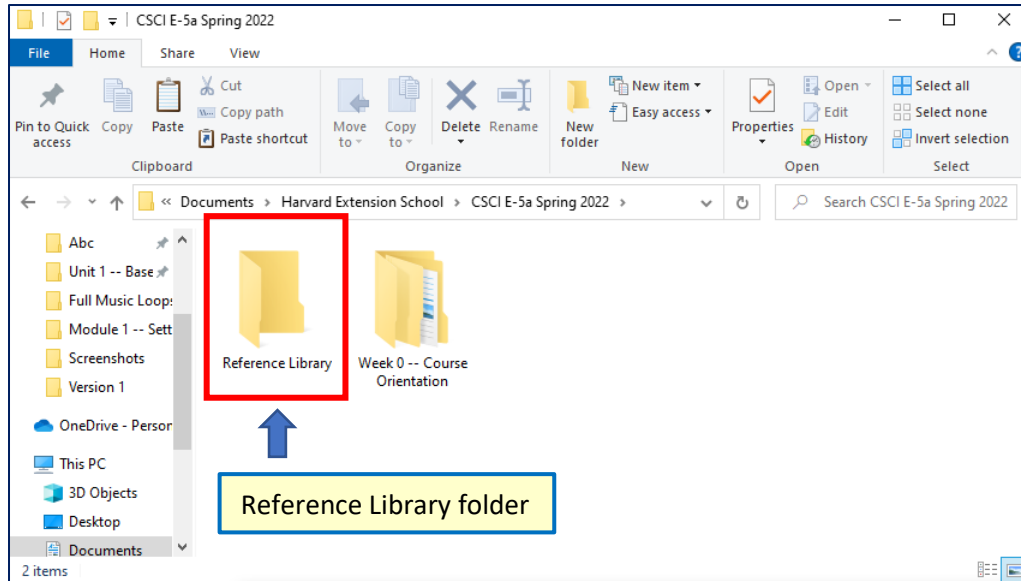**Figure 8:** Contents of the Problem Set 0 folder

And that's it! If you have all of these files and folders then you've successfully unzipped the Week 0 ZIP bundle.

In fact, you'll use the same procedure for all the other ZIP bundles for this course:

- <mark>Download</mark> the ZIP bundle

- <mark>Unzip</mark> the ZIP bundle

- <mark>Delete</mark> the ZIP bundle

- <mark>Rename</mark> the unzipped folder

Before we move on, I recommend that you create one more folder in your dedicated CSCI E-5a folder to hold references and documentation that we'll accrue during the semester:

Figure 9: Creating a reference library folder

So that's how to download and unzip the Week 0 ZIP bundle. Now let's preview the rest of Week 0.

Section 3: Week 0 Preview

Main Idea: *We can preview the rest of the content for Week 0: Course Orientation.*

In this section, we'll preview the remaining content for Week 0: Course Orientation.

In CSCI E-5a, course content is organized into a system of modules, which are focused on a single topic. Each week will consist of a number of modules, usually from 4 to 6, and each module has a specific structure:

- First, a Module Preview, where we preview the individual sections of the module and also state the learning objectives for the module.

- Next, a series of sections, where we explore one aspect of the topic of the module.

- Finally, a Module Review, where we review what we've learned, and what you should be able to do now that you've completed the module.

Each module will consist of reading material, either a PDF like this or more commonly an R notebook, and a video, where I lecture on the reading material. Ideally, a module will require about 30 minutes of time to work through, although there is a lot of variation around this ideal, and many modules will be considerably longer or shorter. If a module is longer than 30 minutes,

I'll usually split the video into parts, so that no single video is longer than about 20 minutes or so.

The readings for the modules are the heart of the course, and they constitute everything that you need for CSCI E-5a. How you approach this material is up to you, but the end goal is that you master the material in each module. You'll find the learning objectives at the start and end of the module a good way to check your understanding. You don't have to watch the videos, and in fact they usually just consist of me talking through the R notebooks, so they're not very visually exciting. Some people prefer to read the R notebooks and never view any videos, while other people find the videos helpful. The R notebooks contain text, code, graphics, and output, so they are rich in information, and I follow them very closely in the videos, so they are approximately a transcript of the lecture. However, I'll freestyle a little and add some commentary, especially when discussing the details of the code, so that might be helpful for you.
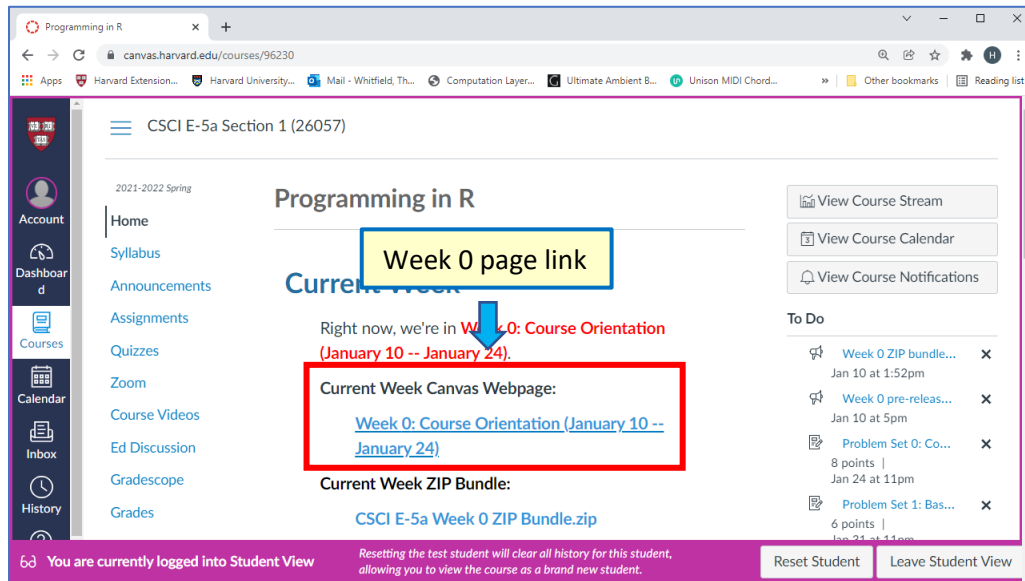
While it's not necessary to watch the videos, it's also not sufficient to just watch the videos, and you should be actively engaged in the R notebooks. The notebooks contain executable code in what are called "code chunks", and you should run this code and examine the output carefully. The R notebooks also contain embedded exercises, which give you immediate practice with a new concept, and you should solve these exercises as you encounter. The exercises are not supposed to be hard or difficult, but instead are intended to give you hands-on experience with basic techniques. In general, if a module video is 30 minutes long, it will take you longer than that to read through the notebook, run the code chunks, and do the exercises.

For Week 0: Course Orientation, we have six modules in total:

- The first module is titled "Getting Started", and it's what you're reading or watching right now!

- The second module is titled "Canvas Website", in which we'll take a tour of the CSCI E-5a Canvas website and learn how everything is organized.

- In Module 3: Installing Software, we'll download and install software for R and RStudio.

- In Module 4: Working with R Notebooks, we'll learn how to use the RStudio interface to work with R notebooks.

- In Module 5: Problem Set 0, we'll fill out Problem Set 0, and render this to a PDF file.

- In Module 6: Gradescope and Canvas Grades, we'll learn how to upload assignments to Gradescope, which is the grading system that we use in CSCI E-5a.
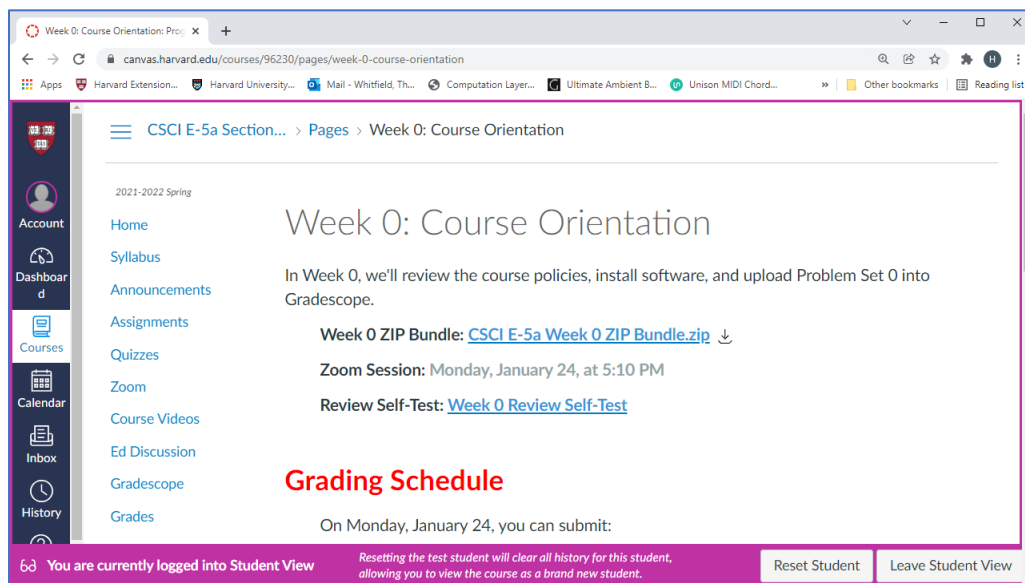
When you've completed Week 0, you'll have a strong understanding of the course structure and policies and a working installation of R and RStudio.

To watch the videos, start at the CSCI E-5a Home page, and click on the Week 0: Course Orientation link at the top of the page:
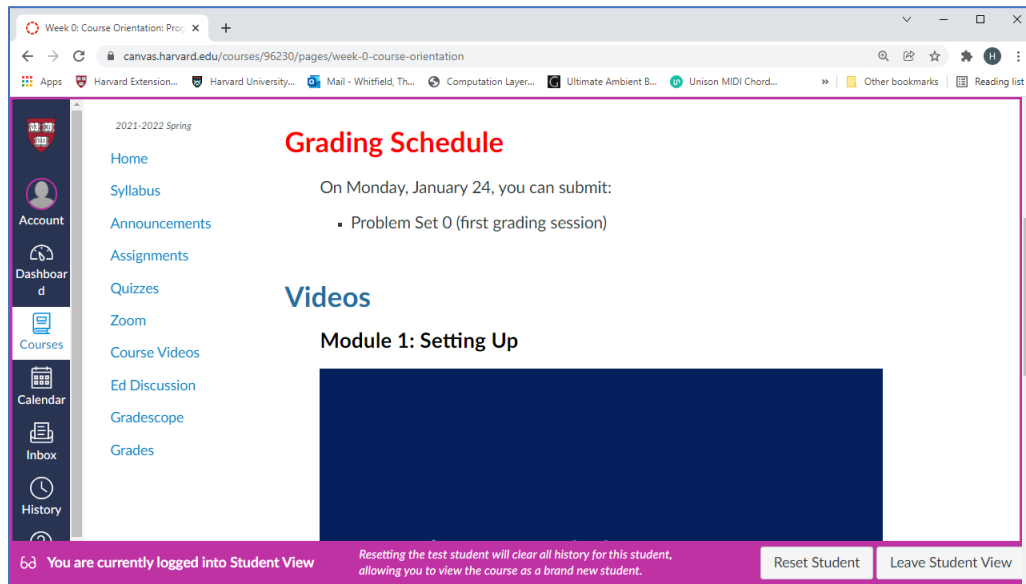

Figure 10: Week 0: Course Orientation page link

The Week 0: Course Orientation page looks like this:

Figure 11: Week 0: Course Orientation page

When you scroll down the Week 0 page you'll find the videos:

Figure 12: Week 0: Course Orientation videos

Module Review

In this module, we set up our system in preparation for the rest of Week 0.

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- In Section 3, we previewed the rest of Course Orientation.

Now that you've completed this module, you should be able to:

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- Download the Week 0 ZIP bundle and unzip it.

- Explain how content in CSCI E-5a is organized into modules.

- Explain the remaining modules for Week 0.

All right! That's it for Module 1: Getting Started. Now let's move on to Module 2: Canvas Website.