

# Getting the Design Right: Template

Fill out this document using the instructions provided in the instruction document.

- All project milestones (and the final report) are submitted once for each team. Tag your teammates on Gradescope.
- Make a copy of this template and keep it in your team's google drive folder.
- Make sure to keep in the formatting and page breaks in this submission template (that is, each question will be answered on a different page).
- Do **not** include the instructions in your submission, unless they are part of the template below.
- Make sure to remove/replace anything in brackets on this template (e.g. [Your response here]).
- You will be submitting the PDF to Gradescope (linked at the bottom of the Canvas assignment page, or through the link in the course sidebar).
- Do **not** submit this first page. (if you have trouble deleting this first page, you can submit it, but don't mark it on gradescope as having an answer to a question)

You will need to edit the footer with your team name and your individual names. If you do it once, it will automatically apply to all of the pages. Double click on the footer to open it, and then edit the text. **Do not** edit the headers.

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# Milestone 1: Sketching

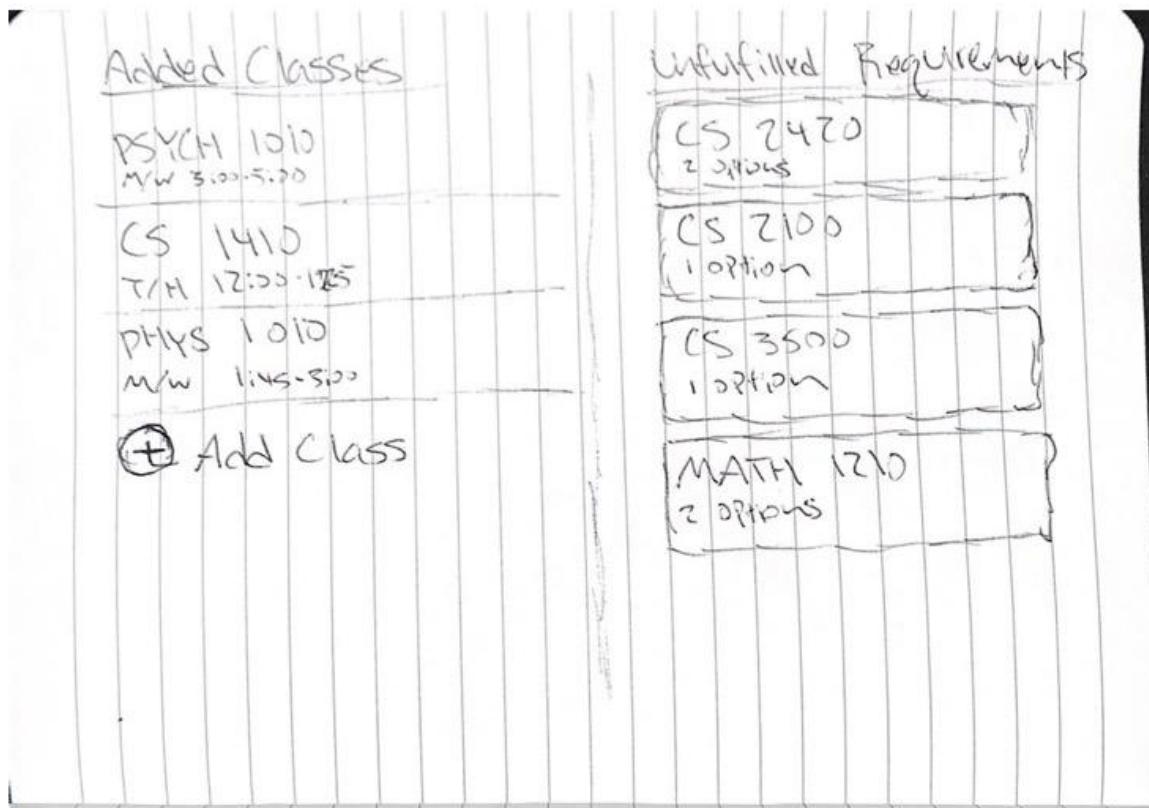
## 1. Roadmap: Planning Future Semesters

## 2. Problem and Solution Overview

We want to support our target users, undergraduate students at the University of Utah, in scheduling their courses. Our original scope included planning courses for future semesters, but due to the fact that the university simply doesn't know what days, times, or even if they will offer a certain course during future semesters, we readjusted our focus onto scheduling for just the next semester. However, this is still a complicated problem to tackle. Students need to know a multitude of information when scheduling their courses to support their goal of being successful in the upcoming semester. Things such as professor reviews, class times, what required courses should be taken next, and course summaries are already available to students, but they're spread across multiple websites. Other factors, such as course difficulty, can only be determined if students make appointments with academic advisors or solicit the feedback of peers who have already taken the course. This turns what should be a straightforward process into a large time commitment/internet scavenger hunt and often students feel like they are "rolling the dice" if they cannot find information on the difficulty of a particular professor or course. Our design supports users in achieving their goals by presenting them with all the information that they need in one place so that they can be confident they will be successful in the next semester. Additionally, it helps users to know what required courses they should be taking next, and what ones they will have to take later on in order to keep them on track for their degree and to help prevent any student from realizing during their senior year that they missed a requirement.

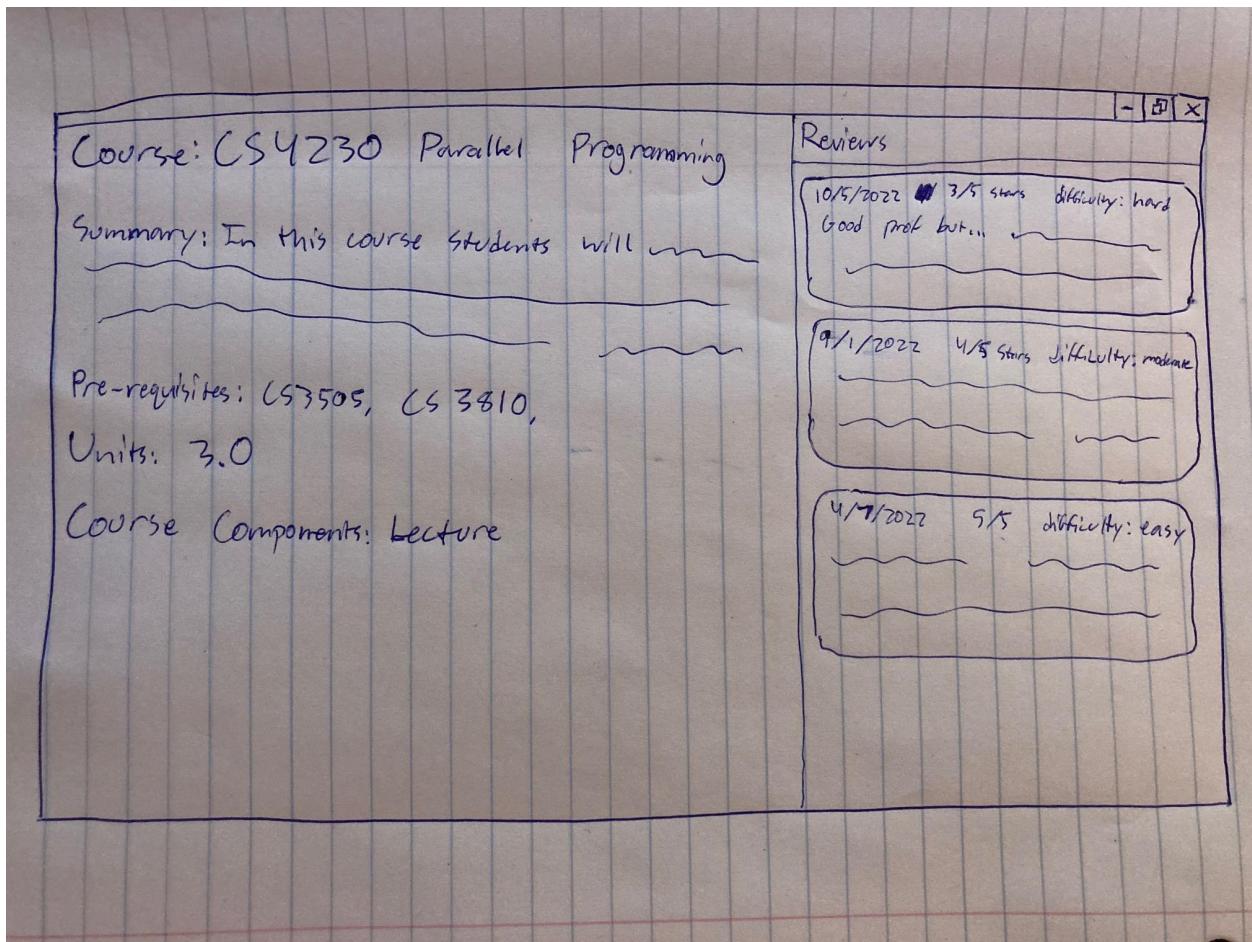
### 3. Initial Drafts

#### Cannon Rudd Initial Draft



This sketch shows how students will be able to easily see their required classes when planning.

## John Stevens Initial Draft



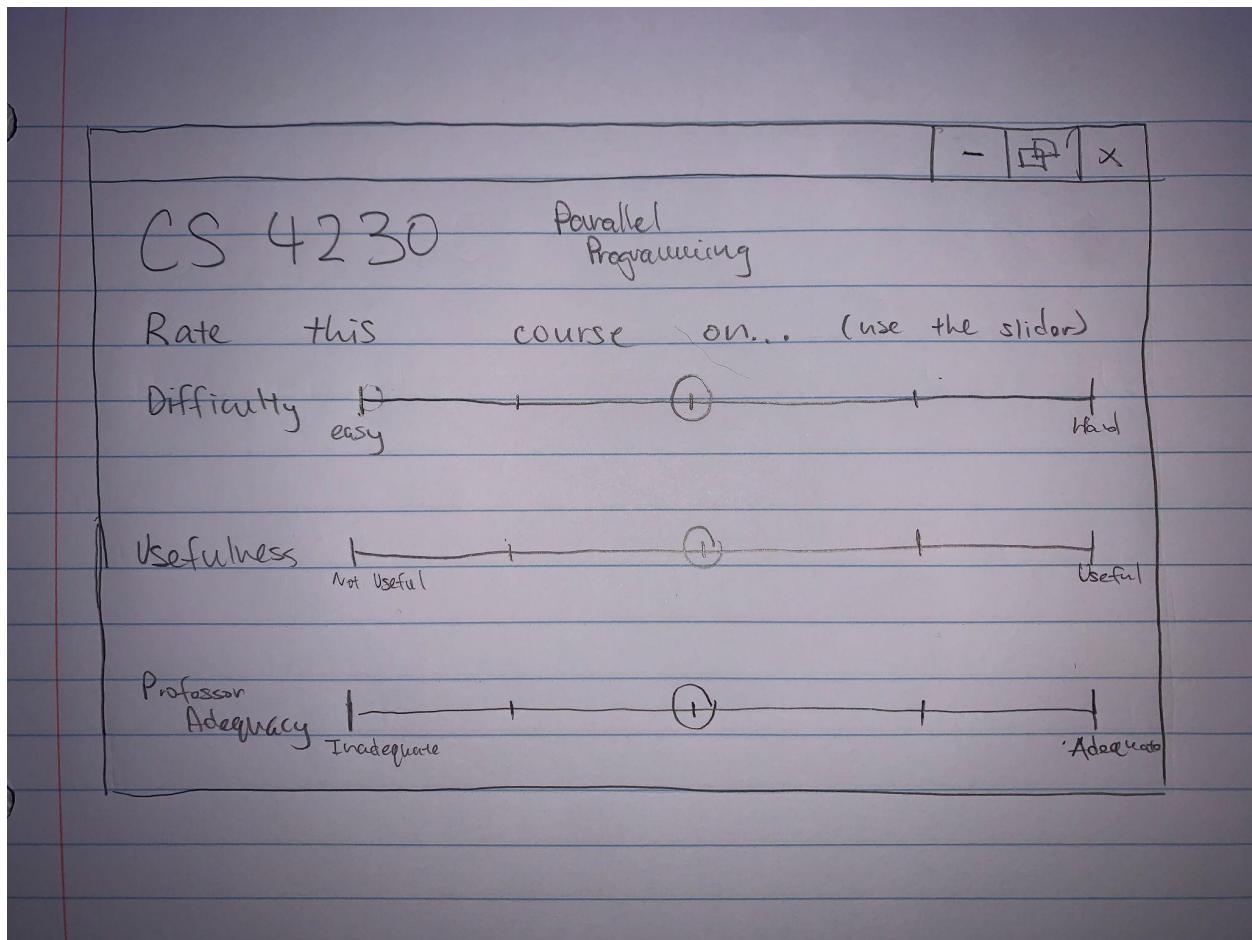
This sketch shows how students will be able to see peer reviews of courses.

Wyatt Sanders Initial Draft

credit hour requirements <input checked="" type="checkbox"/>	
Courses	req to graduate 5 F ch
psych 1010 3 ch	
physics 1010 4 ch	part time <u>student Scholarship</u>
Leisure in life 1 ch	
-----	
	full time Student Scholarship need 5 more ch

Tool to help students reach their target number of credit hours each semester.

## Haydn Thurman Initial Draft



Rate the difficulty, usefulness, and professor adequacy of the course.

## 4. Requirements Check

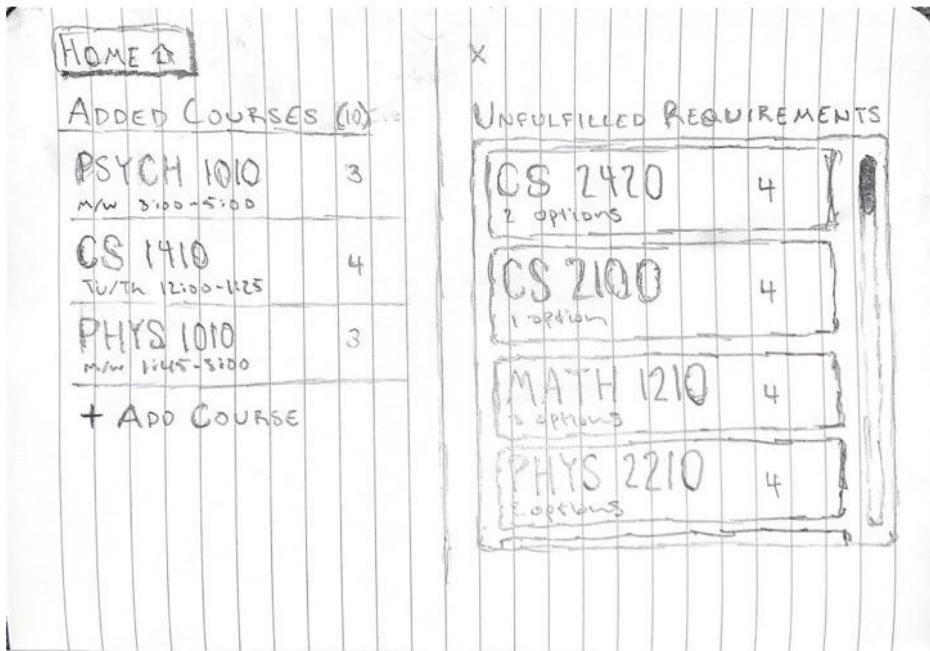
1. View peer reviews of courses: Sketch 2
2. Plan a required class: Sketch 1
3. Target credit hours: Sketch 3
4. View difficulty: Sketch 4

## 5. Sketch #1

Tasks supported:

1. **Planning required courses:** The class schedule just came out and Sarah wants to get on top of things. Sarah has planned all of her classes except for one and wants to take a required class. She isn't sure what exactly is required, though, and needs to figure it out.
2. **Target credit hours:** Dave has a scholarship that requires that he take 12 credit hours of classes each semester, Dave also wants to graduate in 4 years total. He's done some basic math to figure out that he needs one semester with 14 credit hours and the rest of his semesters have to have at least 12 credit hours. This semester he's decided he wants to do the 14 credit hour course load so he doesn't have to worry about it in the future.

Sketch:

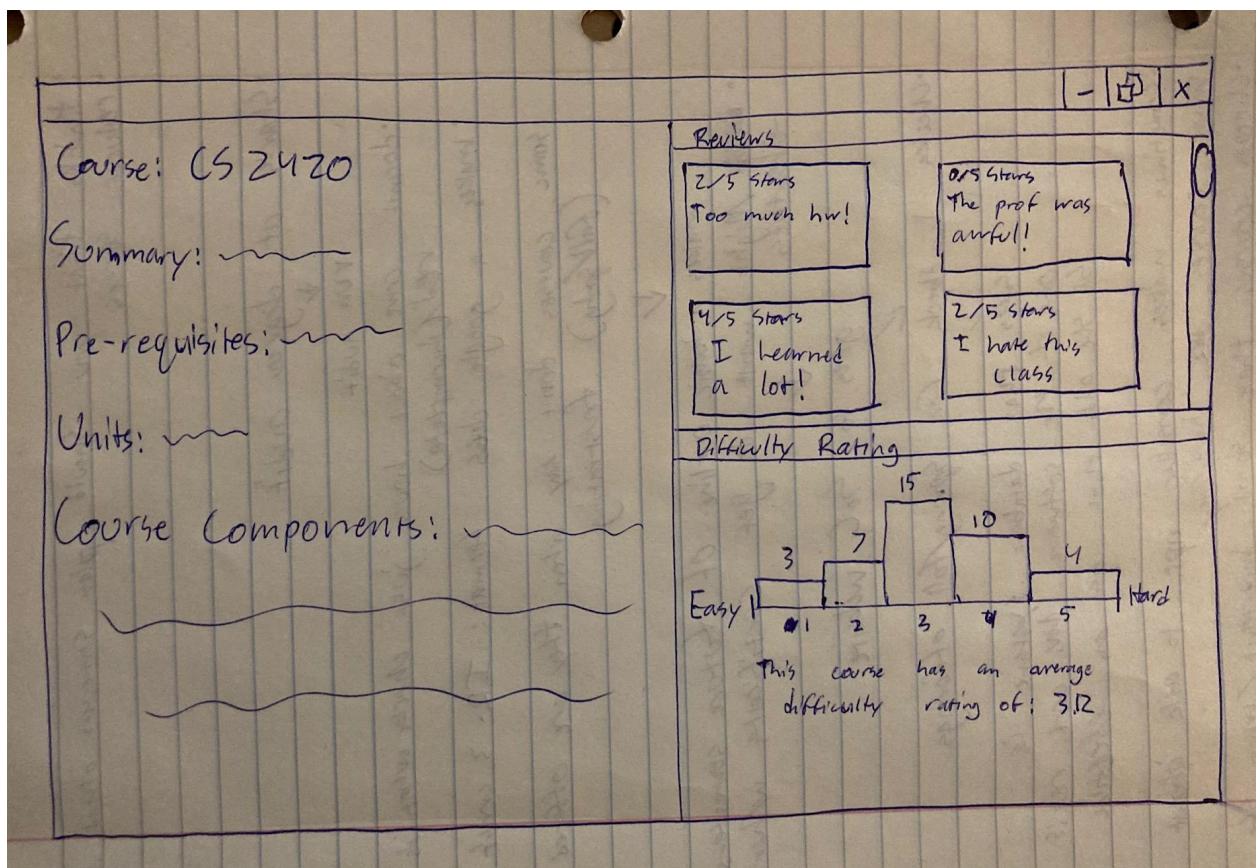


The 'X' allows you to close the Unfulfilled Requirements tab. Selecting one of the classes from the tab allows you to view course descriptions and when you can take the class. There is a scroll bar to the right to scroll through all of the requirements.

## 6. Sketch #2

Tasks supported:

- **Shows how difficult the course is:** Alyssa is a great planner. She always tries to spread difficult courses across her future semesters so they don't accidentally pile up at the end. This UI allows Alyssa to easily see what people liked and disliked about the course she is looking at taking.
- **Supports being able to see peer reviews of the course:** Alyssa worries too much. She knows that certain courses are difficult, but that doesn't always translate into those courses taking a lot of time. Sometimes difficult courses require intense focus for a little while, but don't have hours of busy work like some easier gen-eds. This UI allows Alyssa to read peer reviews about the course she is thinking of taking so that she can gauge how much time she will have to devote to that class.

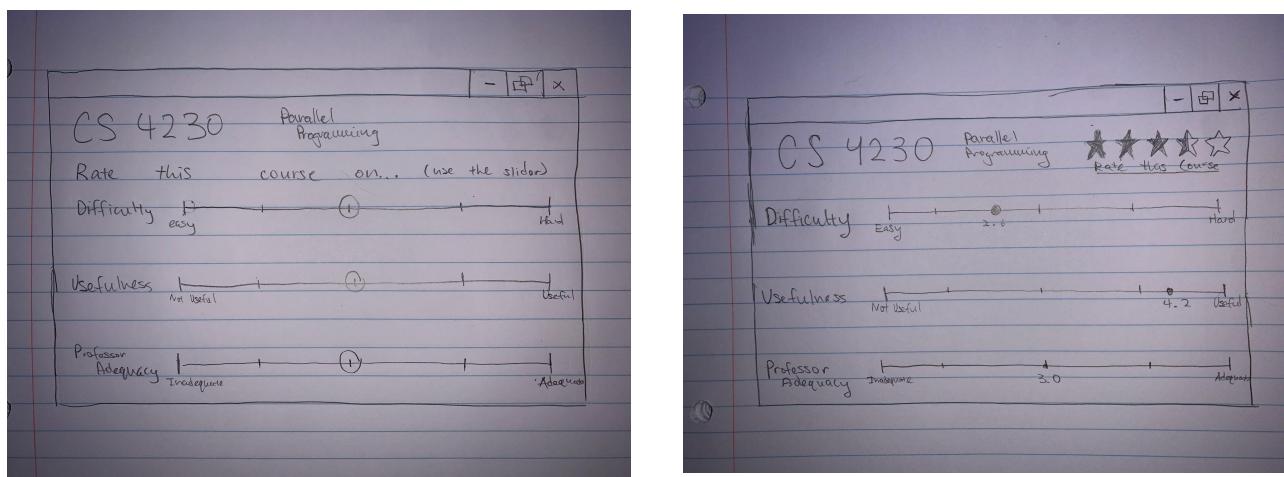


## 7. Sketch #3

Tasks supported:

- 1) **Rate a course:** Viserys has finally finished CS4230 and wants to rate the main factors of a course to help her fellow classmates gauge the three key factors.
- 2) **View the peer reviews of a course:** Daenerys has a few priorities before she chooses a class for her desired semester. To her, the most important deciding factor of a class is class usefulness, then difficulty, then professor adequacy. Daenerys clicks on the CS4230 ratings page in order to see the levels for each class. Students who have taken the course have rated the course in order to derive these scores.

Sketch:




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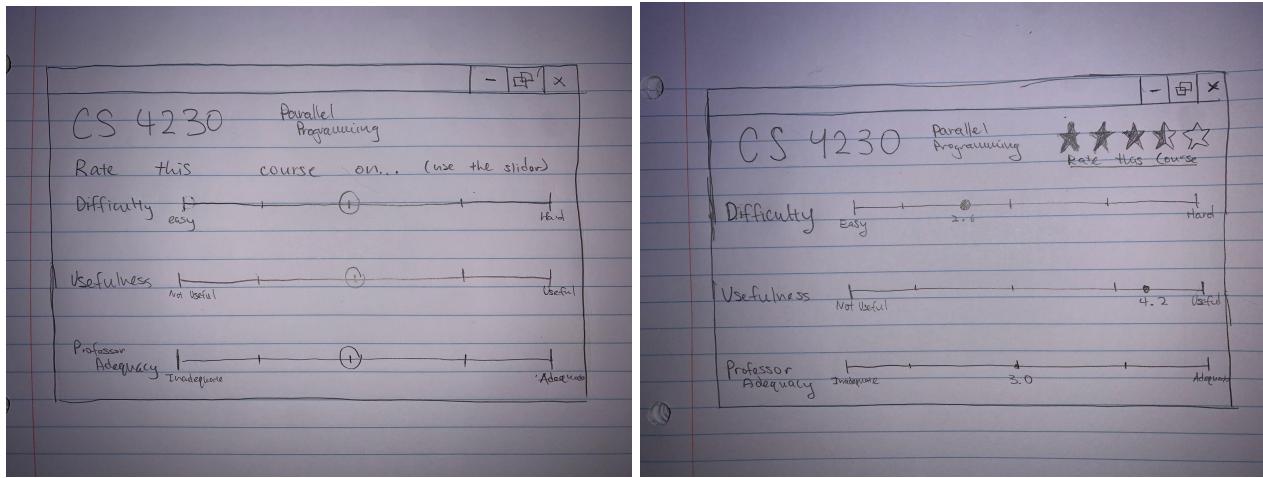
**END OF MILESTONE 1**

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# Milestone 2: Plans for Initial Prototype and User Testing

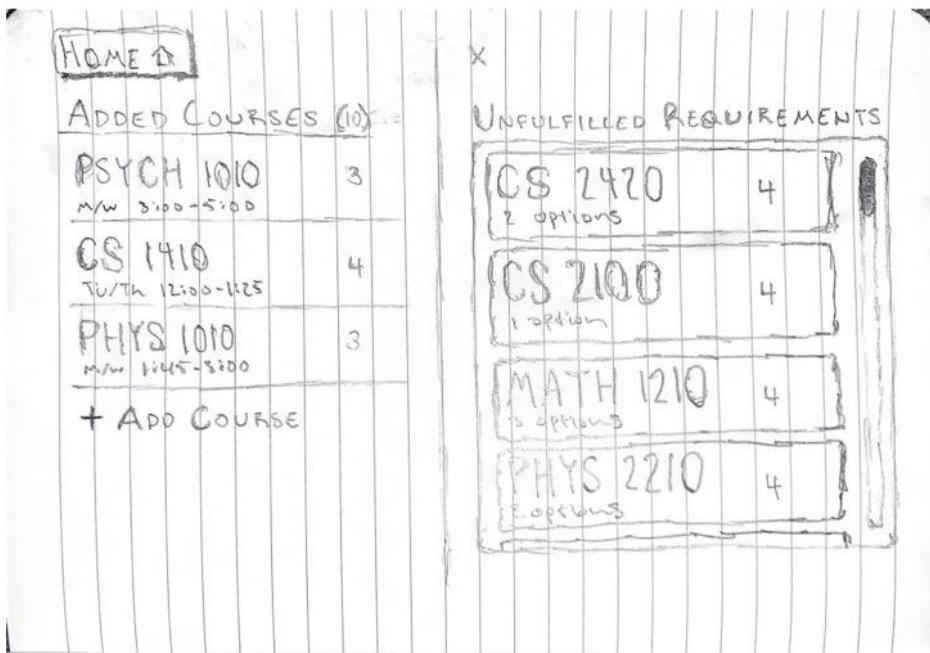
## 1. Plans for initial prototype

### Sketch 1



1. Keep the class name at the top
2. Keep the sliders for difficulty, usefulness, and professor adequacy.
3. Add some instructions on how to rate.

## Sketch 2



1. Keep the added courses tab
2. Keep keep the unfulfilled requirements box
3. Keep keep the home button

### Sketch 3

Course: CS 2420

Summary: ~

Pre-requisites: ~

Units: ~

Course Components: ~

**Reviews**

- 2/5 stars Too much hw!
- 0.5 stars The prof was awful!
- 4/5 stars I learned a lot!
- 2/5 stars I hate this class

**Difficulty Rating**

Difficulty Level	Count
Easy (1)	3
2	7
3	15
4	10
5 Hard	4

This course has an average difficulty rating of: 3.12

1. Keep the reviews box
2. Keep the course summary on the side
3. Get rid of the difficulty rating from this design in favor of the design from one of the other sketches

## 2. Plans for Usability Testing

1. **Plan for recruiting the required number of participants:** All of us except Wyatt Adamsx having a participant for the usability test.
2. **Plan for the first usability test:**
  - o **Name or anonymous identifier for your participant:** Damon Thompson
  - o **Brief explanation of why this person is appropriate:** He is a student at the University of Utah that needs to plan their classes. He doesn't want to accidentally end up in a super difficult course or have an awful professor, so doing some research before picking classes is important to him.
  - o **Scheduling status:** We confirmed that the participant is available/interested, and we are finalizing the scheduling details for the week of October 24.
  - o **Planned interviewer:** John Stevens
  - o **Planned observer/notetaker:** Haydn Thurman
  - o **Planned additional roles:** Wyatt Sanders (additional observer)

### 3. Usability testing script

Before the main testing part:

1. **Introduce yourselves:** Hi, I'm John and this is Haydn and Wyatt.
2. **Thank the participant, explain that this is voluntary and they can stop any time:**  
Thank you for being part of our usability tests, keep in mind you can stop at any time.
3. **Explain the purpose of the test:** The purpose of this test is to see how you interact with our prototype so we can refine it. If you think something doesn't work well, please let us know. We encourage you to think out loud during this usability test. We're not testing you, we're testing our design, so your unfiltered thoughts and feedback will be very useful to us.
4. **Tell the participant what to expect:** We're just going to have you schedule some courses today, nothing stressful. We're trying to create a better system for students to schedule their courses and you will be interacting with a paper version of our current design. Interact with our paper prototype just like you would regular desktop software. You can click on things like you normally would and we will update the paper prototype accordingly, it just will be slower than a regular computer. I may stop you at some points to ask questions about why you are doing certain things. Just know that these questions aren't critiquing you, I'm just trying to collect as much data as I can and your feedback is very useful.

After the main testing part:

5. **Thank the participant again:** Thanks again for being part of our tests.
6. **Solicit additional thoughts from the participant:** Do you have any other thoughts on today?
7. **Ask if the participant has any questions for you:** Do you have any questions?

## 4. Plans for Testing Task 1

- **Task 1 to be tested:** The user will choose an elective course to take based on the requirement it fulfills, peer ratings and reviews, and their own interests. In this scenario the user is trying to check off a requirement for their degree, but also find a class that won't be too difficult and interests them.
- **Script for introducing task 1:** For the first task, we want you to find a class that interests you. It doesn't have to be a required course, just one that you think you would want to take as an elective. So just go about doing that whatever way makes the most sense to you.
- **Sanity check for task 1:** Is this process familiar to you? You must have scheduled semesters in the past, so this is nothing completely new, right?

## 5. Plans for Testing Task 2

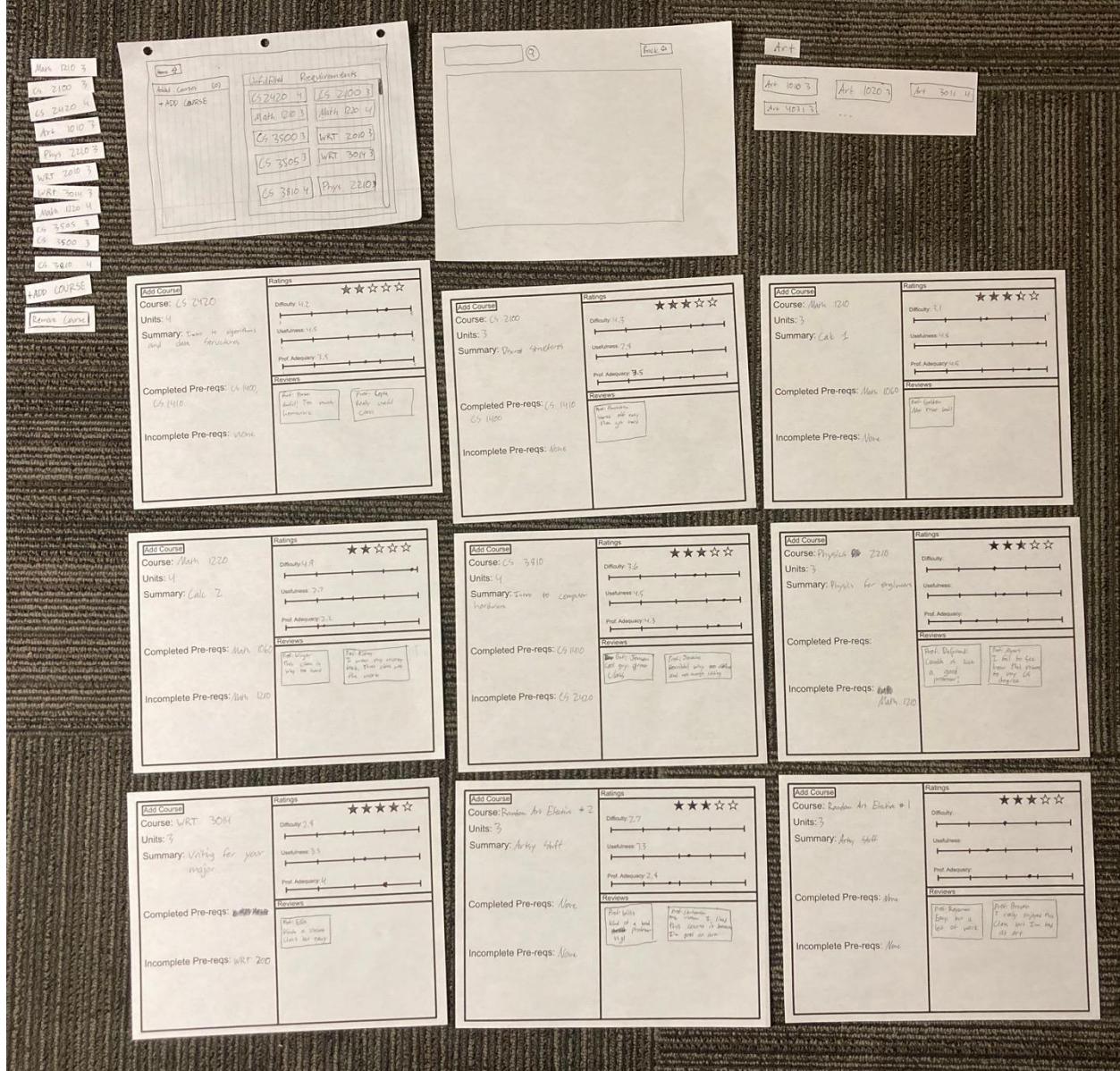
- **Task 2 to be tested:** The user will be given a certain course that they are required to take and they must find the best professor for that course. The scenario is that they have some class that they must take, like calc 1, that is taught by several different professors. They have to determine based on feedback which professor they think is the best.
- **Script for introducing task 2:** In this case, we're going to give you a required course and we want you to determine which professor you think you would want to take that course from.
- **Sanity check for task 2:** This isn't anything new, right? You've probably used rate my professor before? Have you ever planned a semester without looking up a professor or two on that website?

END OF MILESTONE 2

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# Milestone 3: Initial Paper Prototype

## 1. Prototype Images



## 2. System-independent scenarios

1. Alyssa worries too much. She knows that certain courses are difficult, but that doesn't always translate into those courses taking a lot of time. Sometimes difficult courses require intense focus for a little while, but don't have hours of busy work like some easier gen-eds. This UI allows Alyssa to read peer reviews about the course she is thinking of taking so that she can gauge how much time she will have to devote to that class.
2. Jeff is a great planner. He always tries to spread difficult courses across her future semesters so they don't accidentally pile up at the end. This UI allows Jeff to easily see what people liked and disliked about the course he is looking at taking.

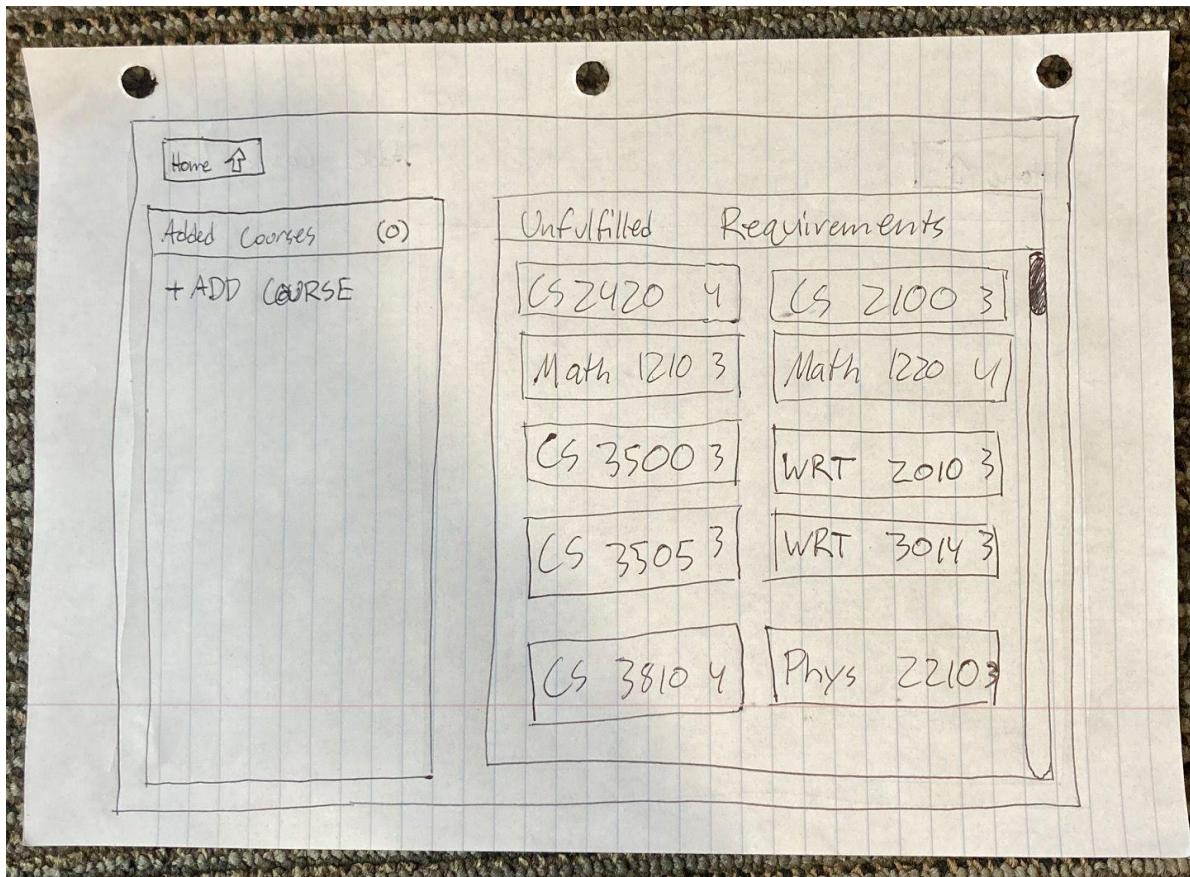
### 3. gCloud Confirmation

- We have a document in our team's folder in the class gcloud titled Paper Prototype.
- That document includes images of our prototype such that our classmates can conduct a heuristic evaluation of it.
- That document includes our system-independent scenarios so that our evaluators can get a sense of what the system should help with.
- That document DOES NOT include annotations or explanations that say how we intend for users to use the system.
- Yes

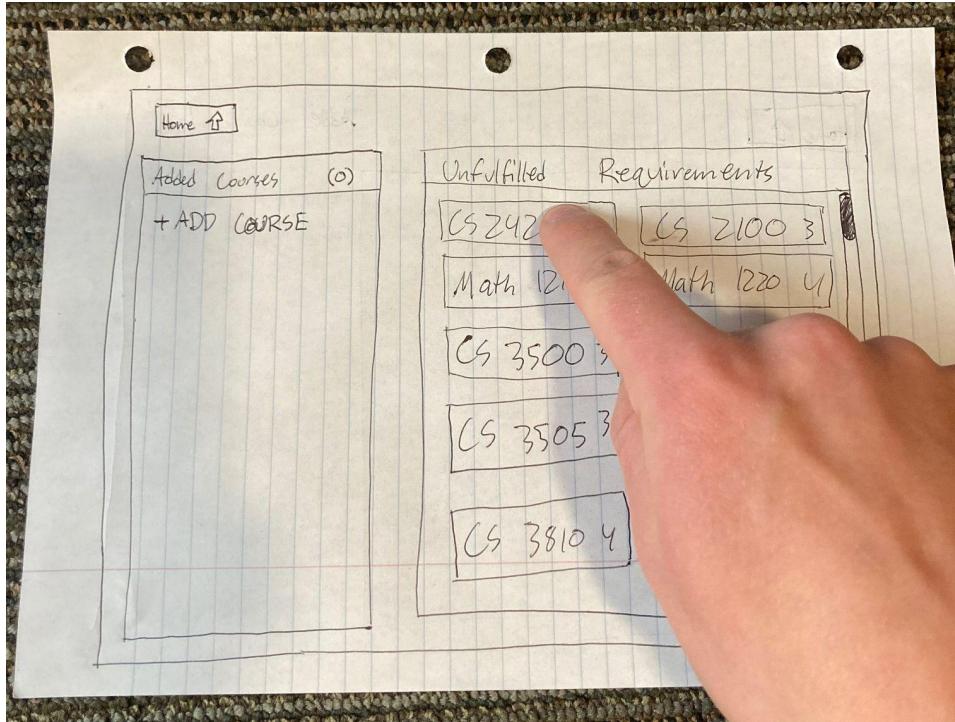
## 4. Supported Tasks

### Task #1

- **Task 1:** Adding unfulfilled required course



1.1 User starts at the home page



1.2 User selects a course

Add Course      BACK ←

Course: CS 2420

Units: 4

Summary: Intro to algorithms and data structures

Completed Pre-reqs: CS 1400, CS 1410

Incomplete Pre-reqs: none

Ratings

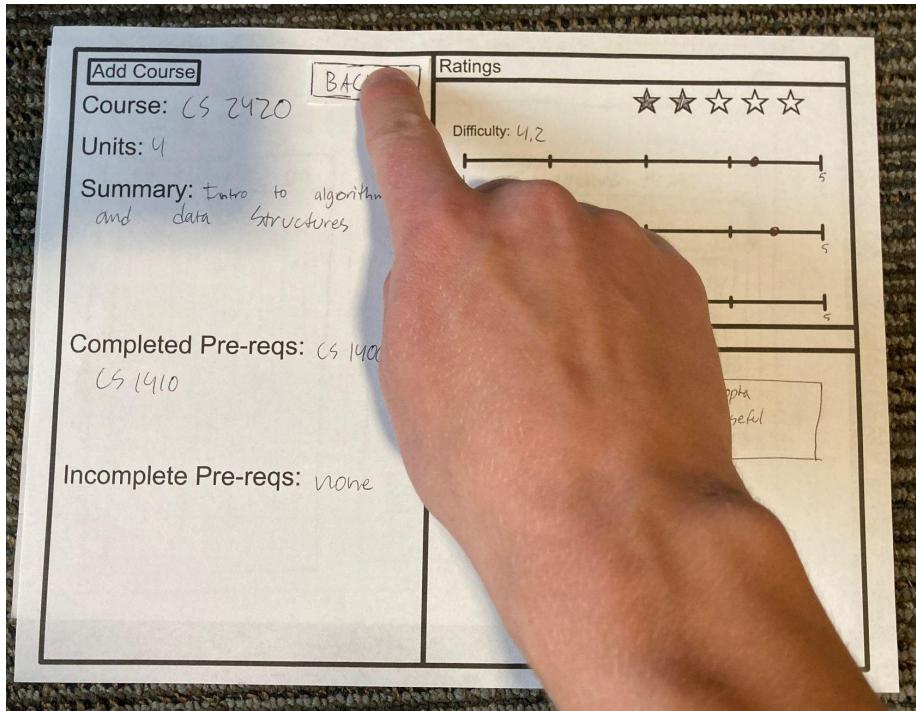
	★ ★ ★ ★ ★
Difficulty:	4.2
Usefulness:	4.5
Prof. Adequacy:	3.5

Reviews

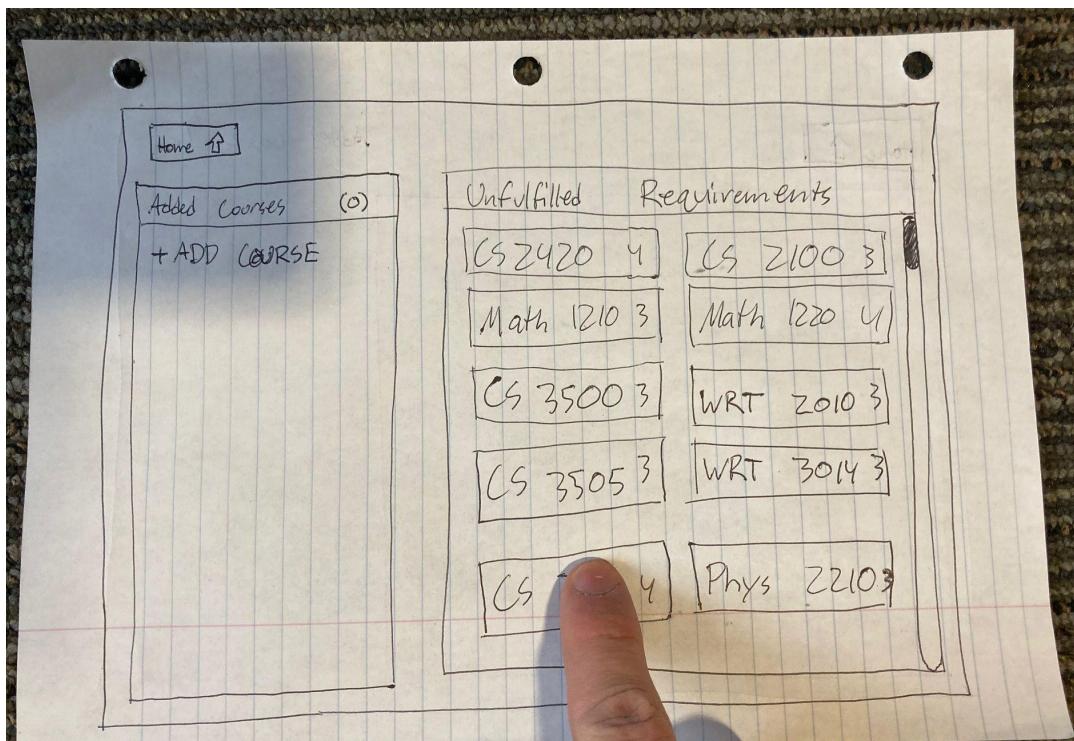
Prof: Parker  
Awful! Too much homework

Prof: Kopta  
Really useful class

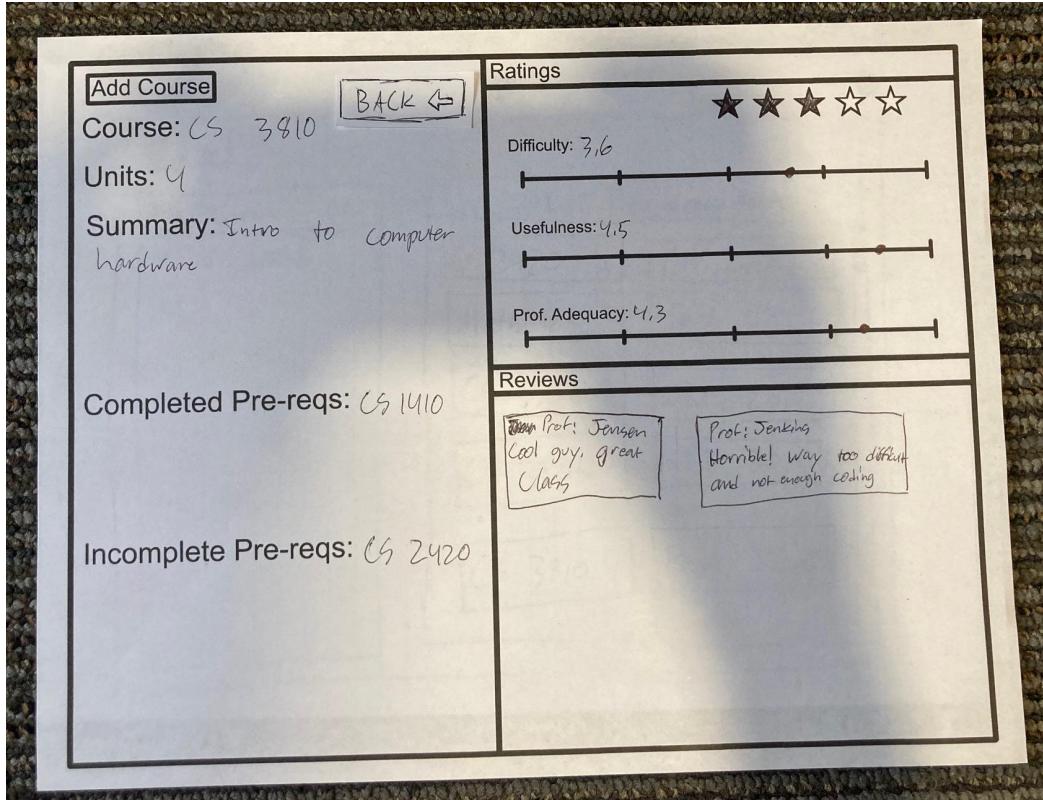
1.3 It pulls up the course page, user can now check the pre-reqs and ratings/reviews



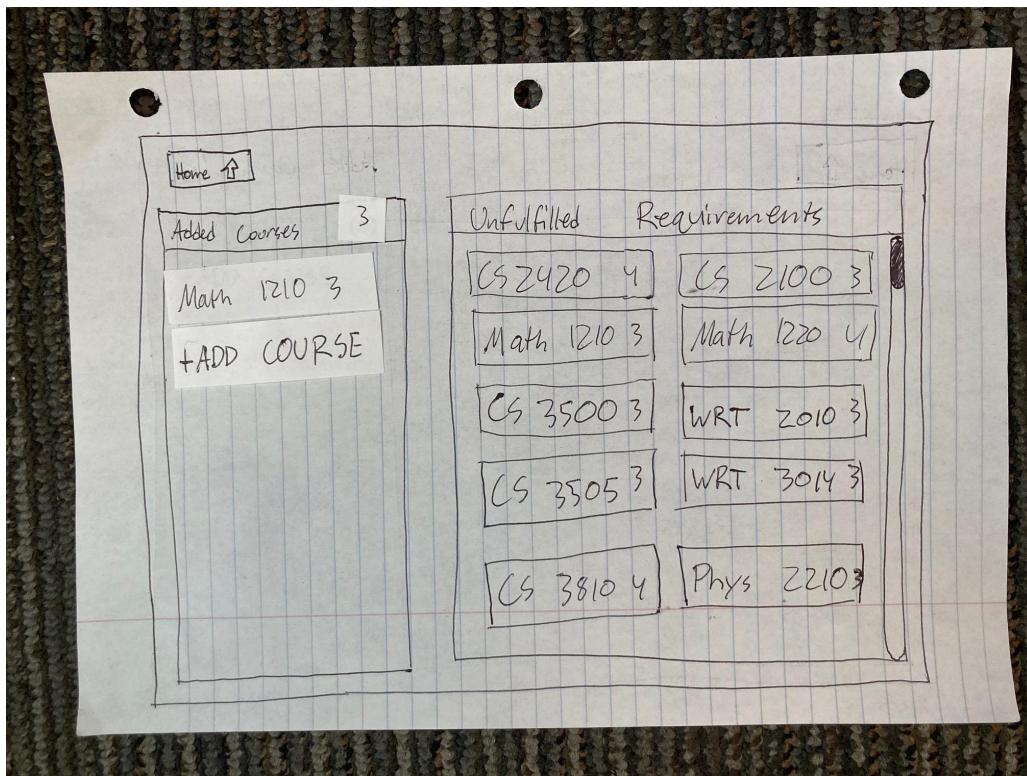
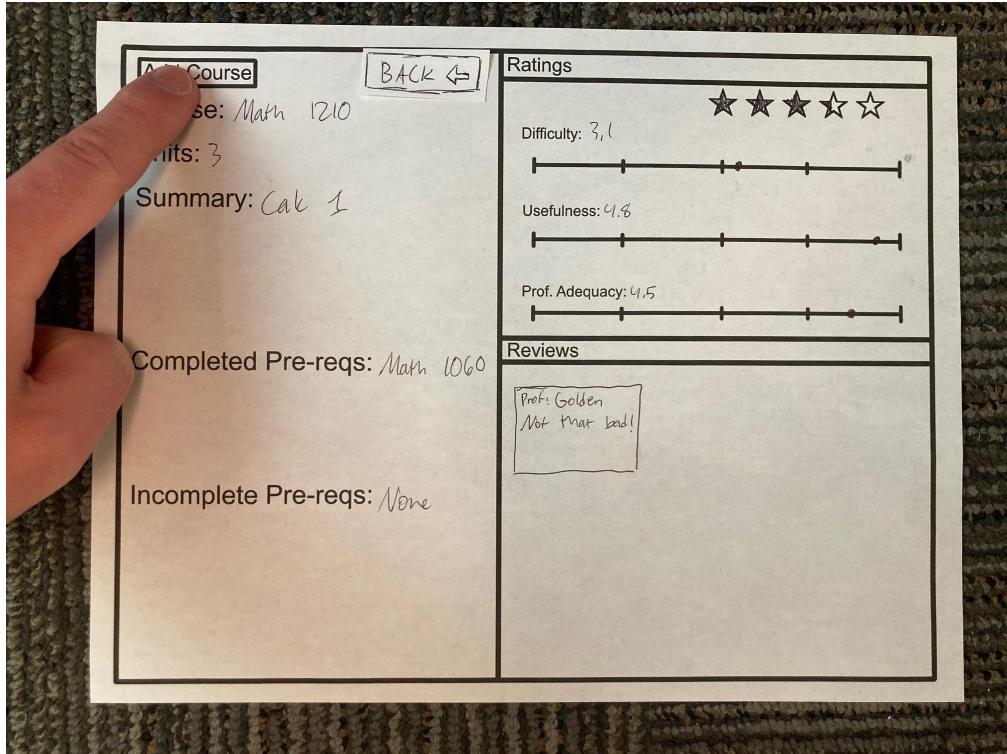
1.4 User can add the course or return to the home page



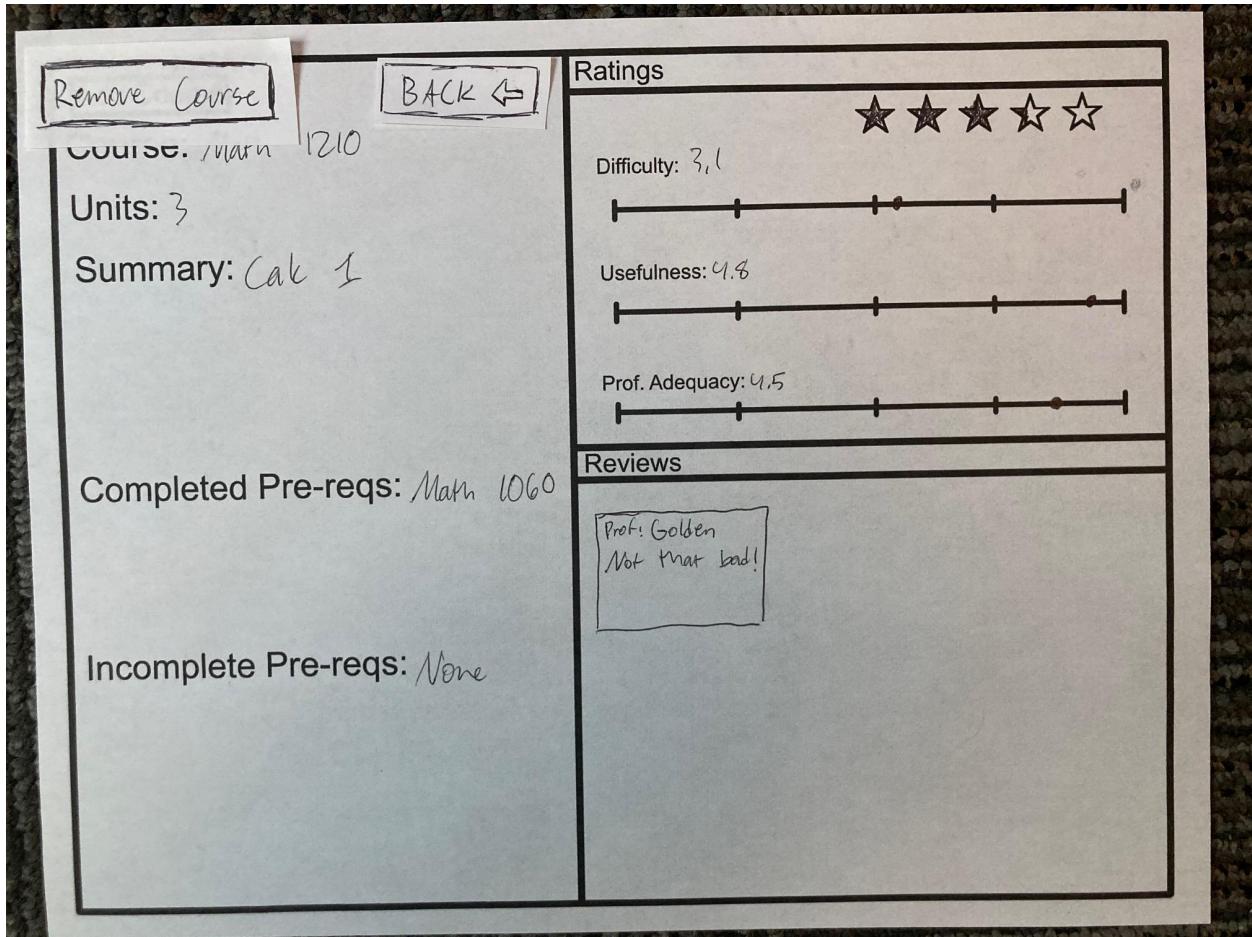
1.5 The home page returns and the user can click on another course



1.6 The course page loads and the user can see they have unfulfilled pre-requisites



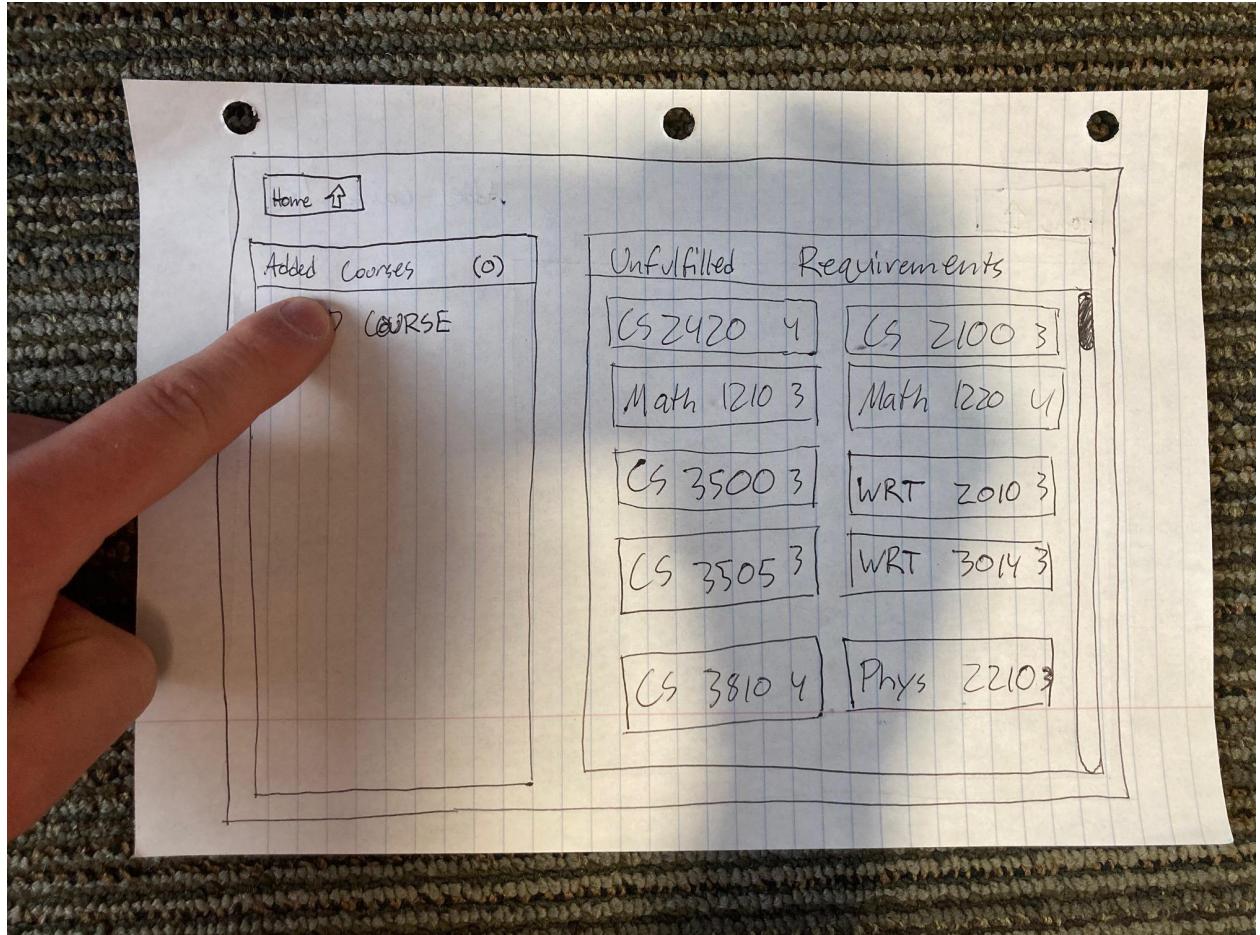
1.7 When the user adds a course they have fulfilled the requirements for, it takes them back to the home page



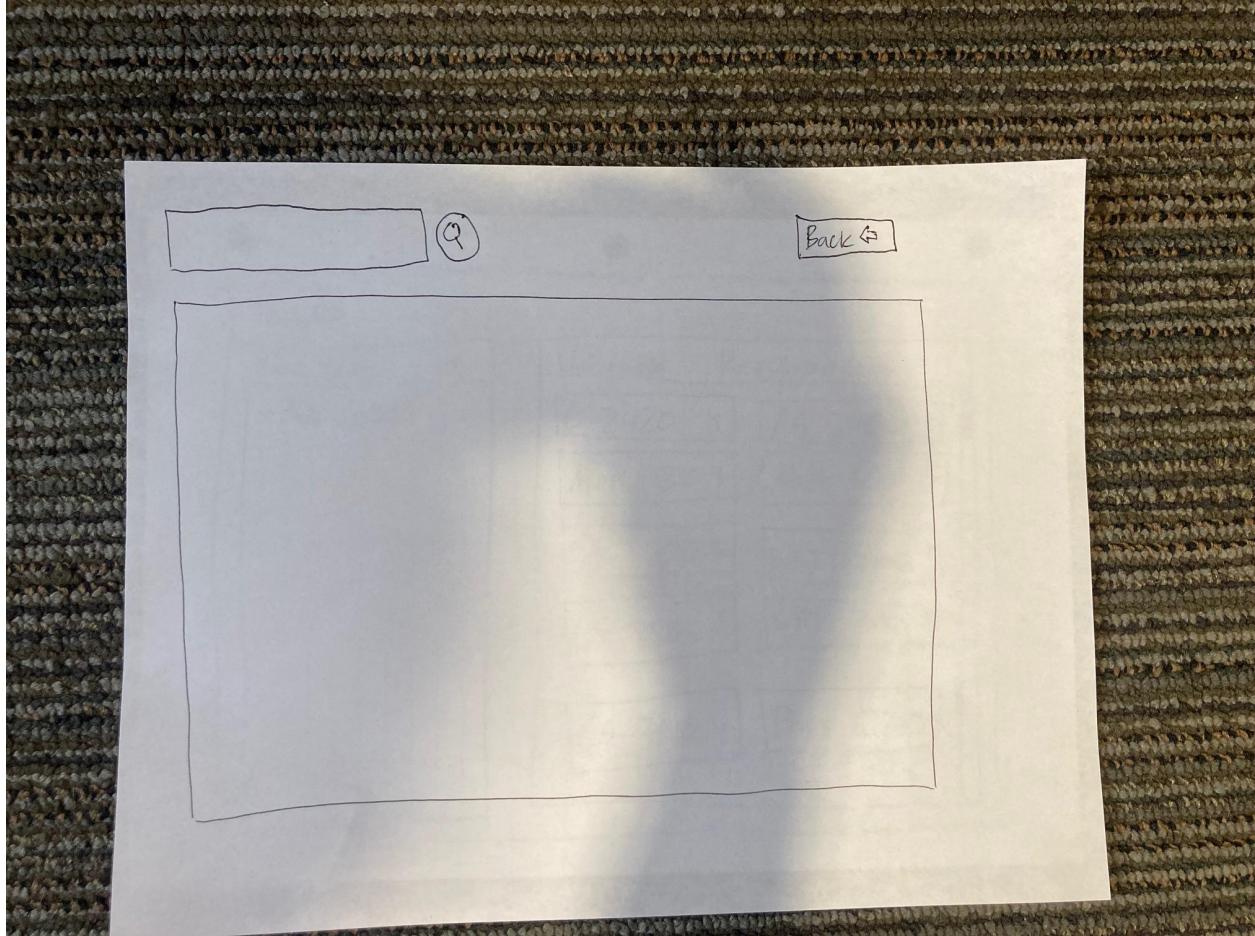
1.8 When the user has added a course, the button on the course page changes to “remove course” instead of “add course”

## Task #2

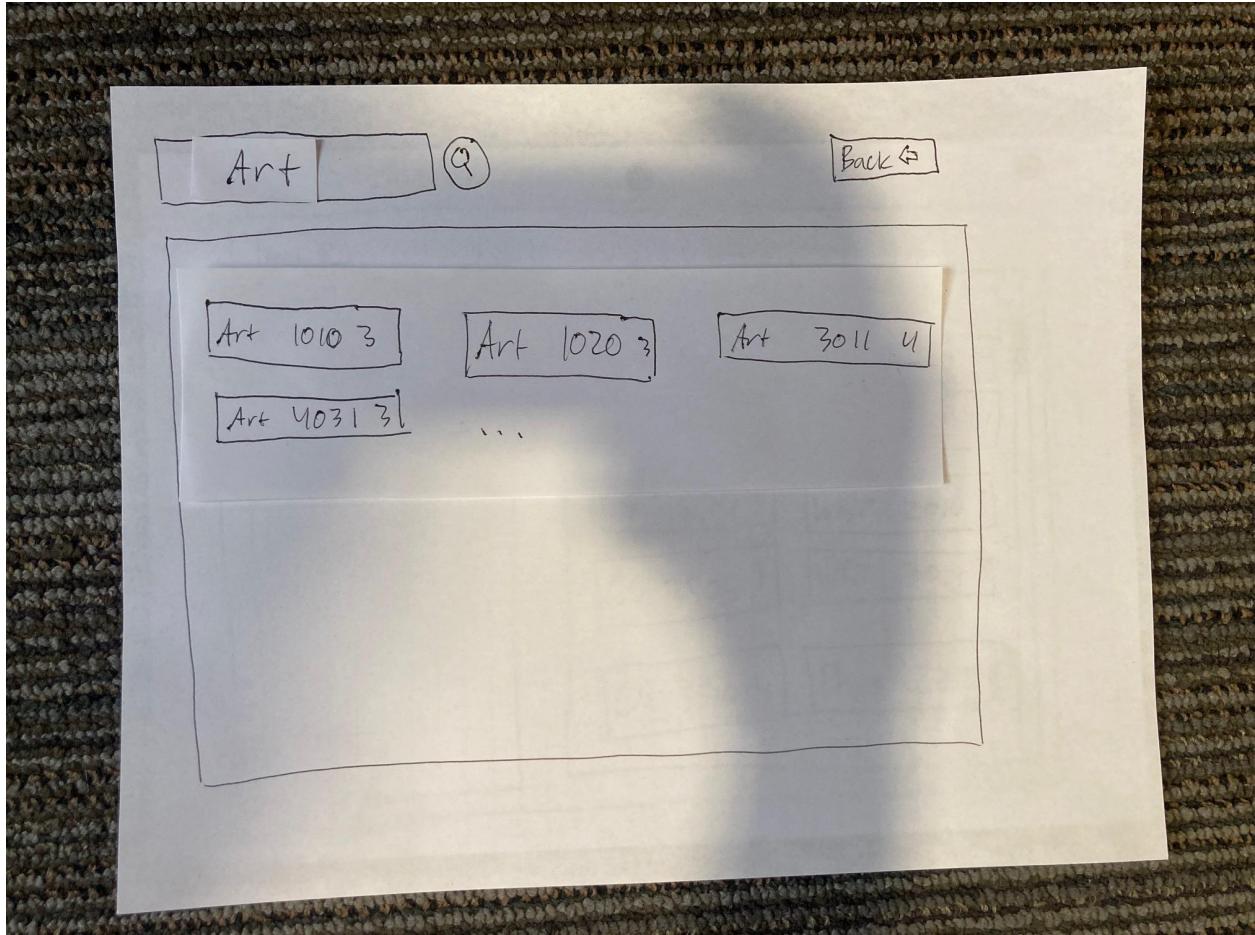
- **Task 2:** Finding an elective course



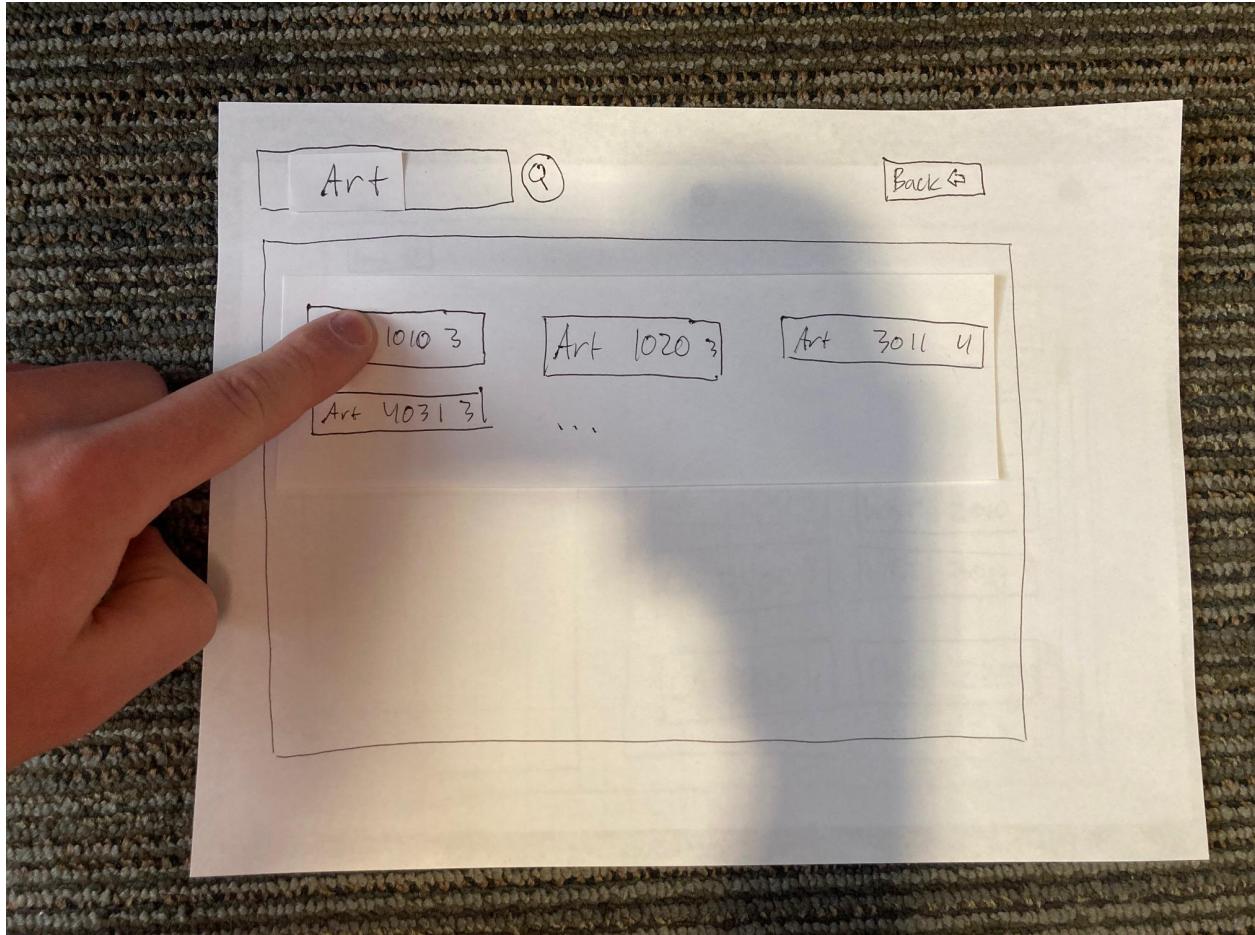
2.1 The user can click on “+ ADD COURSE” to bring up course search



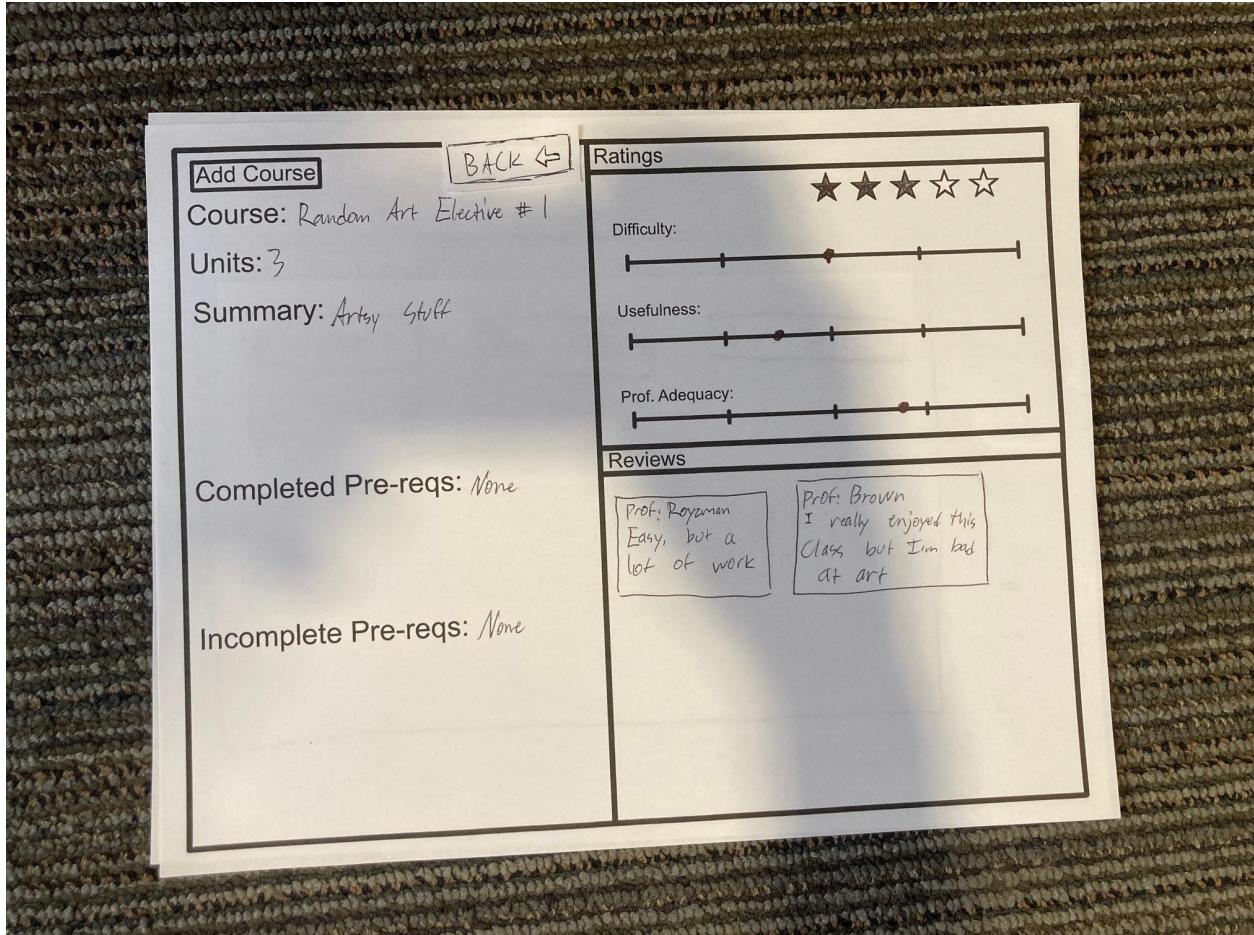
2.2 When clicked, it brings up course search



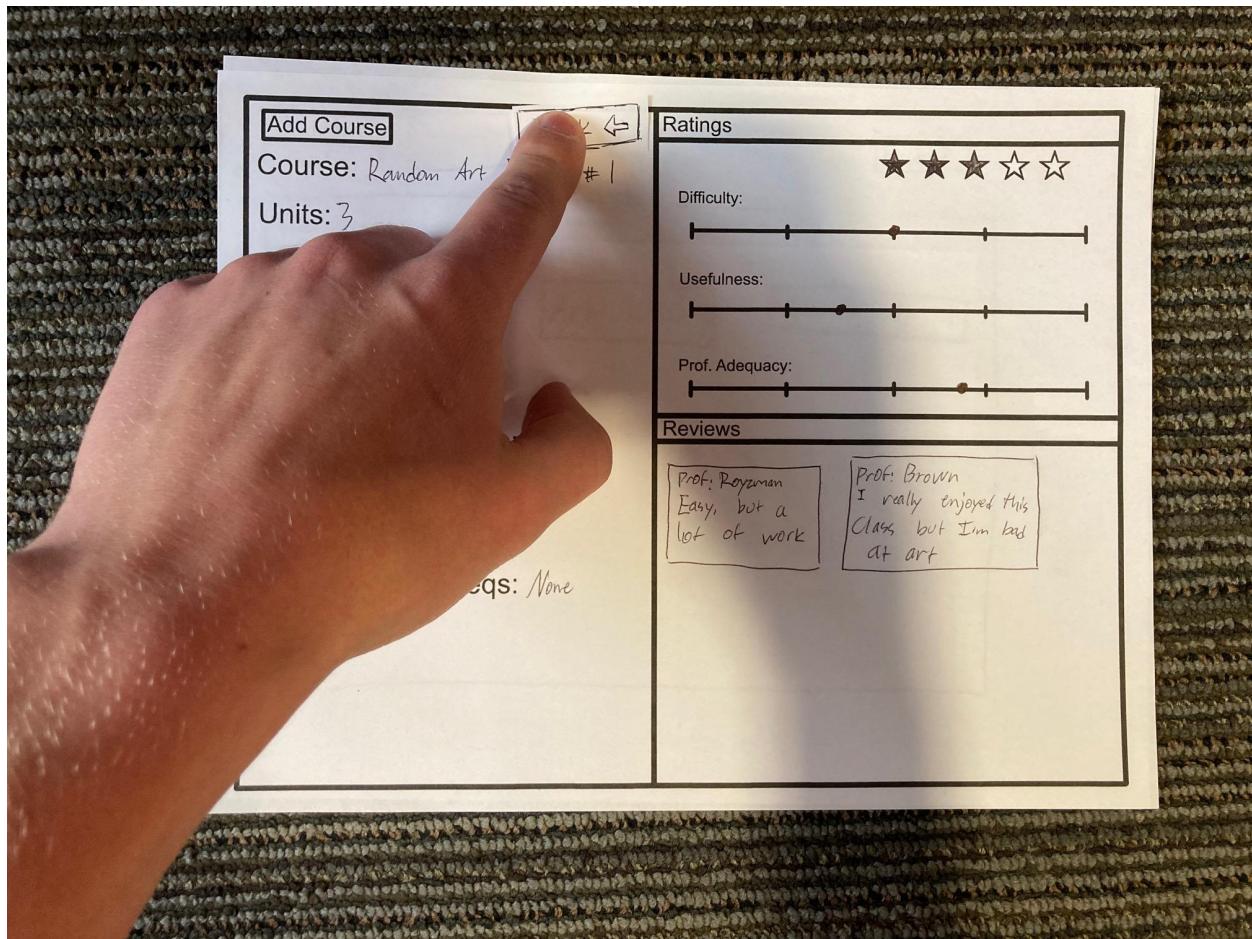
2.3 The user can search for keywords



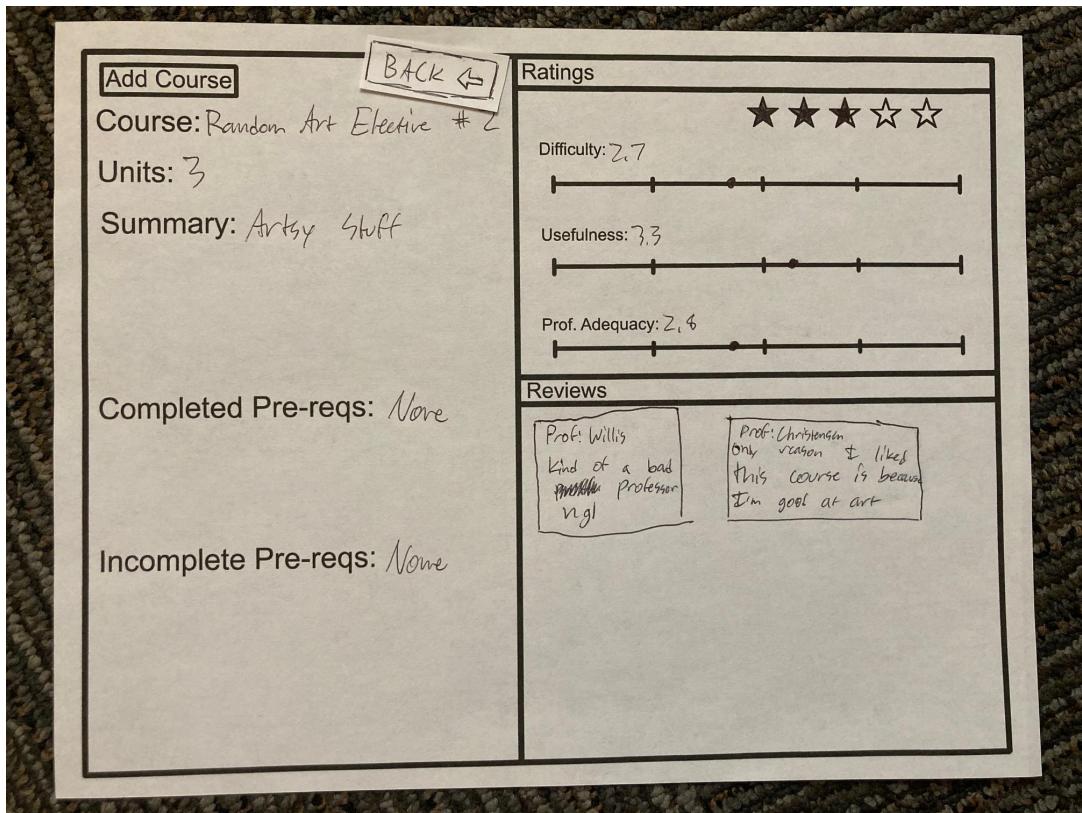
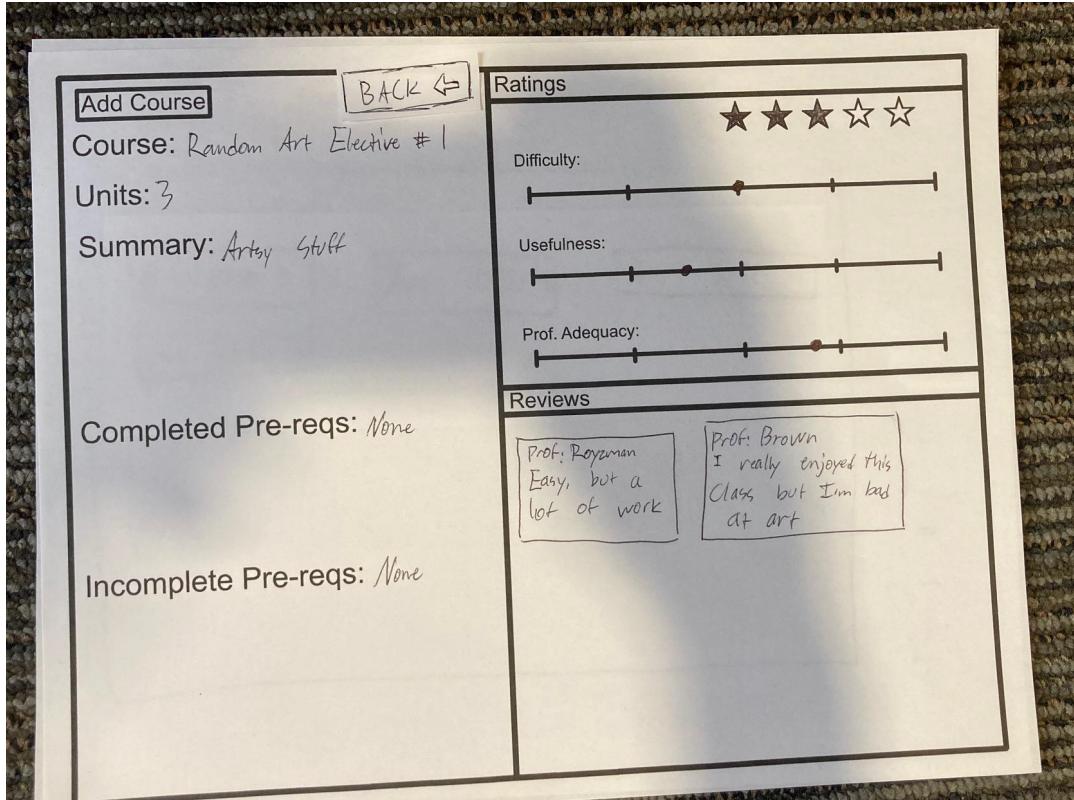
2.4 User can select from the courses that come up



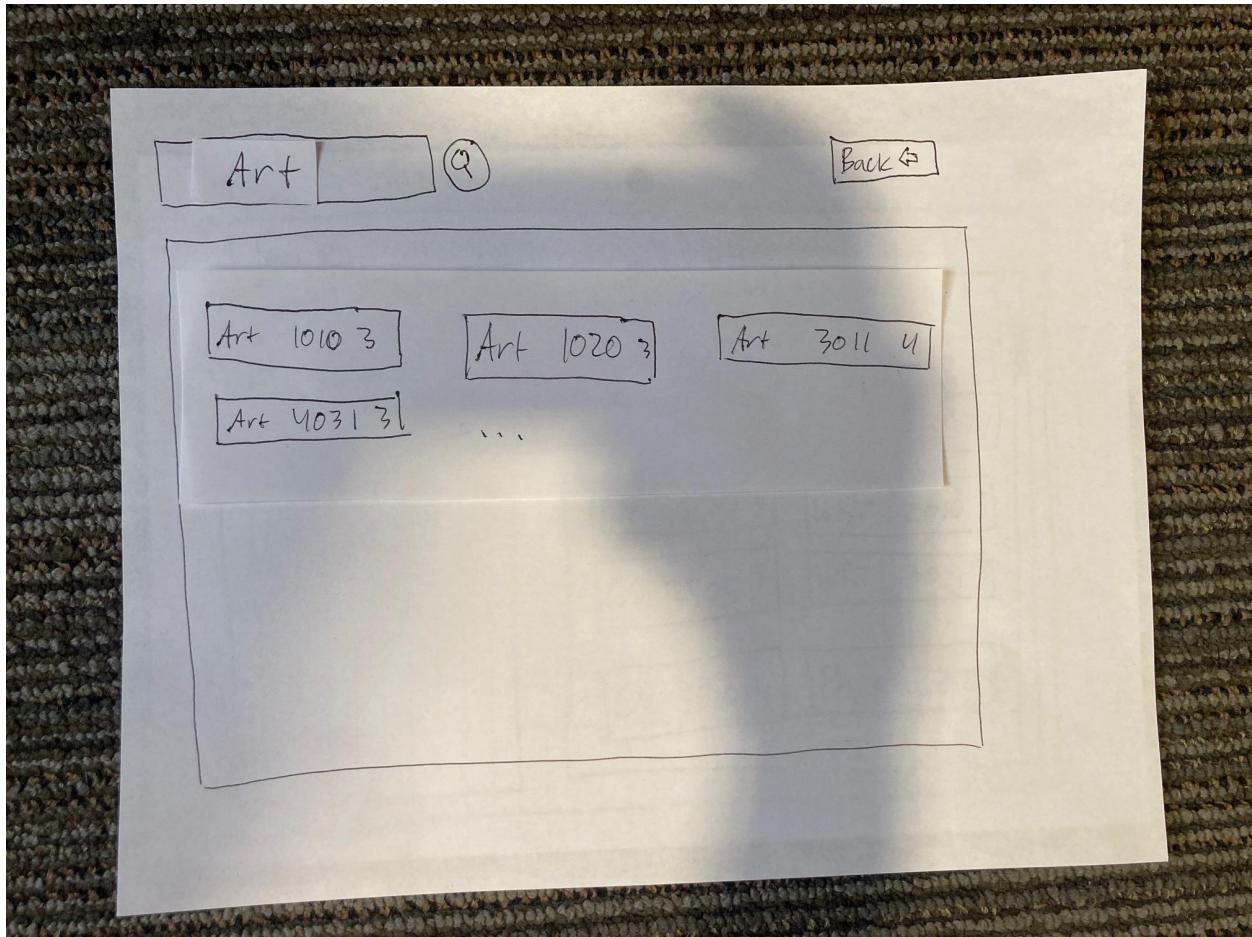
2.5 Users can read reviews and ratings on elective courses



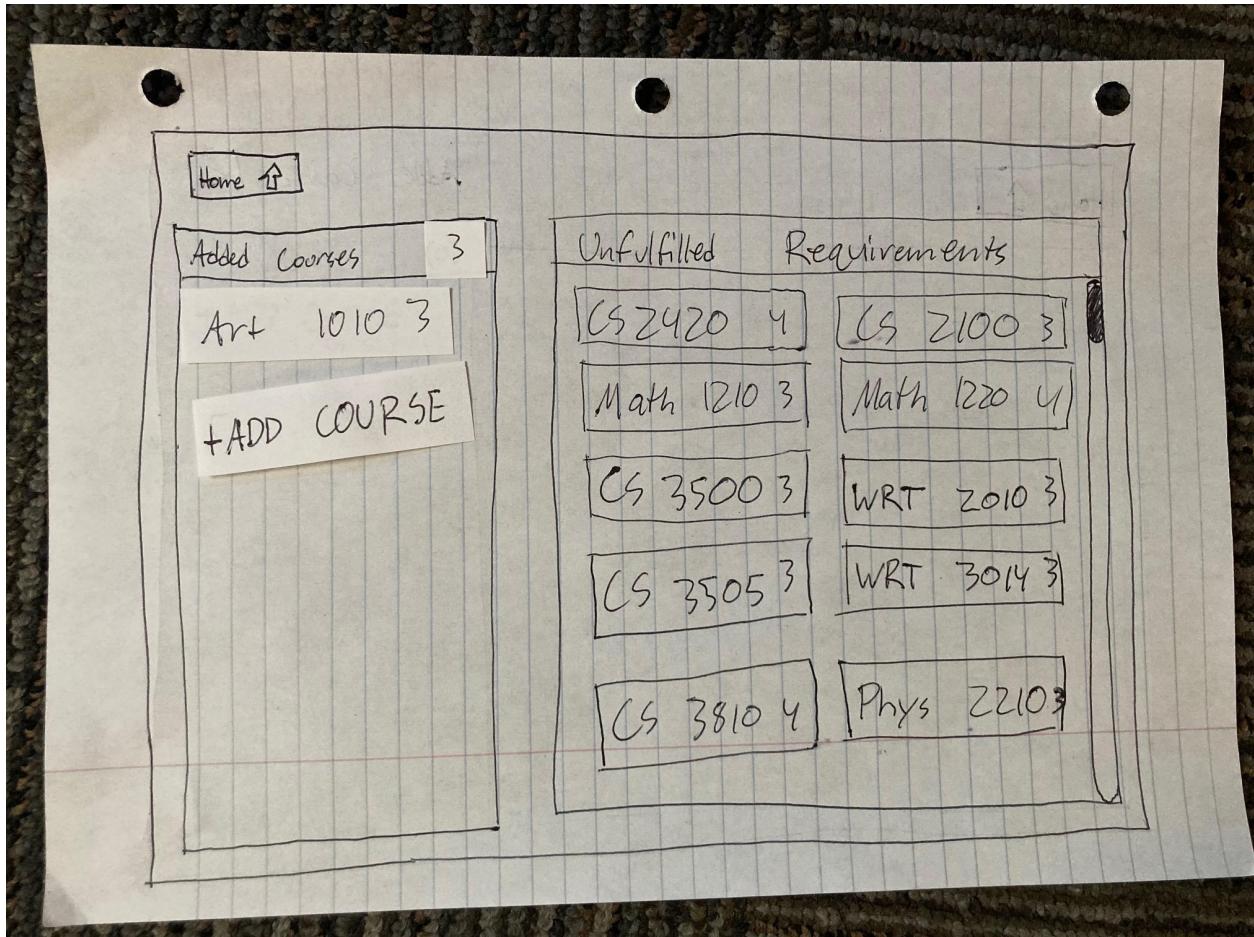
2.6 The user can exit out of this course page by hitting “Back”



2.7 The user can mentally compare multiple courses



2.8 Hitting “Back” on the course page brings you to the search page. Here you can hit “Back” again to return to the start page or click on another course



2.9 Once the user finds a course they like, they just hit “Add Course” and they will be taken back to the start page where the selected course has been added to their course list

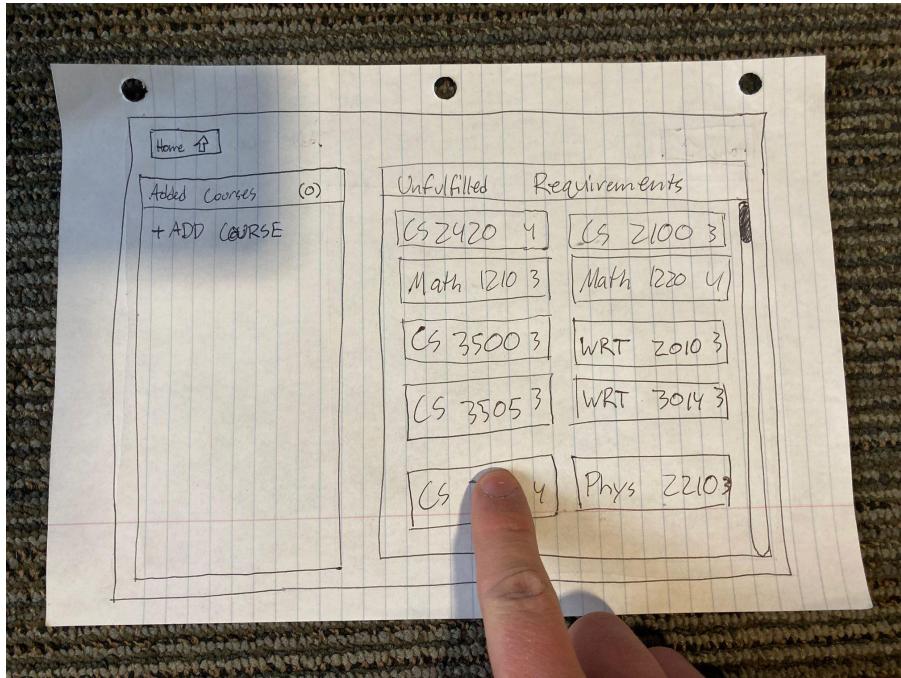
## END OF MILESTONE 3

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# Milestone 4: First Usability Test Report and Inspection-Based Methods

## 1. Inspection-Based Methods - Findings

### 1. Click and Drag (3 evaluators)

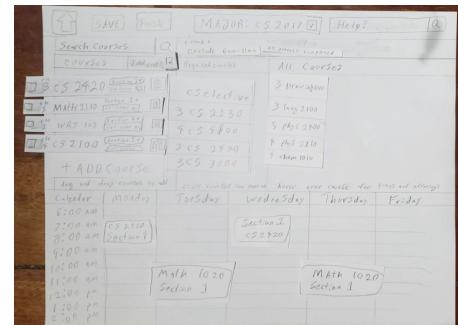


- From evaluators

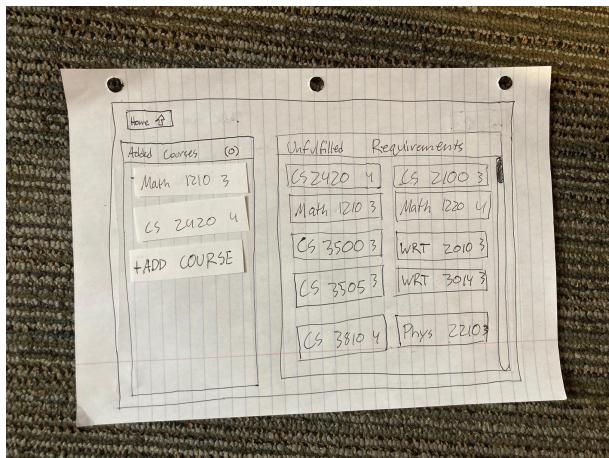
- A. **Heuristic Violated/Believability issue\***: Consistency and standards
- B. **Objective Description\***: As a tech user, this design immediately says to me “click and drag” to add classes. Or maybe, click on a class, then click “ADD COURSE.” However, this is not how the system is designed.
- C. **Why this is a problem\***: This is a problem because this can initially confuse a user on how to actually use the system. It can be figured out pretty quickly just by clicking around, but having an option to click and drag would help the user feel more comfortable, because clicking and dragging is a system in a lot of technologies.

- Revision

- **Revision explanation:**  
Users can now drag and drop courses.



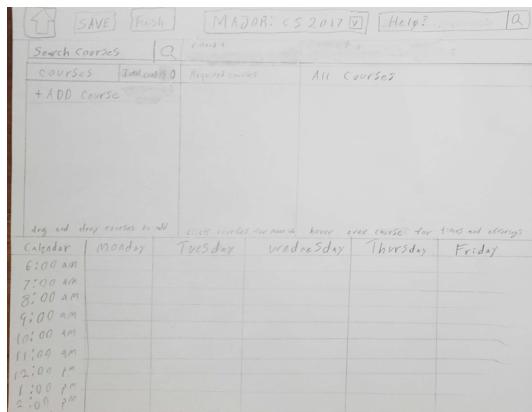
## 2. Don't know how to add elective (3 evaluators)



- From evaluators

- Heuristic Violated/Believability issue\*:** Visibility of system status
- Objective Description\*:** When only presented with "Unfulfilled Requirements," I'm not sure on where to find required courses. I don't really know where the search bar is. Later, I was told that "ADD COURSE" is the search bar, but I didn't know that without it being told to me.
- Why this is a problem\*:** This is a problem because electives are another requirement for degrees, but not being sure on where to find them is a problem. The search bar being hidden is also a problem, because a general user won't know where to go. If "ADD COURSE" was changed to something like "ADD NEW COURSE," that might give me more direction.

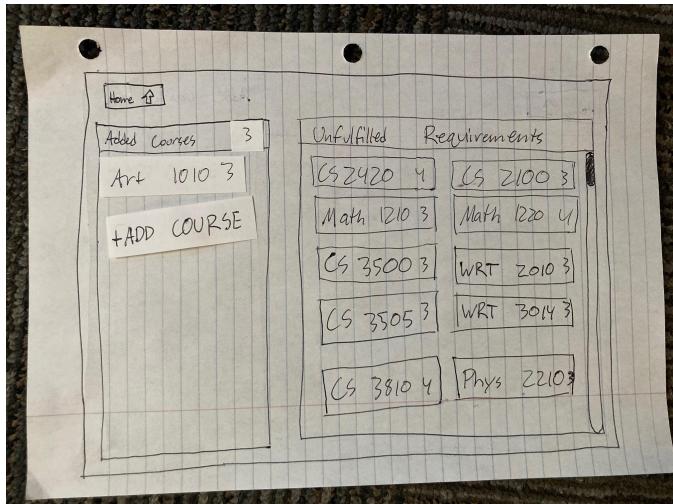
- Revision



- **Revision explanation:**

Instead of only displaying requirements, we display all courses a user can take.

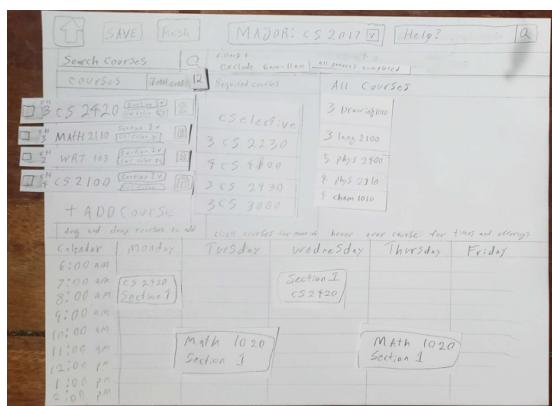
### 3. Not clear how to remove course (3 evaluators)



- From evaluators

- Heuristic Violated/Believability issue\***: Visibility of system status
- Objective Description\***: I'm not sure initially how to remove a course.  
You have to click on the course in "Added Courses" and now the option to remove the course is available in the top left corner.
- Why this is a problem\***: This is okay if you know the system, but it's a bit confusing for a new user. A system that just has an "x" next to each course, as a way to quickly remove a course, would fix this issue.

- Revision



- Revision explanation:

We have added a garbage bin icon to indicate the course can be removed.

## 2. First Usability Test - Protocol

- **Interviewer:** John
  - **Observer/notetaker:** Cannon
  - **Additional roles, if applicable (e.g., Computer: [name]):**
  
  - **Name or anonymous identifier for your participant:** London Ellis
  - **Brief explanation of why this person is appropriate:**  
London is an undergraduate student who, for the last two years, has used the current software for scheduling courses. This makes her an ideal candidate to test out our improved scheduling program.
  
  - **Environment:**  
We did the test on the table in the common room at my dorm. This is pretty appropriate since it's where a lot of students go to do work since the table is larger than any of our desks.
  
  - **Prototype (physical paper or digital recreation?):**  
We used a paper prototype
  
  - **Script:**  
*This does not need to be an exact transcript but should be detailed enough for the course staff to tell how the test was introduced to the participant.*
1. **Introduce yourselves:** Hey London! As you know, I'm your friend John and this is Cannon.
  2. **Thank the participant, explain that this is voluntary and they can stop any time:** Thank you for taking the time to test out our scheduling software. Just so you know, this is completely voluntary and you can stop if you want to at any time.
  3. **Explain the purpose of the test:** The purpose of this is so that we can gauge how people interact with our software. If something is unintuitive or you think something else would make more sense, please let us know.
  4. **Tell the participant what to expect (e.g., how to interact with the prototype):** So just treat this paper prototype just like you would a web browser. Click on things

and we'll change the view to whatever it should be. It's basically like using a really slow computer.

5. **Introduction to Task 1:** So for the first task, we're just going to have you try and find a required course and sign up for it.
6. **Sanity check for Task 1:** I'm guessing this task is something you're very familiar with at this point, right? I would imagine so since it's a necessary part of staying on track for any degree.
7. **Introduction to Task 2:** Ok, now that you have signed up for a required course, we'd like for you to find an elective one. Just go about doing that however you think you would make the most sense.
8. **Sanity check for Task 2:** Once again, we think this is something that you've probably done a number of times, right?
9. **Thank the participant again:** Thank you for using our prototype! Your feedback is invaluable.
10. **Solicit additional thoughts from the participant:** Do you have any other thoughts that you'd like to share with us?
11. **Ask if the participant has any questions for you:** Do you have any questions for us before you leave?

### 3. First Usability Test - Findings

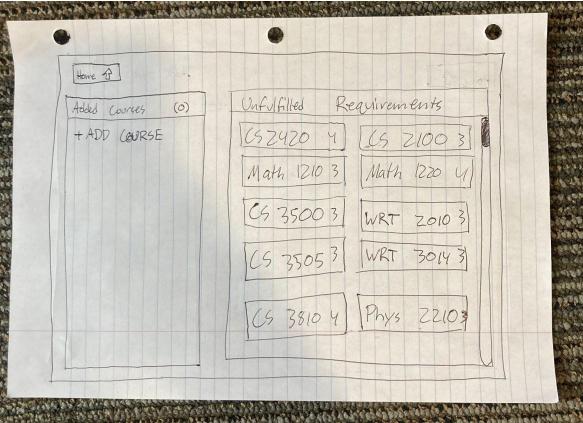
#### Task 1:

- **Introduction to the task:**  
So for the first task, we're just going to have you try and find a required course and sign up for it.
- **Sanity checking:**  
I'm guessing this task is something you're very familiar with at this point, right? I would imagine so since it's a necessary part of staying on track for any degree.

#### Important Incident 1

- **Type (positive or negative):** Positive
- **Description:**  
She liked that you can see all your required courses on the main screen. This makes them really easy to choose from.

- **Revision:**  
NA

<b>Prototype as seen by the participant:</b>  <p>The hand-drawn prototype shows a 'Home' button at the top left. Below it is a section titled 'Added Courses (0)' with a '+ ADD COURSE' button. To the right is a section titled 'Unfulfilled Requirements' containing a grid of course codes and numbers. The grid has two columns: 'CS 2420 4' and 'CS 2100 3' in the first row; 'Math 1210 3' and 'Math 1220 4' in the second; 'CS 3500 3' and 'WRT 2010 3' in the third; 'CS 3505 3' and 'WRT 3014 3' in the fourth; and 'CS 3810 4' and 'Phys 2210 3' in the fifth.</p>	<b>Revision:</b> NA
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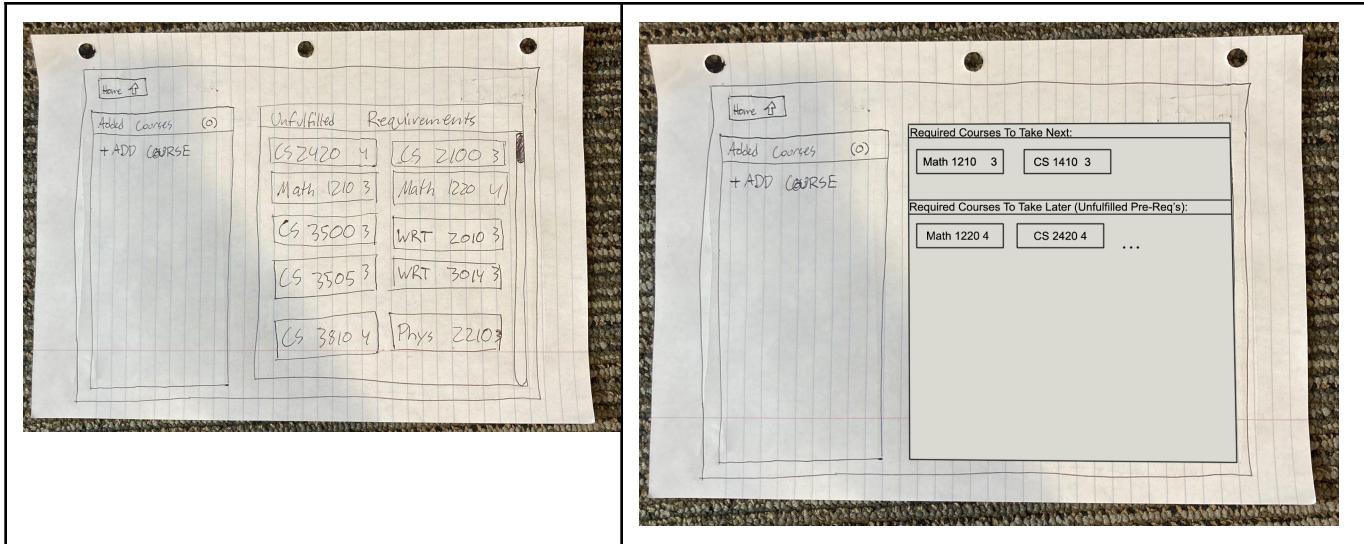
### Important Incident 2

- **Type (positive or negative):** Negative
- **Description:**  
While the participant really liked that it showed her the unfulfilled requirements on the right hand side, she didn't like that it showed her all of them. She said it would make more sense to have the ones that she needs to take next and then a separate part that shows all the other ones.

- **Revision:**

Now the required courses are divided into two sections so it is clear what ones you should be taking next and what ones you should take later.

<b>Prototype as seen by the participant:</b>	<b>Revision:</b>
--	------------------



### Important Incident 3

- **Type (positive or negative):** Negative
- **Description:**  
The user thinks that having star ratings for a course is confusing when in some of the rating categories having a 5/5 is a good thing and in others it's a bad thing. For example, 5/5 difficulty is bad, but 5/5 usefulness is good.
- **Revision:**  
We eliminated the star rating system. Students can still look at the individual categories to check out courses.

<p><b>Prototype as seen by the participant:</b></p>	<p><b>Revision:</b></p>
---	-------------------------

--	--

## Task 2:

- **Introduction to the task:**

Ok, now that you have signed up for a required course, we'd like for you to find an elective one. Just go about doing that however you think you would make the most sense.

- **Sanity checking:**

Once again, we think this is something that you've probably done a number of times, right?

### Important Incident 1

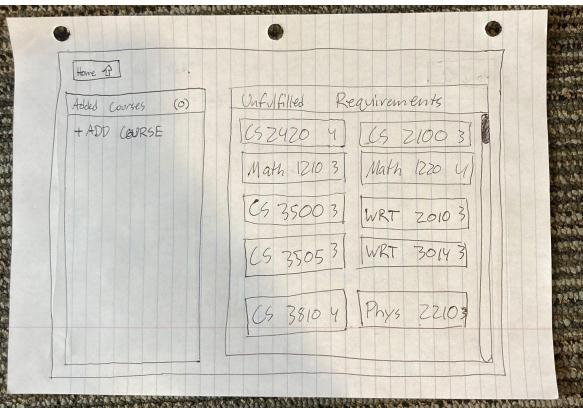
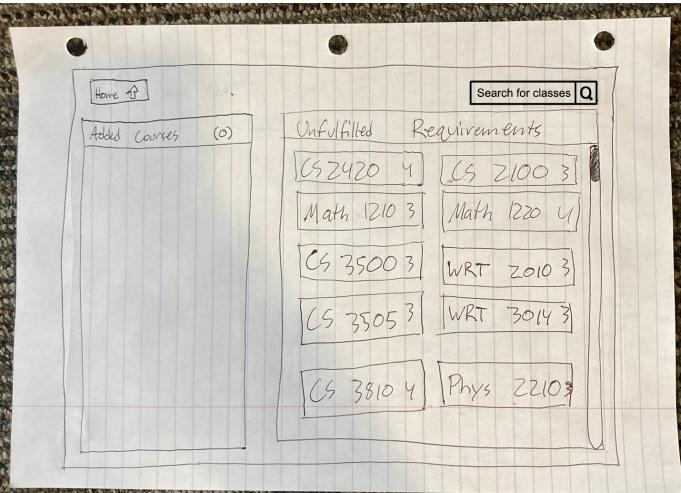
- **Type (positive or negative):** Negative

- **Description:**

The way to find new courses isn't very clear. The "Add COURSE + " button exists, but users are used to looking for a search bar.

- **Revision:**

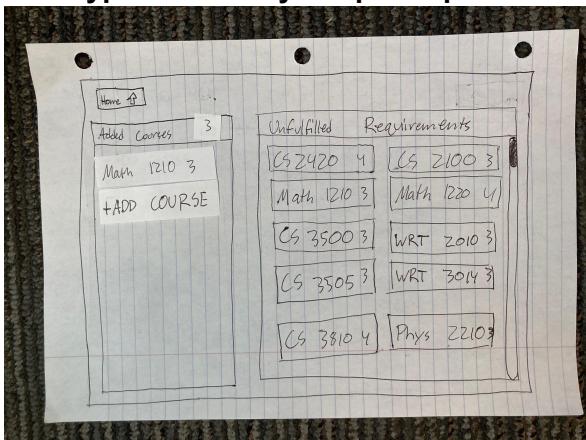
Got rid of the "ADD COURSE + " button in favor of a search bar.

<p><b>Prototype as seen by the participant:</b></p> 	<p><b>Revision:</b></p> 
---	--

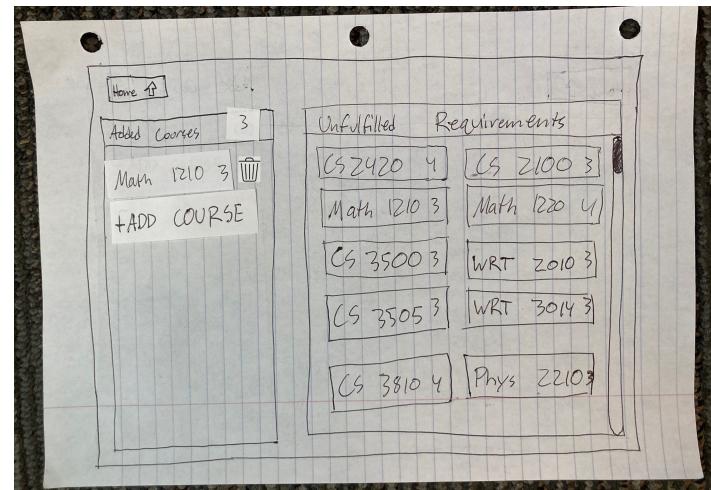
### Important Incident 2

- **Type (positive or negative):** Negative
- **Description:**  
User said that the current way of removing a course is unintuitive. (You click on the course and then there is a button that says “Remove Course”) She would prefer the trash can icon next to courses.
- **Revision:**  
Removed the “Remove Course” button from the course view and added trash can icons next to the courses in your basket.

Prototype as seen by the participant:



Revision:



### Important Incident 3

- **Type (positive or negative):** Positive
- **Description:**  
The user liked that there are reviews of different professors in the course view, especially when it's an elective that has multiple professors.
- **Revision:**  
NA

Prototype as seen by the participant:

Revision:

RoadMappers: Haydn Thurman:u1325386, Cannon Rudd:u1276351, John Stevens:u1117706, Wyatt Sanders:u1139272

Course: Random Art Elective #2

Units: 3

Summary: Artsy Stuff

Completed Pre-reqs: None

Incomplete Pre-reqs: None

Ratings

Difficulty	Usefulness	Prof. Adequacy
2.7	7.3	2.6

Reviews

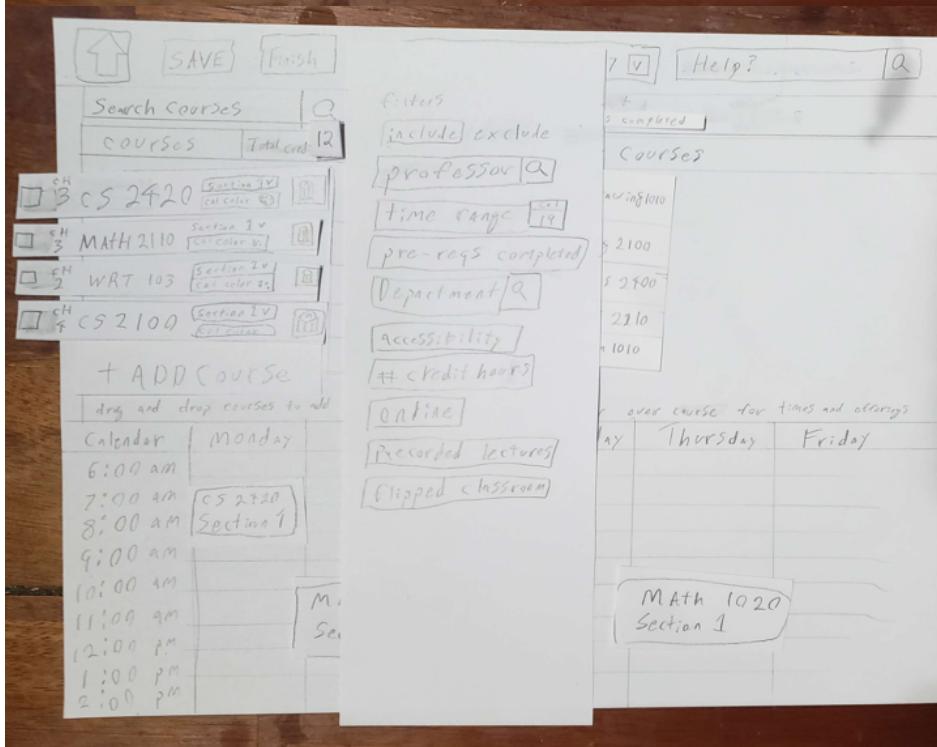
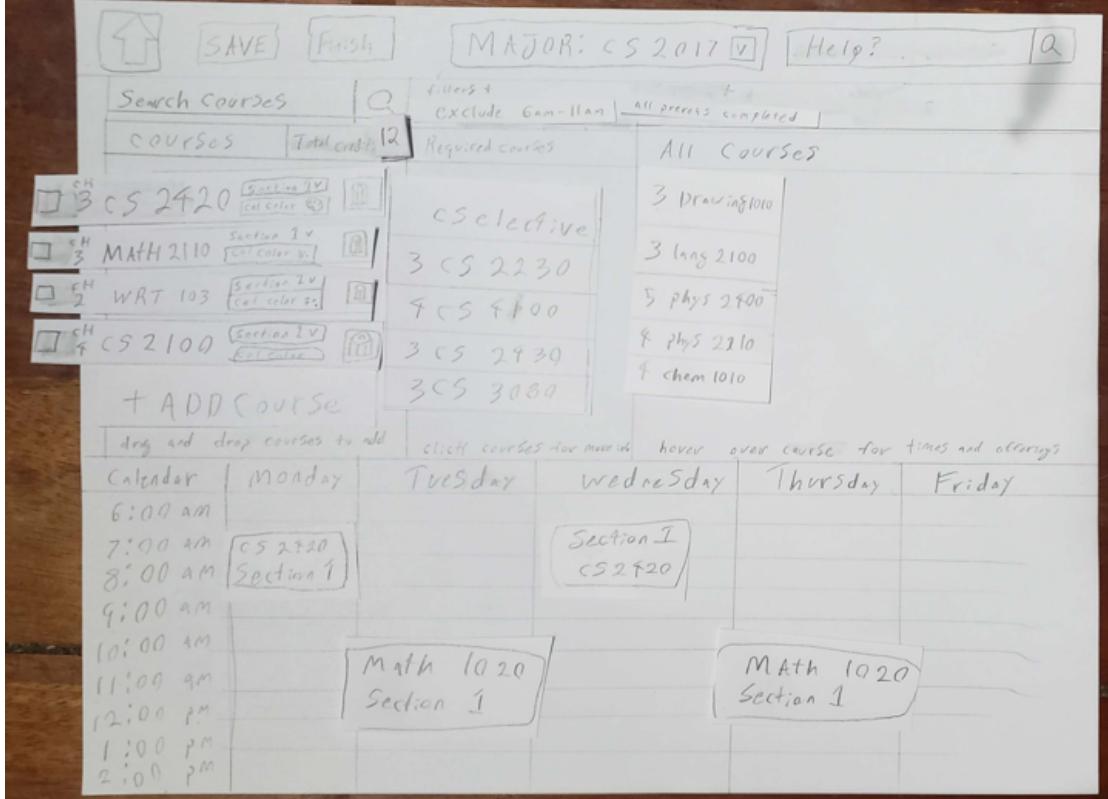
Review 1	Review 2
Prof. Wells Kind of a weird Professor vgl	Prof. Thurman Now known as... This course is because The goal is art

NA

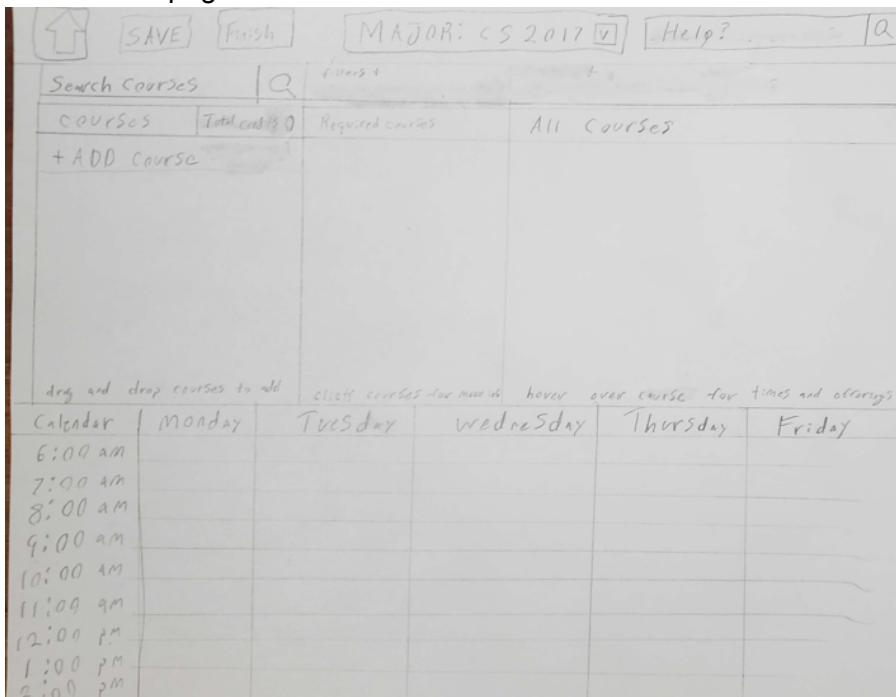
## 4. Paper Prototype Iteration

[insert detailed prototype images (after implementing revisions)]

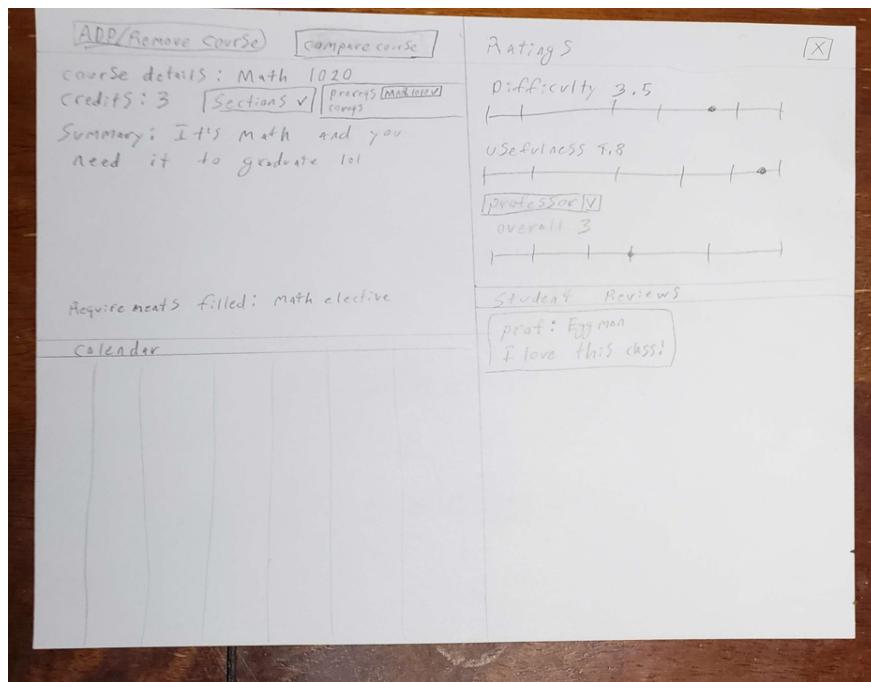
MAIN PAGE



## Blank main page



## Template Course details



## Course Details

ADD/Remove Course		Compare course	Rating S	X
course details : Math 1020			difficulty 3.5	
credits : 3	Sections <input checked="" type="checkbox"/>	prereqs <input type="checkbox"/> Math 1010 <input type="checkbox"/> comp	usefulness 4.8	
Summary : It's math and you need it to graduate lol			professor <input checked="" type="checkbox"/>	
Requirements filled : math elective			overall 3	
Calendar				
Math 1020 Section 1		Math 1020 Section 1	Student Reviews	
			prof: Eggman I love this class!	

## Course Compare

Overall Ratings		Add/Remove course	Add/Remove course	Ratings
Difficulty	+	Course details MATH 1020 credits:3 <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Section 1 <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Course details CS 2920 credits:3 <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Section 1 <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Difficulty
Usefulness	+	Summary:	Summary:	Usefulness
Professor [V]	+			Professor [V]
Student reviews		Requirements filled	Requirements filled	Student reviews
prof: Alex				
Best class				
		Calendar		
		MATH 1020 Section 1	Math 1020 Section 1	
		Section 1 CS 2920	CS 2920 Section 1	

## 5. Reflection on Usability Testing

- A. **What is something your team did well that allowed you to get useful data from the test? (2-4 sentences)**

We only interfered if a user was confused about something. We also tried to have them wait to give feedback at the end of the test.

- B. **What is something you want to improve about your testing process (or your planning) that will make your next tests even more productive? (2-4 sentences)**

Ask users more about what they are thinking as they do the test. We want them to be vocal so we have a better understanding of what their intuition is.

- C. **How will you implement (or have implemented) these improvements for your next test? (1-4 sentences)**

We need to explicitly tell them that we want them to voice their opinions.

## 6. Plan for the next Usability Tests

*Usability testing requirements:*

1. *Your team must conduct  $N-1$  usability tests, where  $N$  is the number of people on your team*
2.  *$N-1$  unique people on your team must be the interviewer for a usability test*
3. *Each person on the team must participate in at least 2 usability tests, with some combination of interviewer, observer, computer, or another role. You may have more than one observer for a usability test.*

### A. Plan for recruiting the remaining participants:

We are planning on have Haydn's friend and Cannon's roommate for the remaining participants. We will have them finished by November 13th.

### B. Usability test plans

- **Plan for 2nd usability test:**

*Include whatever details you have. Keep in mind that the milestone for the remaining usability tests is due Nov 15*

- **Name or anonymous identifier for your participant:** Buffy Howe
- **Brief explanation of why this person is appropriate (1-3 sentences):**  
Buffy is currently a student at the University of Utah who wants to plan the remainder of her classes as an EMT major.
- **Scheduling status:**  
Haydn Thurman has already sent her a message and is planning on conducting the usability test on Tuesday evening.
- **Planned interviewer:** Haydn Thurman
- **Planned observer/notetaker:** Cannon Rudd, Wyatt Adams
- **Planned additional roles,** Computer: John Stevens

- **Plan for 3rd usability test:**

*Include whatever details you have. Keep in mind that the milestone for the remaining usability tests is due Nov 15*

- i. **Name or anonymous identifier for your participant:** Cannon's Roommate Ryan Edington

- ii. **Brief explanation of why this person is appropriate (1-3 sentences):**  
Ryan Edgington is currently studying at the University of Utah and has had poor experiences planning classes.
- iii. **Scheduling status:**  
Cannon Rudd is planning on scheduling the usability test after Haydn conducts his test. It will most likely be on Friday.
- iv. **Planned interviewer:** Cannon Rudd
- v. **Planned observer/notetaker:** Wyatt Adams
- vi. **Planned additional roles,** Computer: Haydn Thurman

## END OF MILESTONE 4

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# Milestone 5: Second Usability Test Report and Storyboards

## 1. Second Usability Test - Protocol

- **Interviewer:** Haydn Thurman
  - **Observer/notetaker:** Wyatt Sanders
  - **Additional roles, if applicable (e.g., Computer: [name]):** Computer: John Stevens
- 
- **Name or anonymous identifier for your participant:** Buffy Howe
  - **Brief explanation of why this person is appropriate:**  
Buffy is a student at the University of Utah and wants to plan her classes.
  - **Environment:**  
We did the usability test at Buffy's house because that's where she usually plans her classes.
  - **Prototype (physical paper or digital recreation?):**  
Physical paper prototype.
  - **Script:**  
*This does not need to be an exact transcript but should be detailed enough for the course staff to tell how the test was introduced to the participant.*
    1. **Introduce yourselves:** Hi I'm Haydn and this is John and Wyatt.
    2. **Thank the participant, explain that this is voluntary and they can stop any time:** Thank you for being part of the test.
    3. **Explain the purpose of the test:** We are creating software to help students plan their classes.
    4. **Tell the participant what to expect (e.g., how to interact with the prototype):** We will have you interact with our paper prototype to see what you would do.
    5. **Introduction to Task 1:** The first task is to select Math 1020, and compare it to CS 2420.

6. **Sanity check for Task 1:** When you usually find classes to take, do you compare two different classes?
7. **Introduction to Task 2:** The second task is to find a different section for Math 1020.
8. **Sanity check for Task 2:** What kind of times do you prioritize when choosing classes?
9. **Thank the participant again:** Thank you again for being part of the test.
10. **Solicit additional thoughts from the participant:** Is there any other thoughts or feedback about our software?
11. **Ask if the participant has any questions for you:** Do you have any last questions?

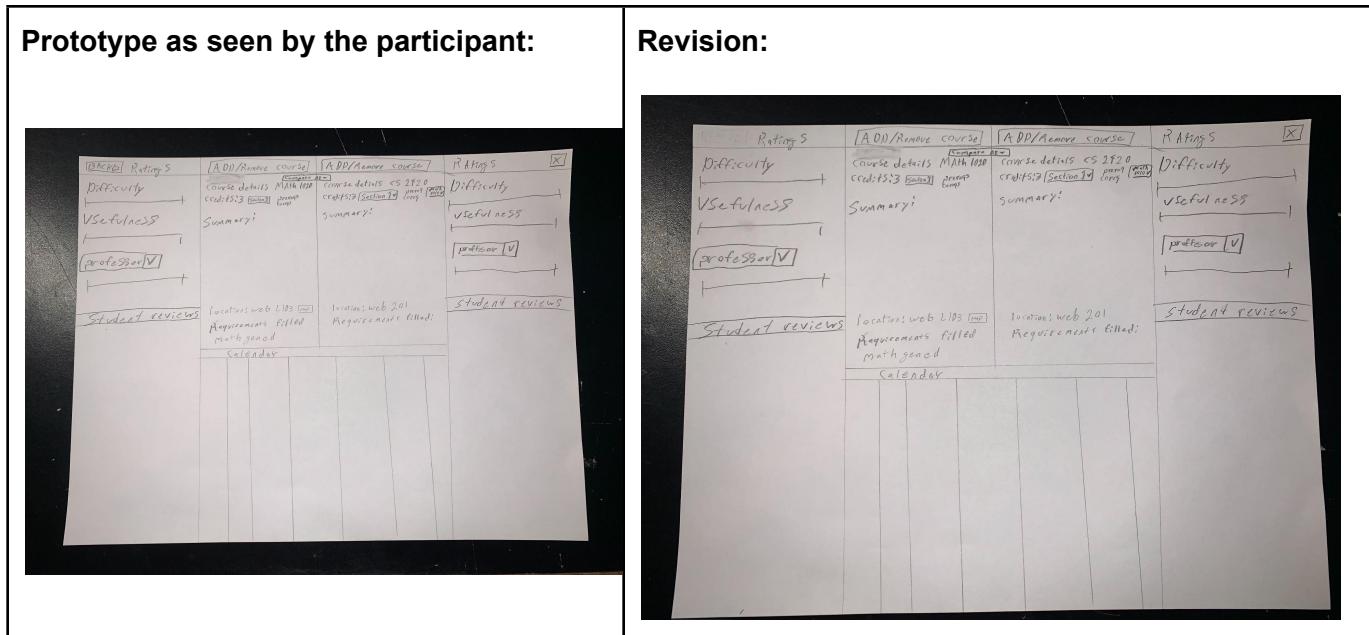
## 2. Second Usability Test - Findings

### Task 1: Select MATH 1410, then compare to CS2420.

- **Introduction to the task:**  
The first task is to select Math 1020, and compare it to CS 2420.
- **Sanity checking:** When students plan their future semesters, oftentimes they want to compare two different courses. To make sure that this is something that students want to do, we will ask: “Do you find yourself comparing courses when you are building your schedule? If so, is this feature something that you think would help that process?”

#### Important Incident 1

- **Type (positive or negative):** Negative
- **Description:**  
When on the screen of comparing two classes, there is both a back button and an “x” button. It is unclear the difference between the two, and only one is necessary.
- **Revision:**  
Erased the back button so there is only an “x” button.



#### Important Incident 2

- **Type (positive or negative):** Negative

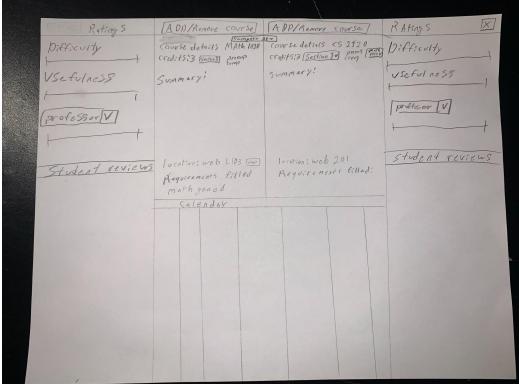
- **Description:**

When the comparing two classes page is up, there is an add/remove course option at the top of the classes. The remove option is unnecessary as it is already in the home page.

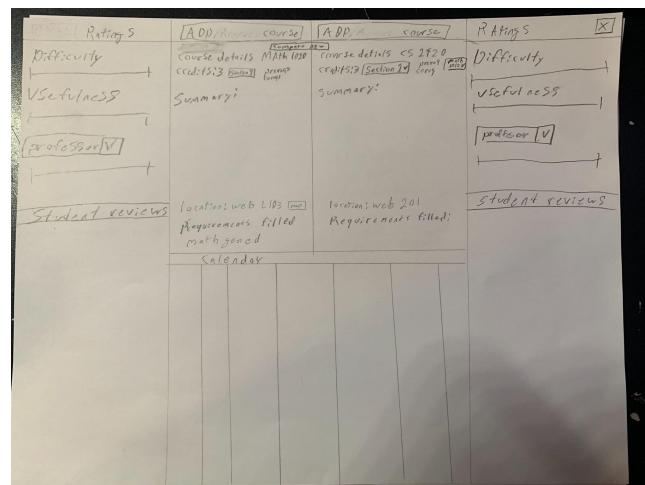
- **Revision:**

Removed the remove course option, only the add is available when comparing two classes.

### Prototype as seen by the participant:



### Revision:



### Important Incident 3

- **Type:** Positive

- **Description:**

Participant said she enjoyed having the difficulty rating to compare the courses.

- **Revision:**

No revision since it was positive.

### Important Incident 4

- **Type:** Positive

- **Description:**

Participant said having the location easily accessible helps to make it easy for her to plan out her day and where she will be heading. It is a factor when comparing courses.

- **Revision:**

No revision since it was positive.

## Task 2: Choose a different section for Math 1020.

- **Introduction to the task:**

The second task is to find a different section or time for Math 1020.

- **Sanity checking:**

To confirm the relevancy of this task, we asked our participant a sanity check question, "Does the time of a class matter to you?" Our user indicated that she didn't want to take a 6:00 am class, it was important enough to our user that the classes fit her time schedule that she interrupted during our setup to correct us. This proved the validity of the task for us since we know our user cares about the times classes are offered.

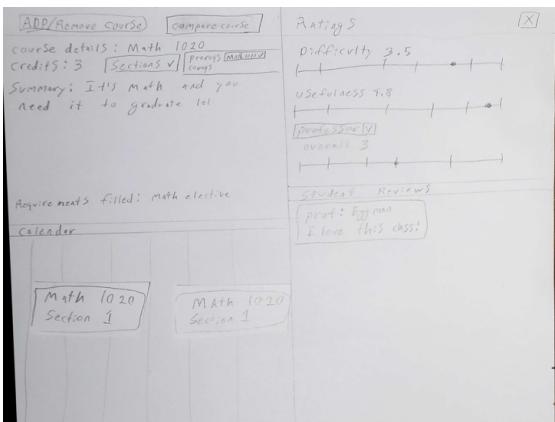
### Important Incident 1

- **Type (positive): Positive**

- **Description:**

Our user immediately identified the times classes were offered, even before our computer had finished setting the page up. During that setup process the user interjected saying that she wouldn't want to take a 6am class.

- **Revision:** no revision needed.

<b>Prototype as seen by the participant:</b>  <p>ADD/Remove course [compare course]    Course details: Math 1020    Credits: 3 [Sections X] [Courses included]    Summary: It is Math and you need it to graduate lol    Requirements filled: math elective    Calendar    Math 1020 Section 1 Math 1020 Section 1</p> <p>Rating 5 [X]    Difficulty 3.5    Usefulness 4.8    Progressiveness 4    Overall 3</p> <p>Student Review    [prot: Eggman I love this class!]</p>	<b>Revision:</b> [image of revision of that part of the prototype]
---	---

## Important Incident 2

- **Type (negative): Negative**

- **Description:**

When asked to find a different time to take Math 1020 our user was not able to find the correct button to click and gave up before finding it.

- **Revision:** make the class section more obvious and add a time and day information to the course details text box grouped together with the class section.

**Prototype as seen by the participant:**

ADD/Remove course Compare course

course details: Math 1020  
credits: 3 Sections: 1 professor indicated

Summary: It's Math and you need it to graduate lol

Requirements filled: math elective

Calendar

Rating 5

Difficulty 3.5

usefulness 7.8

overall 3

Student reviews  
prat: Egg man  
I love this class!

Math 1020 Section 1

Math 1020 Section 1

**Revision:**

ADD/Remove course Compare course

course details: Math 1020  
credits: 3 Sections: 1 professor indicated

Summary: It's Math and you need it to graduate lol

Section: 020-mon/wed 3-5  
021-tues/thurs 1-3

Requirements filled: math elective

Calendar

Rating 5

Difficulty 3.5

usefulness 7.8

overall 3

Student reviews  
prat: Egg man  
I love this class!

Math 1020 Section 1

Math 1020 Section 1

## Important Incident 3

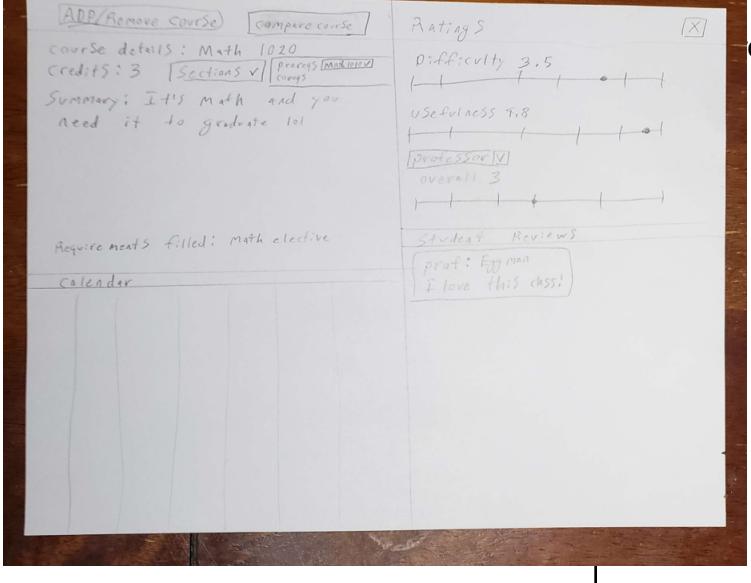
- **Type (positive or negative): Positive**

- **Description:**

The user liked that there is a place for peer reviews so they can compare the different professors that teach the class. This comes in handy when choosing a different section of the course.

- **Revision:**

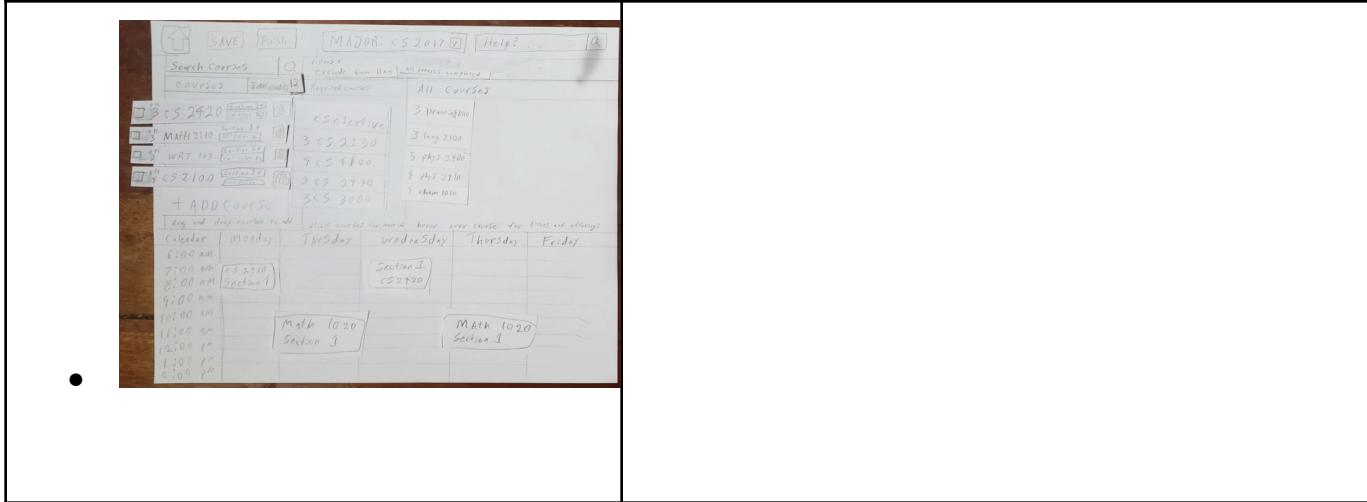
1-4 sentences. Description of the revision. Revisions are expected for all negative incidents.

Prototype as seen by the participant:	Revision:
	revision of that part of the prototype]

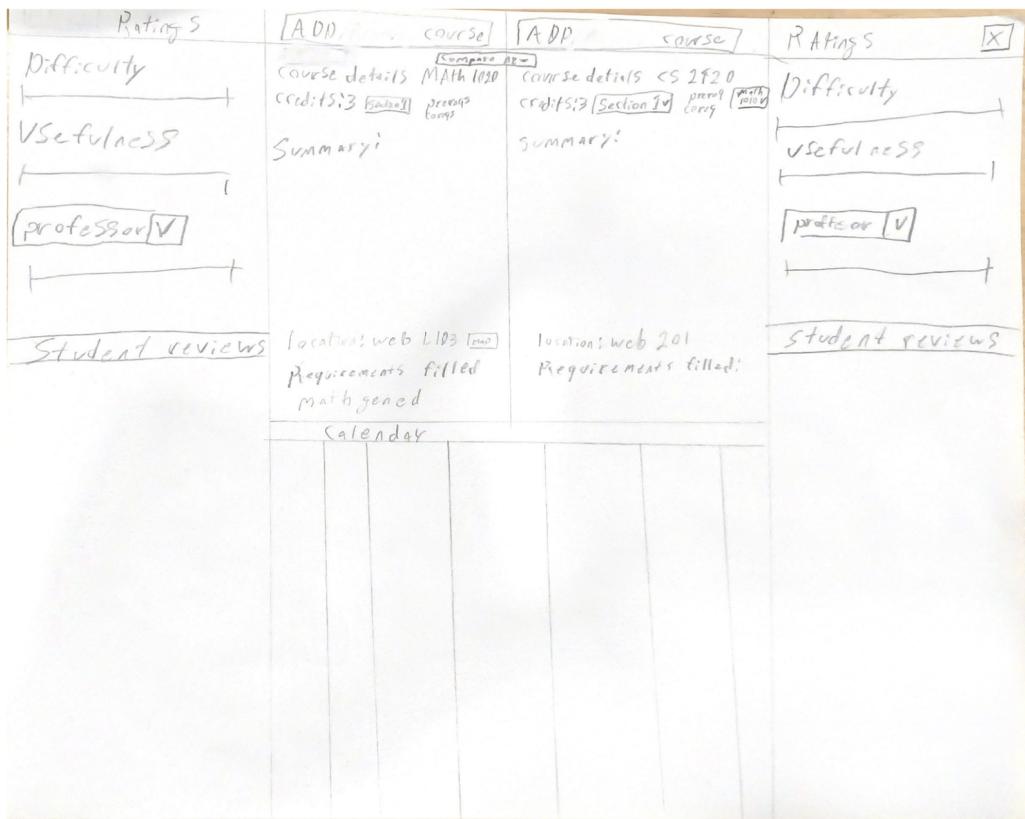
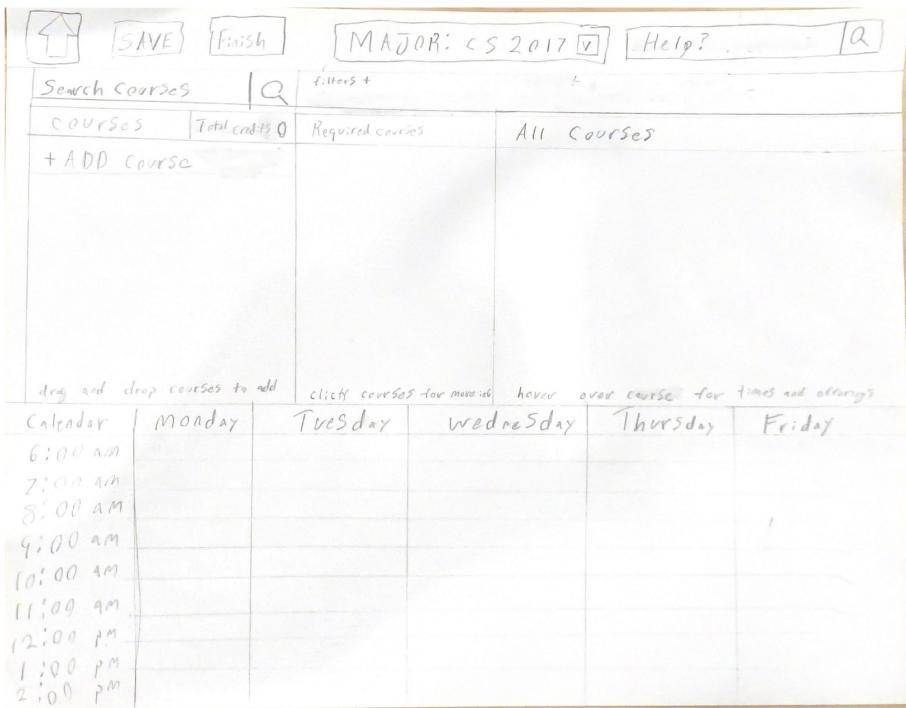
#### Important Incident 4

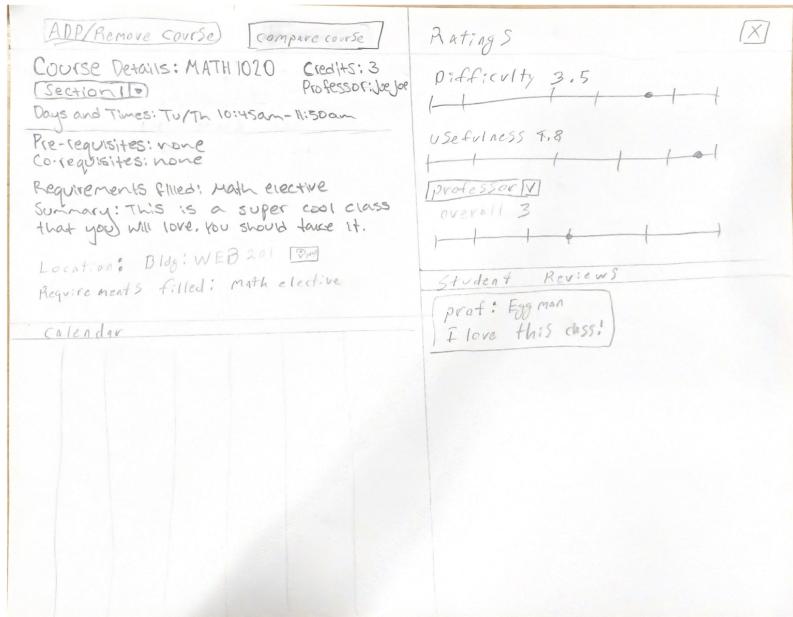
- **Type (positive or negative):** Positive
- **Description:**  
The user liked that they could see their course selection at the bottom of the main view on the calendar.
- **Revision:**  
*1-4 sentences. Description of the revision. Revisions are expected for all negative incidents.*

Prototype as seen by the participant:	Revision:
	[image of revision of that part of the prototype]



### 3. Paper Prototype Iteration





## 4. Reflection on Usability Testing

**A. What is something your team did well that allowed you to get useful data from the test?**

We asked a lot of clarifying questions. That way we knew exactly what the good and bad aspects of our design were instead of just what we thought they were.

**B. What is something you want to improve about your testing process (or your planning) that will make your next tests even more productive? (2-4 sentences)**

We want to come up with additional tasks for our users to do beyond just the two that we have to do for the milestones. That way we can really test out all the aspects of our design more thoroughly.

**C. How will you implement (or have implemented) these improvements for your next test?**

We will come up with additional tasks for our user(s) to do for the future usability tests.

## 5. Plan for the next Usability Tests

*Usability testing requirements:*

1. *Your team must conduct  $N-1$  usability tests, where  $N$  is the number of people on your team*
2.  *$N-1$  unique people on your team must be the interviewer for a usability test*
3. *Each person on the team must participate in at least 2 usability tests, with some combination of interviewer, observer, computer, or another role. You may have more than one observer for a usability test.*

### A. Plan for recruiting the remaining participants:

All participants are already scheduled.

### B. Usability test plans

- **Plan for 3rd usability test:**

*Include whatever details you have. Keep in mind that the milestone for the remaining usability tests is due Nov 15*

- **Name or anonymous identifier for your participant:** RE
- **Brief explanation of why this person is appropriate (1-3 sentences):**

They are one of my roommates and a student at the University of Utah studying kinesiology.

- **Scheduling status:**

*E.g., [team member] sent them a message over [medium, e.g., email, phone call, piazza post, etc.] on [date] and we are waiting to hear back.*

I asked if they could do it this weekend and they said yes.

- **Planned interviewer:** Cannon Rudd
- **Planned observer/notetaker:** John Stevens
- **Planned additional roles, if applicable (e.g., Computer: [name]):**

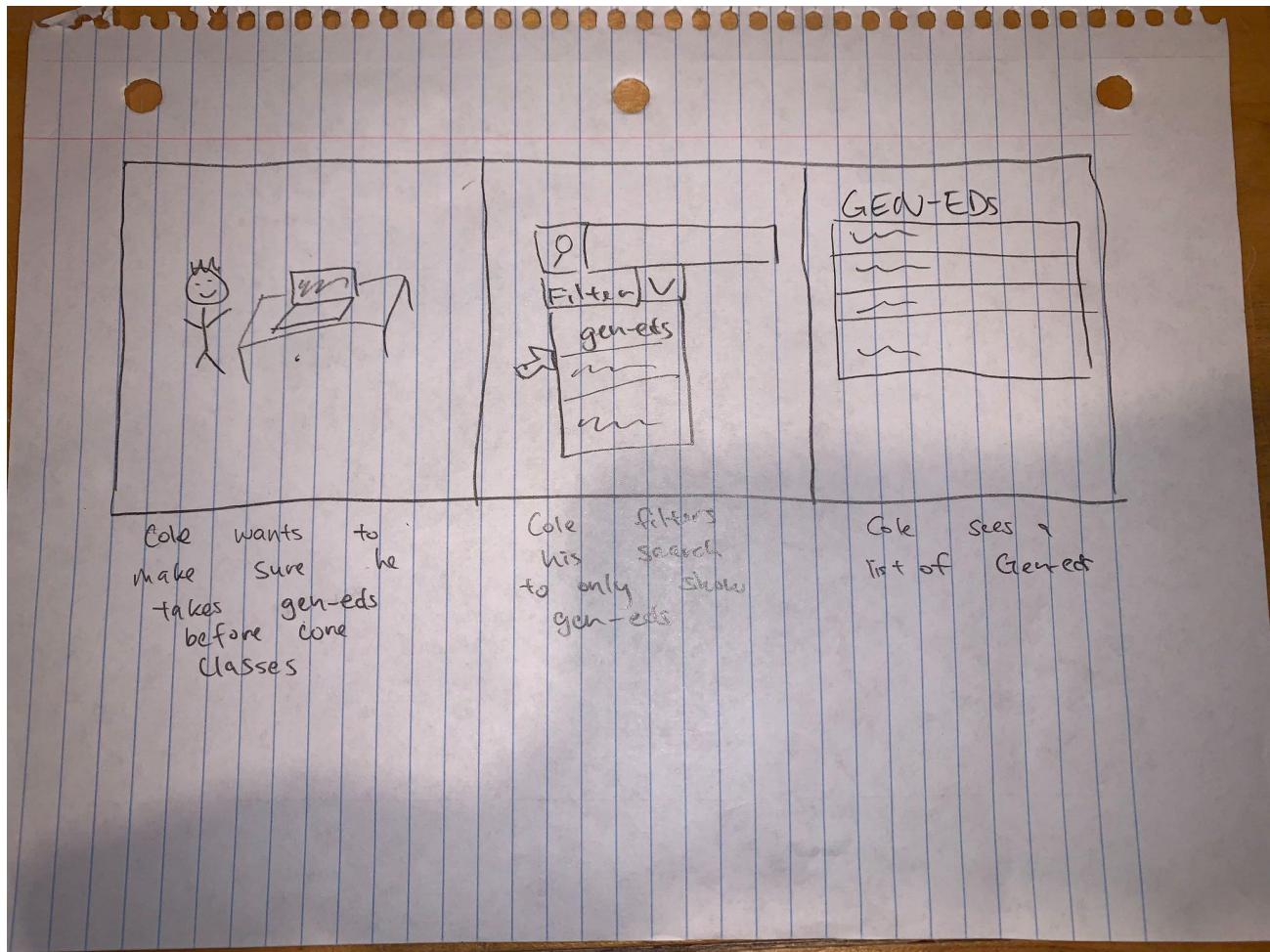
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## END OF MILESTONE 5

# Milestone 6: Remaining Usability Tests Report

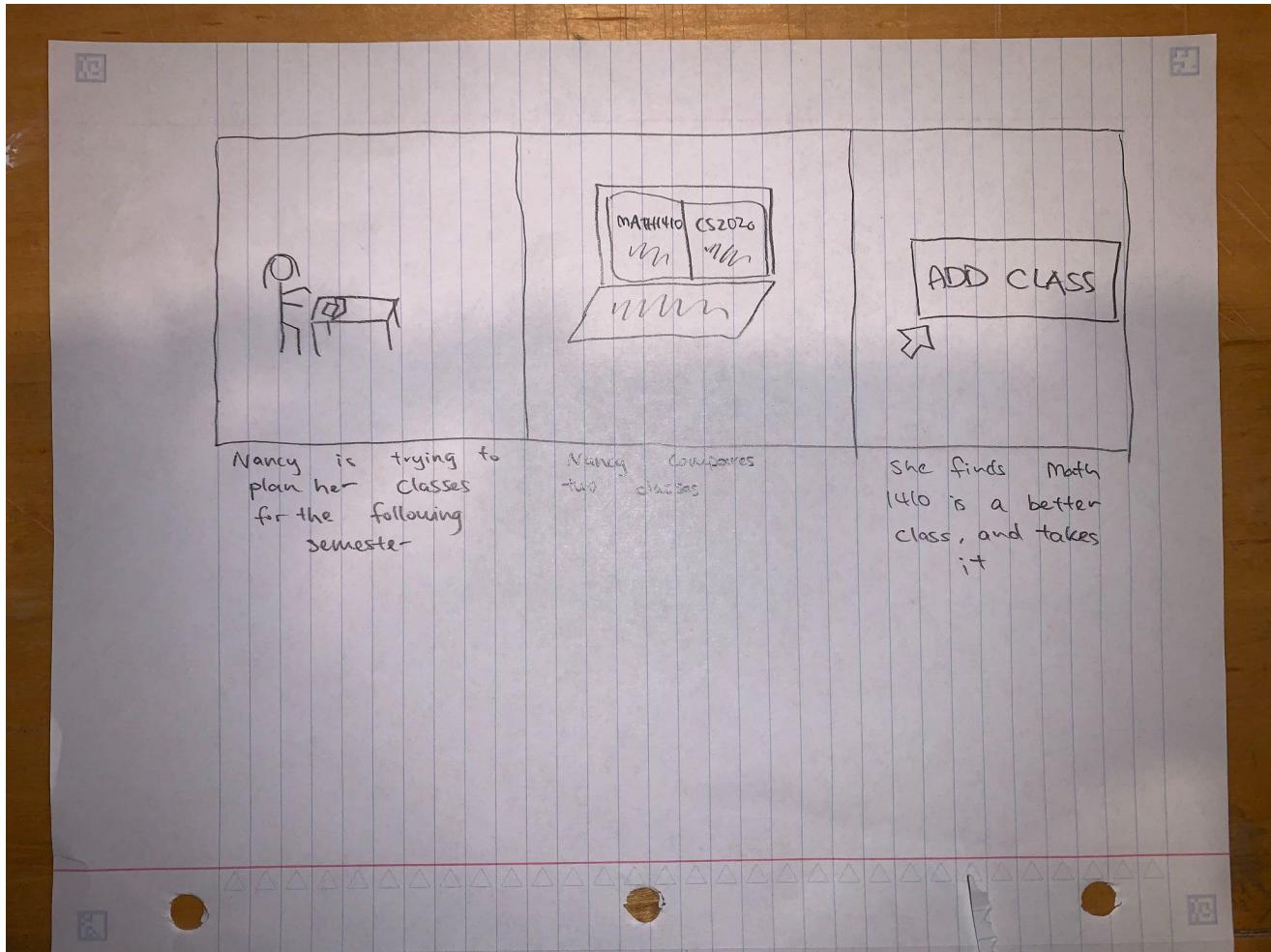
## 1. Storyboards

### Storyboard 1



**Storyboard Explanation:** Cole wants to make sure he takes general education classes so he doesn't have to take them in the future. He filters the search bar in order to find only gen-ed classes and is able to see all of them.

## Storyboard 2



**Storyboard Explanation:** Nancy is planning her classes for the upcoming semester. She wants to compare two classes, Math 1410 and CS 2020 to see which one she likes more. She likes the ratings for Math 1410 more so decides to add that to her list of classes.

## 2. Third Usability Test - Protocol

- **Interviewer:** Cannon Rudd
  - **Observer/notetaker:** John Stevens
  - **Additional roles:** Computer: Haydn Thurman
- 
- **Name or anonymous identifier for your participant:** RE

- **Brief explanation of why this person is appropriate:**  
RE is an undergraduate student studying Kinesiology who has two years left to go and has to plan his courses out.
  - **Environment:**  
We did our usability test at our kitchen table. It was appropriate because no one else was home and it is a large table that makes it easy to use the prototype. It is also a place where RE could feasibly plan out his schedule.
  - **Prototype:**  
This was an in person test so we used our paper prototype.
  - **Script:**  
*This does not need to be an exact transcript but should be detailed enough for the course staff to tell how the test was introduced to the participant.*
1. **Introduce yourselves:** Hi, I'm Cannon and joining us today is my team for this project.
  2. **Thank the participant, explain that this is voluntary and they can stop any time:** Thank you for your time. This is a voluntary test and you are welcome to end it at any time.
  3. **Explain the purpose of the test:** The purpose of this test is to see how intuitive our prototype for planning out a class schedule is.
  4. **Tell the participant what to expect (e.g., how to interact with the prototype):**  
This is our paper prototype that we will use to conduct the test. When you press a button or try any other kind of action, our computer will move the correct page into view. It is up to you to determine how you are supposed to interact with the prototype. You may try things that aren't functionally supported and we will make note of that. The point is not to do the task perfectly, simply to the best of your ability. We want you to be vocal while doing the task. Tell us what you are thinking and why you interact in a certain way with our prototype.
  5. **Introduction to Task 1:** Search for and add a class to your schedule that is taught by professor Joe Joe.
  6. **Sanity check for Task 1:** When planning your classes, do you ever try to find classes taught by a specific professor?
  7. **Introduction to Task 2:** Search for student reviews for MATH 1020.
  8. **Sanity check for Task 2:** When planning your classes, do you ever want to know what previous students thought about the class or professor?
  9. **Thank the participant again:** Thank you again for participating in our usability test.
  10. **Solicit additional thoughts from the participant:** While doing these tasks, what did you find difficult? What did you think worked well?

**11. Ask if the participant has any questions for you:** Do you have any questions for me or my team?

### 3. Third Usability Test - Findings

#### Task 1:

- **Introduction to the task:**

Find and add a class taught by professor Joe Joe.

- **Sanity checking:**

Do you have professors that you prefer to take classes from? If so, do you go out of your way to take classes or do you just take their course if they just happen to be teaching the one you are looking for?

#### Important Incident 1

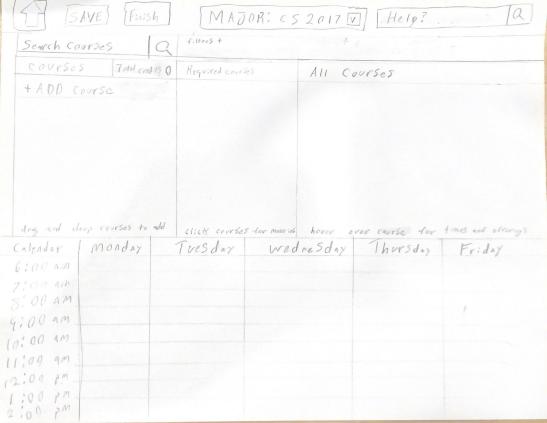
- **Type:** Negative

- **Description:**

RE went to find a class taught by Joe Joe and selected the search classes option. He was unable to figure out that he needs to use the filter option.

- **Revision:**

Put filters into the search function.

Prototype as seen by the participant:	Revision:
	

#### Important Incident 2

- **Type:** Positive

- **Description:**

Once RE found a class taught by RE, it was easy for him to add it to his course schedule. This is important because it shows that that part of our prototype works well.

- **Revision:**

No need to revise since it is positive.

### Important Incident 3

- **Type:** Positive

- **Description:**

RE was able to clearly see that the class was taught by Joe Joe. It is important for RE to be able to identify important information about classes through our prototype.

- **Revision:**

No need to revise since it is positive.

### Important Incident 4

- **Type:** Positive

- **Description:**

RE was able to easily identify the search function. The search function is an important tool that users will use a lot, so it is a positive thing that RE was able to find it.

- **Revision:**

No need to revise since it is positive.

## Task 2:

- **Introduction to the task:**

Find a student review for MATH 1010.

- **Sanity checking:**

Do you usually seek out student reviews on a particular course? If so, is it helpful that there is a spot for it on the class page?

### Important Incident 1

- **Type:** Negative

- **Description:**

RE found MATH 1020, but then was not able to identify that that page displayed the student reviews and instead went to compare courses, where he then found the student reviews.

- **Revision:**

Modified the layout so that it is easier to see the important information for a course.

### Prototype as seen by the participant:

**ADD/REMOVE COURSE** **COMPARE COURSE**

**COURSE DETAILS:** MATH 1020 **GRADE:** 3 **PROFESSOR:** JAYA  
**SECTION:** 10 **Days and Times:** Tu/Th 10:15am - 11:30am

**Prerequisites:** none **Corequisites:** none

**Requirements:** Prereq: Math Elective  
**Summary:** This is a super cool class that you will love, you should take it.

**Location:** DUGI WEB 201 **Room:** DUGI WEB 201

**Requirements:** Filled: math elective

**Calendar**

**Ratings**  **Difficulty:** 3.5 **Usefulness:** 4.8 **Professor:** 3 **Overall:** 3

**Student Reviews**  
**prof:** Eman  
**I love this class!**

### Revision:

**ADD/REMOVE** **COMPARE COURSE** **MATH 1020**

**COURSE DETAILS**

**Ratings**

**Student Reviews**

**Calendar**

**This was a terrible class! Don't take it!**

**I loved this class! Recommend.**

### Important Incident 2

- **Type:** Positive
- **Description:**  
RE found the student review and said it is nice to have it accessible when adding courses.
- **Revision:**  
No need to revise since it is positive.

### Important Incident 3

- **Type:** Positive
- **Description:**  
RE was able to easily search for MATH 1020 using the search function.
- **Revision:**  
No revision since it is positive.

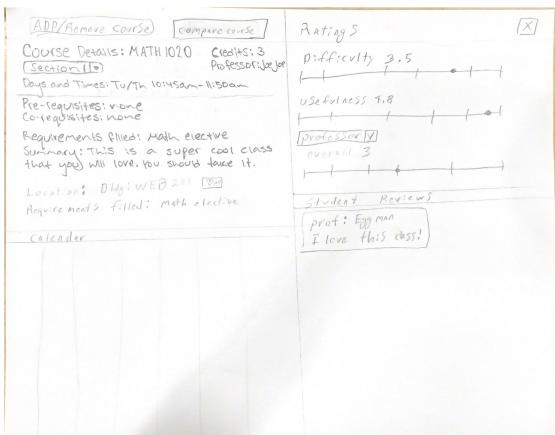
### Important Incident 4

- **Type:** Positive
- **Description:**  
RE provided a suggestion to us to combine the course information into dropdowns to make it more readable.

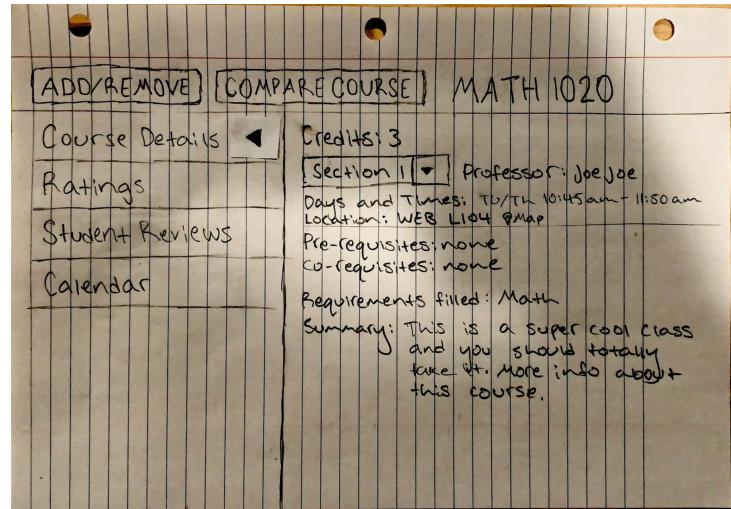
- **Revision:**

We combined the different information sections into a dropdown menu.

### Prototype as seen by the participant:



### Revision:



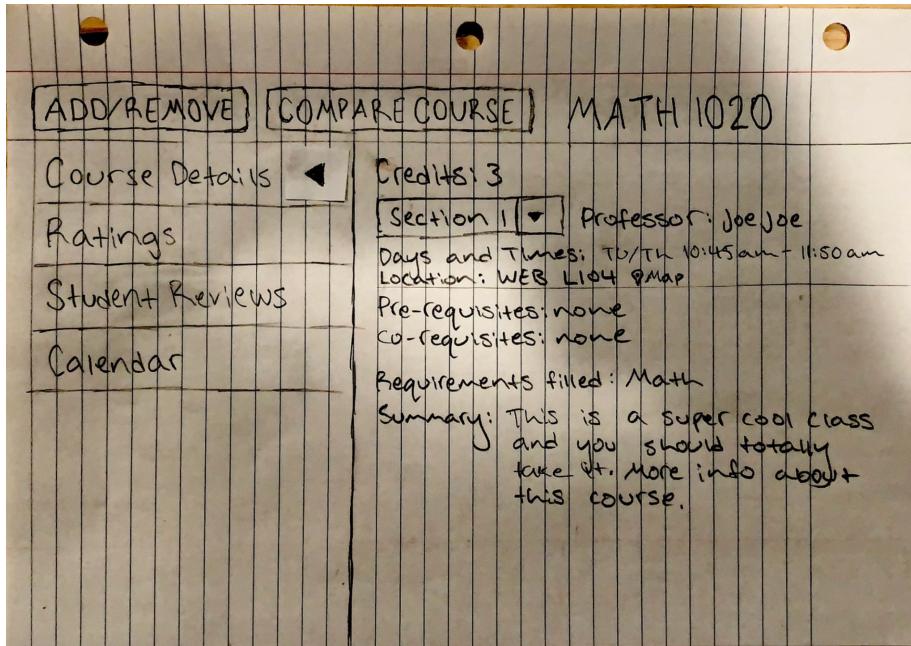
### 3. Final Paper Prototype



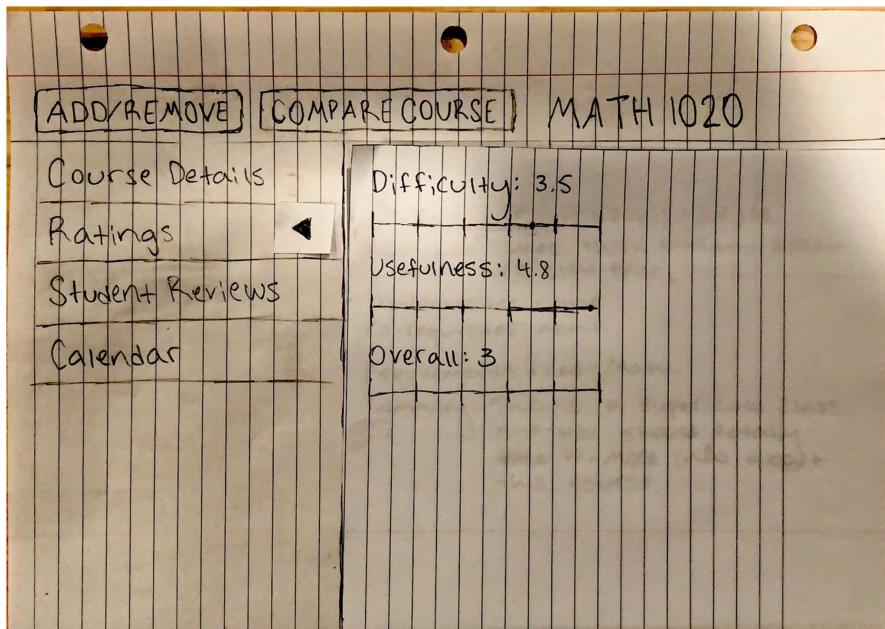
**The main view. This page supports the task of adding classes and searching classes.**



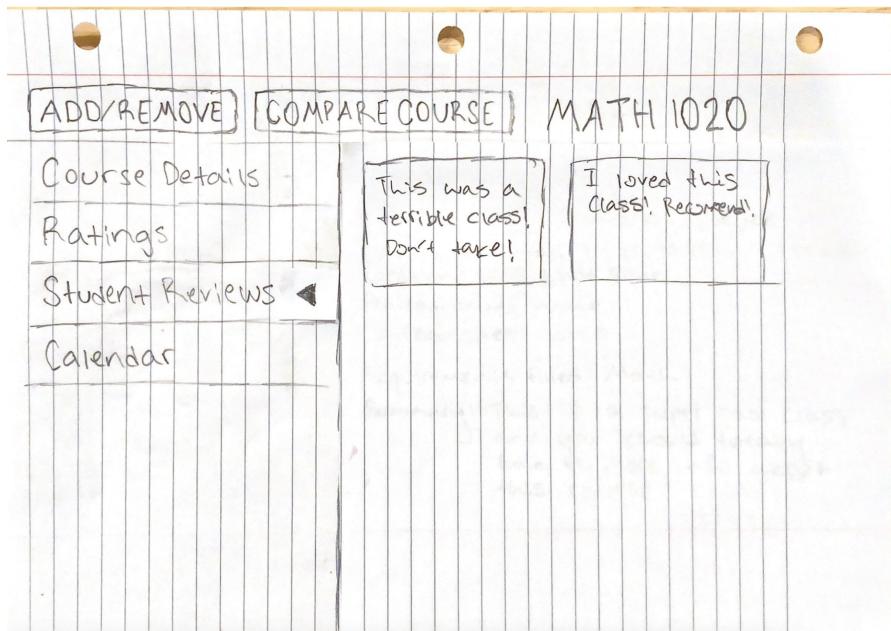
**The search view. This supports the task of searching classes and filtering for different things.**



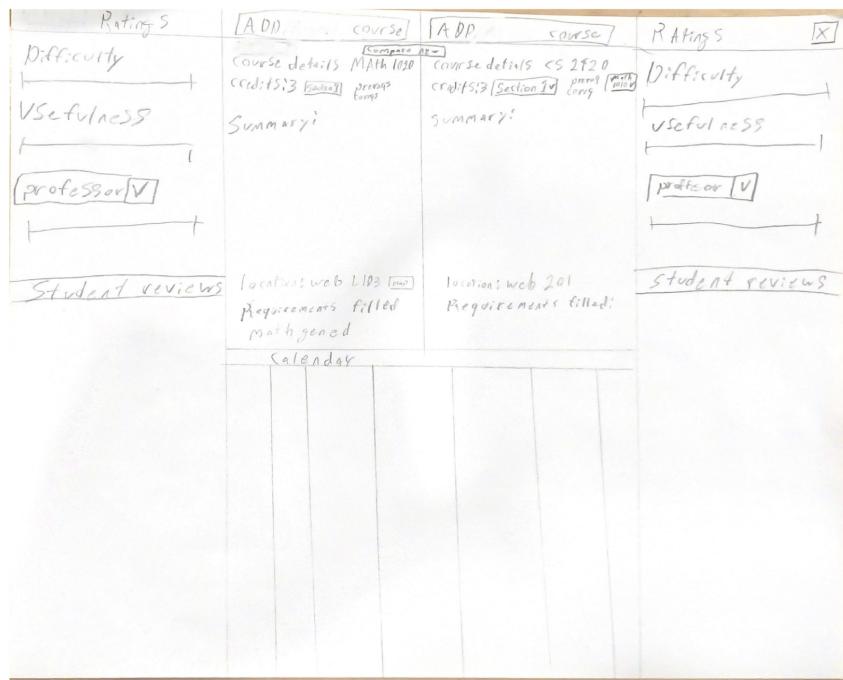
The course details view. This page supports the task of looking at different sections for a course, viewing the location, and days and times the course is offered.



The ratings view. This page supports the task of looking at ratings for a course.



**The student reviews view.** This page supports the task of looking at student reviews for a course.



**The compare courses view.** This page supports the task of comparing two different courses against each other.

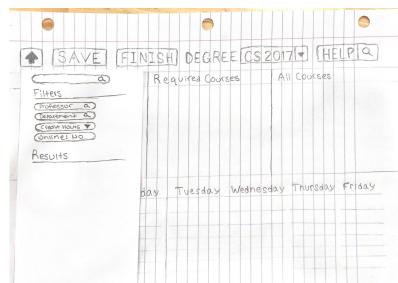
## Primary Supported Tasks

Task: Search for and add class

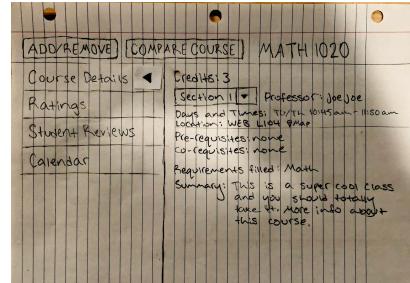
1. Tap search



2. Enter class name



3. Pull up class and tap "Add"

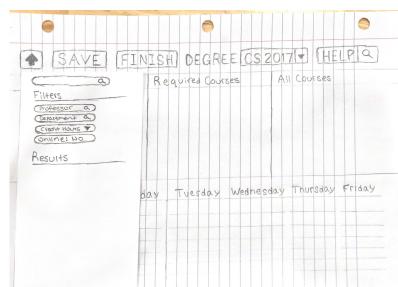


Task: Compare courses

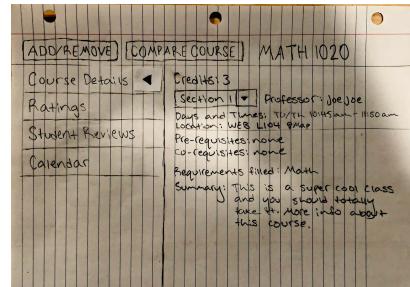
1. Tap search



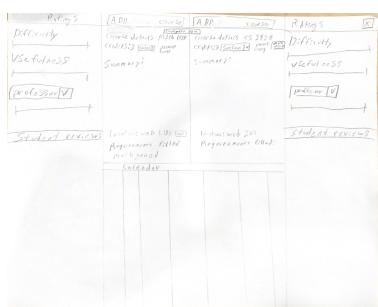
2. Enter class name



3. Pull up class and tap "Compare Course"



4. View comparisons



Task: Search for classes taught by specific professor

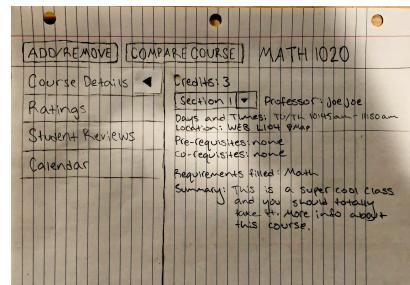
1. Tap search



2. Enter professor name in search box



3. Pull up class



## 4. Reflection on Usability Testing

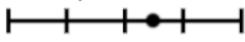
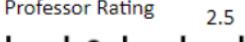
- **Something done well - Task Design**
  - a. Detailed Description: The first task was for the participant to find and add a class taught by professor Joe Joe. The second task was to find a student review for MATH 1020.
  - b. What makes this a good example of Task Design: It is very clear what the task is. We don't give any hints or provide too much or too little information. We state what the task the user needs to accomplish is. It isn't a goal, either, which we've had trouble differentiating between in the past. It is obvious that this is an "assignment" for them to complete.
  - c. Useful Data: RE knew exactly what was asked of him. He may have had trouble getting through the tasks, but he knew what they were and he understood why he was confused. He was able to provide us with good feedback since he knew what he was supposed to do and how it could be made easier.
- **Something to improve - Testing with a Low-Fidelity Design**
  - a. Detailed Description: Our design could have had a few more things to make it interactable. It is difficult and tedious to create everything by hand, but it would have helped because it would have been easier for RE to interact with our paper prototype.
  - b. What could be improved about Testing with a Low-Fidelity Design: Our next iteration of our prototype will have more interactable elements to give a more realistic representation of our application.
  - c. Potential Data Loss: Since we didn't have a way for RE to see certain elements, for example what the search screen looks like, we aren't able to see their reactions to it. We aren't able to see if it is intuitive and if they have any issues using it.

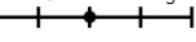
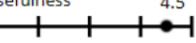
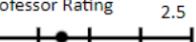
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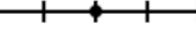
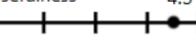
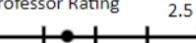
## END OF MILESTONE 6

# Milestone 7: Digital Mockup

## Overview

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<b>Course requirements</b> Requirements filled: math elective Pre-reqs: none co-reqs: none		Course Details: Math 1020 Credit Hours : 3 Professor: Zach Smith <a href="#">section 1</a> ▾ Days and times: Tu/Th 10:45am - 11:30am		Course Details: Math 1010 Credit Hours : 3 Professor: Joe West <a href="#">section 1</a> ▾ Days and times: Tu/Th 8:45am - 10:30am																																																																																																							
<b>Ratings</b> Difficulty  Usefulness  Professor Rating 		Summary: This course covers introductory concepts of higher level math: algebra, trigonometry, etc. Tags: QI		Summary: This course is introductory business math. It will include addition, subtraction, multiplication, division, and finger painting. Tags: FA																																																																																																							
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<p>Course Detail: CS 2420            Credit Hours: 4            Professor: Peter Jensen  <input checked="" type="checkbox"/> <a href="#">Section 1</a>            Days and Times:            Mon/Wed 8:45am - 10:30am            Summary: Introduction to data structures and algorithms. This course will either make you quit CS or realize you have what it takes to make it through the rest of the major. Good luck.            Tags: none</p>	<p><b>Course requirements</b></p> <p>Requirements filled:            CS Required Course            Pre-reqs: CS 1410            co-reqs: none</p>																																																																																																							
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<a href="#">Back</a>	Enter Keywords <input type="text"/>	<input type="button" value="Search"/>	<input type="button" value="Filters"/>
Compared Courses			

The screenshot shows a web-based course search interface. At the top, there is a header with a 'Back' button, the word 'Math', a magnifying glass icon for search, and a 'Filters' button with a gear icon. Below the header, there are five course boxes arranged in two rows. The first row contains three boxes: 'Math 1010 | 3', 'Math 1020 | 3', and 'Math 1050 | 3'. The second row contains two boxes: 'Math 1060 | 3' and 'Math 1210 | 3'. Below these boxes is a horizontal line, followed by a section titled 'Compared Courses' which is currently empty.



## 1. Digital Mockup Images

### Task 1 Images

**Task 1: Find and add a major-required course:** Our system supports the user in adding major required courses by presenting them with a list of required courses on the left hand side of the home page. This allows them to easily see what classes they should be taking next.

You start at the home page. You can then click on one of the required courses on the right hand side (ex: CS 2420).

	Register	Major: CS 2017		<input type="button" value="Help"/>	
Total Credit Hours: 0		Search Courses			
Selected Courses		This Semester's Required Courses			
		<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">Math 1220</div> <div style="border: 1px solid black; padding: 2px;">3</div> <div style="border: 1px solid black; padding: 2px;">CS 2420</div> <div style="border: 1px solid black; padding: 2px;">4</div> </div>			
		Future Required Courses			
		<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 2px;">CS 3810</div> <div style="border: 1px solid black; padding: 2px;">4</div> <div style="border: 1px solid black; padding: 2px;">CS 3500</div> <div style="border: 1px solid black; padding: 2px;">4</div> <div style="border: 1px solid black; padding: 2px;">CS 3505</div> <div style="border: 1px solid black; padding: 2px;">3</div> </div>			
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This pulls up the course page where you can see reviews and course details.

<a href="#">Back</a>	<a href="#">Add Course</a>	<a href="#">Compare</a>																																																																																																					
<p>Course Detail: CS 2420          Credit Hours: 4          Professor: Peter Jensen  <a href="#">section 1</a></p> <p>Days and Times:          Mon/Wed 8:45am - 10:30am</p> <p>Summary: Introduction to data structures and algorithms. This course will either make you quit CS or realize you have what it takes to make it through the rest of the major. Good luck.</p> <p>Tags: none</p>	<p><b>Course requirements</b></p> <p>Requirements filled:          CS Required Course          Pre-reqs: CS 1410          co-reqs: none</p>																																																																																																						
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	<p><b>Student Reviews</b></p> <p>Professor: Peter Jensen          Review:          Good prof. I learned a lot</p> <p>Professor: Peter Jensen          Review:          I'm gonna drop CS :(</p> <p>Professor: Peter Jensen</p>																																																																																																						

They can then click “Add Course” to add it to their cart, which will automatically take them back to the home page and it’s added to their calendar.

 Register	Major: CS 2017		Help		
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<small>CH 3</small> CS 2420 section 1 color 	Math 1220 3				
	Future Required Courses				
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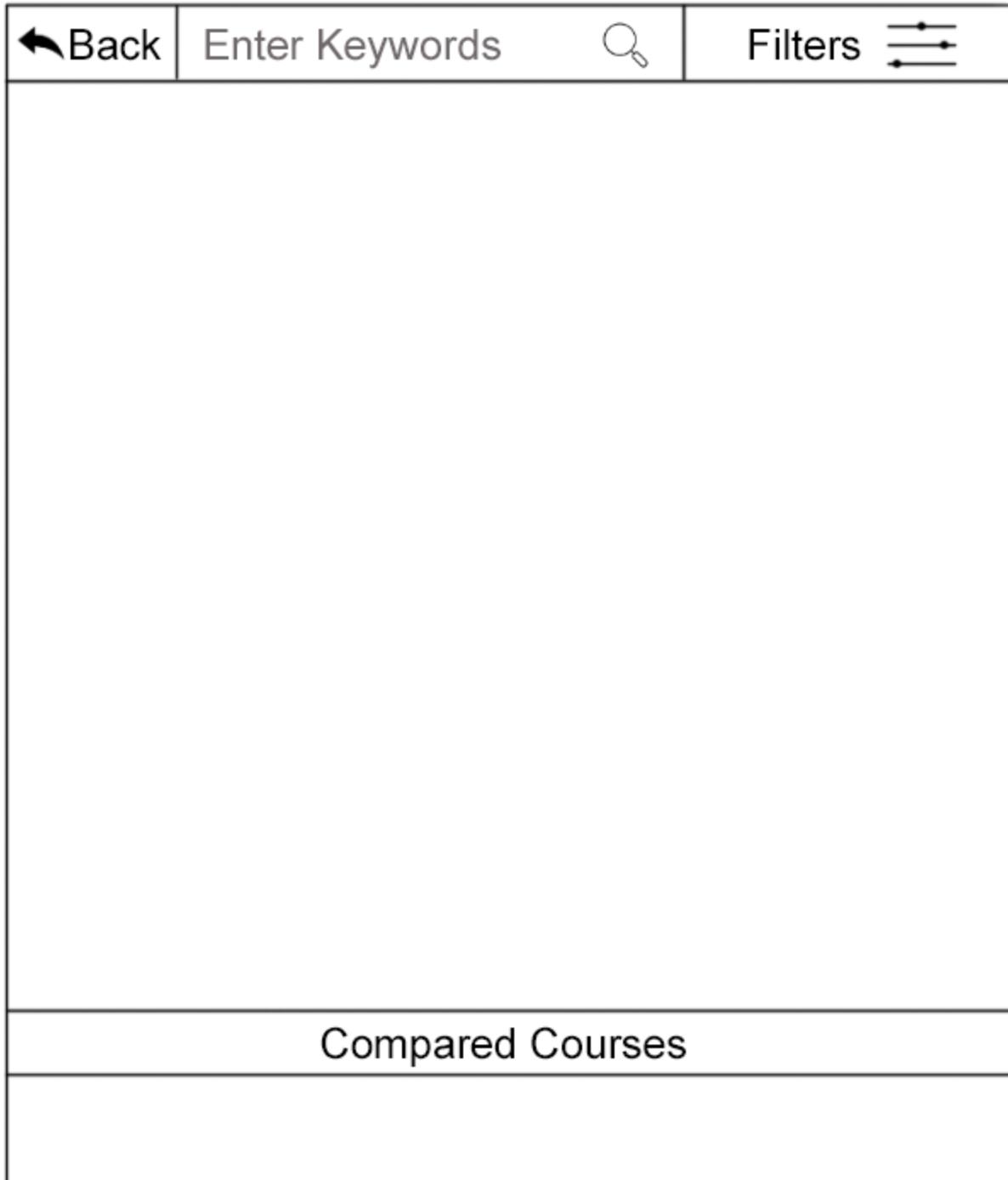
## Task 2 Images

**Task 2: Find and add an elective course:** Our system supports the user in finding elective courses by providing them with a search for courses function. They can search for any course they want, read reviews and ratings on the course itself and professors, and compare multiple courses side by side to see which one they want to take.

Start at the home page again.

	Register	Major: CS 2017	<input type="button" value="▼"/>	Help							
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Selected Courses		This Semester's Required Courses									
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Then you can click the “Search Courses” magnifying glass, which will take you to the search screen. From here you can search for different courses. Let’s say you want to take a math course as your elective, you could type “math” and hit search.

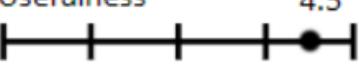
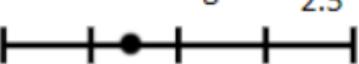


Searching “math” would bring up the following page:

The screenshot shows a search interface with the following elements:

- Back** button with a left arrow icon.
- Math** search input field.
- Filters** button with a three-line icon.
- Search icon** (magnifying glass).
- Compared Courses** section.
- Courses listed:**
  - Math 1010 | 3
  - Math 1020 | 3
  - Math 1050 | 3
  - Math 1060 | 3
  - Math 1210 | 3

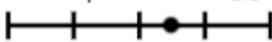
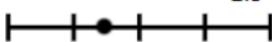
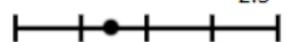
You can click on courses that interest you, such as math 1020. This pulls up the course page.

<a href="#">Back</a>	<a href="#">Add Course</a>	<a href="#">Compare</a>																																																																																																					
<p>Course Details: Math 1020          Credit Hours : 3          Professor: Zach Smith  <a href="#">section 1</a> ▾          Days and times:          Tu/Th 10:45am - 11:30am          Summary: This course covers introductory concepts of higher level math: algebra, trigonometry, etc.          Tags: QI</p>	<p>Course requirements          Requirements filled:          math elective          Pre-reqs: none          co-reqs: none</p>																																																																																																						
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You could add this course right away, which would take you right back to the home page, or if you click “compare” at the top on two different courses you are presented this view of the search page:

<a href="#">Back</a>	Enter Keywords	<input type="text"/>	<a href="#">Filters</a>							
<table><tr><td>Math 1010   3</td><td>Math 1020   3</td><td>Math 1050   3</td></tr><tr><td>Math 1060   3</td><td>Math 1210   3</td><td></td></tr></table>				Math 1010   3	Math 1020   3	Math 1050   3	Math 1060   3	Math 1210   3		
Math 1010   3	Math 1020   3	Math 1050   3								
Math 1060   3	Math 1210   3									
<table><tr><td colspan="2">Compared Courses</td><td><a href="#">View</a></td></tr><tr><td>Math 1010   3</td><td></td><td>Math 1020   3</td><td></td></tr></table>				Compared Courses		<a href="#">View</a>	Math 1010   3		Math 1020   3	
Compared Courses		<a href="#">View</a>								
Math 1010   3		Math 1020   3								

Then if you click "view", you can see a side by side comparison of the two courses:

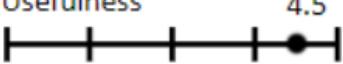
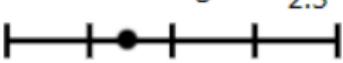
<a href="#">Back</a>	<a href="#">Remove Course</a>	<a href="#">Remove Course</a>	
<b>Course requirements</b> Requirements filled: math elective Pre-reqs: none co-reqs: none	<b>Course Details: Math 1020</b> Credit Hours : 3 Professor: Zach Smith <input checked="" type="checkbox"/> section 1 Days and times: Tu/Th 10:45am - 11:30am	<b>Course Details: Math 1010</b> Credit Hours : 3 Professor: Joe West <input checked="" type="checkbox"/> section 1 Days and times: Tu/Th 8:45am - 10:30am	<b>Course requirements</b> Requirements filled: math elective Pre-reqs: none co-reqs: none
<b>Ratings</b> Difficulty  Usefulness  Professor Rating 	Summary: This course covers introductory concepts of higher level math: algebra, trigonometry, etc. Tags: QI	Summary: This course is introductory business math. It will include addition, subtraction, multiplication, division, and finger painting. Tags: FA	<b>Ratings</b> Difficulty  Usefulness  Professor Rating 

Time Schedule | Monday | Tuesday | Wednesday | Thursday | Friday

6:00 am					
7:00 am					
8:00 am					
9:00 am		<span style="background-color: yellow;">Math 1010 Section 1 8:45am - 10:30am</span>		<span style="background-color: yellow;">Math 1010 Section 1 8:45am - 10:30am</span>	
10:00 am		<span style="background-color: blue;">Math 1020 Section 1 10:45am - 11:30am</span>		<span style="background-color: blue;">Math 1020 Section 1 10:45am - 11:30am</span>	
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12:00 pm					
1:00 pm					
2:00 pm					
3:00 pm					
4:00 pm					
5:00 pm					
6:00 pm					
7:00 pm					
8:00 pm					
9:00 pm					

You can either hit remove course here or click on the search icon on the search page to remove a course from the comparison.

Let's say the user clicks remove course on math 1010, they will be taken back to the course page for just math 1020. Then they can click "add course" and it will take them back to the home page with the course added to their cart.

<a href="#">Back</a>	<a href="#">Add Course</a>	<a href="#">Compare</a>																																																																																																					
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The course has been added to their cart.

	Register	Major: CS 2017		<input type="button" value="Help"/>	
Total Credit Hours: 3		Search Courses			
Selected Courses		Next Required Courses			
CH 3	Math 1020	section 1 <input type="checkbox"/> color 	Math 1220   3    CS 2420   4		
Future Required Courses					
CS 3810   4    CS 3500   4    CS 3505   3					
Time Schedule	Monday	Tuesday	Wednesday	Thursday	Friday
6:00 am					
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## 2. Digital Mockup Reflection

- 1. What was an important change or refinement that you made to your design in creating this higher-fidelity prototype, and why was it important?**

We removed the “All Courses” tab in favor of a separate search page. This is important because it's a lot more intuitive, the all courses part was kind of confusing and it allows the user to see more courses at a time since they're not just looking at this tiny box.

- 2. [Optional - delete if not answering] Considering the evidence gathered from your contextual inquiries and usability tests, what gives you confidence that this is a good design for your team’s problem?**

It makes it really easy for people to A) see how difficult courses are, B) see feedback on professors, and C) know exactly what courses they're supposed to be taking that semester for their major.

---

## END OF MILESTONE 7

# Final Report

[edit the sections above based on feedback and/or new instructions from the final report section of the final report]

## 2. Extra credit pts: Storyboards

The image contains two separate storyboards, one for Tim and one for Nina, illustrating their processes for selecting courses.

**Tim's Storyboard:**

- Panel 1:** A stick figure stands next to a computer monitor displaying a course list.
- Panel 2:** The stick figure is shown thinking about choosing between CS 1030 and Math 1410.
- Panel 3:** The stick figure is comparing class reviews on a mobile application, specifically looking at CS 1030 and Math 1410.
- Panel 4:** The stick figure is shown adding CS 1030 to their course list.
- Panel 5:** The stick figure has decided to add CS 1030 to their schedule.

**Nina's Storyboard:**

- Panel 1:** A stick figure stands next to a computer monitor displaying a course list.
- Panel 2:** The stick figure is prioritizing professor reviews, thinking that professors are important.
- Panel 3:** The stick figure is reviewing previous student reviews for a professor named Mr. Joe.
- Panel 4:** The stick figure is shown adding a course to their list.
- Panel 5:** The stick figure has decided to add the course based on positive reviews from Mr. Joe.

## 2. Paper Prototype

Finalized in Milestone 6.

## 3. Testing Process

### Usability Testing

To test our design, we used usability testing and heuristic evaluations. For usability testing, we found participants who would be a good fit for our application. They need to be students at the University of Utah who are planning future semesters. We gave them a couple of tasks to complete using our application, and then had them attempt them. No guidance was given unless it is absolutely necessary. This allows us to see where we need to improve in our application. In addition, we did heuristic evaluations with classmates to identify gaps in our system. Heuristic evaluations allowed others in the class to peer review our prototype. We found issues in the visibility of the system status, consistency and standards, etc. We were able to take these evaluations to make our system better.

### Requirements Check

	John	Haydn	Cannon
Conductor	#1- London Ellis	#1 - Buffy Howe	#1 - RE
Other Roles	#2- Computer - Cannon #3- Observer - Wyatt	#2 - Computer - Wyatt #3 - Observer - John	#2 - Observer - John #3 - Computer - Haydn

### Usability Test 1

Team Members:

- John: Interviewer
- Cannon: Computer
- Wyatt: Observer

Goal: Evaluate our initial rough paper prototype/determining if the tasks were reasonable

Methodology: We basically gave London the tasks and let her figure it out. She didn't really get stuck so we didn't have the opportunity to let her struggle with certain features (in order to evaluate how bad those features were), but afterwards we asked her for feedback on the overall design and what specific things she would want to see in later iterations. This proved pretty useful since our first prototype didn't have a lot of features, but based on her feedback, we added features that our user base would like to see.

RoadMappers: Haydn Thurman:u1325386, Cannon Rudd:u1276351, John Stevens:u1117706, Wyatt Sanders:u1139272

- Participant: London Ellis
- Format: In person
- Reasoning for task framing: We purposefully made the tasks somewhat vague, like find an elective course you like, because we wanted them to play around with a lot of different parts of our prototype. We could have said “find an elective taught by professor X”, but then they would have been hyper focussed on just finding that professor instead of taking in all the different aspects of our initial design. This way, they looked at and gave feedback on everything.
- Help provided during the test: none
- Changes to the prototype during the test: none
- Other important information about your methodology (if any):
- Justification: We had a student schedule their courses. London is exactly the kind of user we are building this software for and she accomplished the tasks we were trying to usability test. Her experience with our prototype and her insight helped improve our prototype for the next iteration.

#### Task 1:

- Task Phrasing: So for the first task, we're just going to have you try and find a required course and sign up for it.
- Sanity Check: I'm guessing this task is something you're very familiar with at this point, right? I would imagine so since it's a necessary part of staying on track for any degree.

#### Task 2:

- Task Phrasing: Ok, now that you have signed up for a required course, we'd like for you to find an elective one. Just go about doing that however you think you would make the most sense.
- Sanity Check: Once again, we think this is something that you've probably done a number of times, right?

#### Revisions:

1. We changed task 1 to be “The first task is to select Math 1020, and compare it to CS 2420.” We did this because we wanted to test out the intuitiveness of the compare feature.
2. We changed task 2 to be “Find a different section for Math 1020.” We did this because we wanted to test out if users would be able to identify where they select different sections of a course.

## Usability Test 2

#### Team Members:

- Haydn: Interviewer
- John: Observer
- Wyatt: Computer

RoadMappers: Haydn Thurman:u1325386, Cannon Rudd:u1276351, John Stevens:u1117706, Wyatt Sanders:u1139272

Goal: Evaluate our revised prototype to see if planning classes is simple and clear to the user.

#### Methodology:

- Participant: Buffy Howe
- Format: In Person
- Help provided during the test: None
- Changes to the prototype during the test: None
- Other important information about your methodology (if any): None
- Justification: Buffy is a student at the University of Utah who wants to plan her future classes. She said during the interview that she is intuitive and good with technology.

#### Task 1:

- Task Phrasing: “For the first task, can you find the course MATH 140, then compare it to CS2420 to see which one you’d like to take.”
- Sanity Check: “When you usually find classes to take, do you compare two different classes?”

#### Task 2:

- Task Phrasing: “Find the course MATH1020 again and choose a different section”
- Sanity Check: “Does the time of a class matter to you?”

#### Revisions:

1. Erased the back button so there is only an “x” button.
2. Removed the remove course option, only the add is available when comparing two classes.
3. Make the class section more obvious and add a time and day information to the course details text box grouped together with the class section.

## Usability Test 3

#### Team Members:

- Cannon: Interviewer
- John: Observer
- Haydn: Computer

Goal: Evaluate our twice revised paper prototype to find anything else we can improve on.

#### Methodology:

- Participant: RE
- Format: In-person

RoadMappers: Haydn Thurman:u1325386, Cannon Rudd:u1276351, John Stevens:u1117706, Wyatt Sanders:u1139272

- Help provided during the test: Accidentally did not make it clear that when beginning the second test, it is a fresh reset, so none of what RE did in the first test carries over. This confused the participant and I had to make that clear. Also, RE could not figure out how to use the filter feature with the way we had it set up.
- Changes to the prototype during the test: none
- Other important information about your methodology (if any): none
- Justification: RE is a student who is having to plan out and modify his schedule for future semesters all the time. The usability test we did tests the effectiveness of our prototype. How RE uses it is influential to any modifications/improvements we make to it.

Task 1:

- Task Phrasing: Find and add a class taught by professor Joe Joe.
- Sanity Check:
  - Question: When planning your classes, do you ever try to find classes taught by a specific professor?
  - When asking this question, RE responded saying that a lot of times he wants to only sign up for a class if it's taught by a specific professor. So, using our sanity checking, this is clearly a task that RE would normally do.

Task 2:

- Task Phrasing: Find a student review for MATH 1010.
- Sanity Check:
  - Question: When planning your classes, do you ever want to know what previous students thought about the class or professor?
  - When asking this question, RE said he does like to look at reviews from previous students. So, using our sanity checking, this is clearly a task that RE would normally do.

## 4. Testing Results

### Usability Tests

#### Usability Test 1

##### Most Important Findings:

1. Design needed a search function on the home screen
  - a. Evidence for finding: The most important finding from our first usability test was that we needed a search function on the home screen. We know this because London explicitly said that it would be nice to have a search function on the home screen. On the first iteration of the prototype, the only way to access the search screen was by clicking “add class”. Clicking “add class” would bring you to the search function, but as London pointed out, this isn’t very intuitive and not a lot of users would think to do that.
  - b. Justification: This is very important because being able to search for classes is a key part of the scheduling process. If users can’t find the search function, they’re likely to get frustrated and their experience will be very negative.
2. The required courses on the right hand side is useful
  - a. Evidence for finding: London mentioned that she thought it was useful that you could see what courses you were supposed to be taking next. Having it on the home page means people will never miss it.
  - b. Justification: This is an important finding because it takes up a large part of the home page of our design. So it’s important that we know users will use it given how much screen real estate it takes up.

#### Usability Test 2

##### Most Important Findings:

3. User had trouble finding the button to change section.
  - a. Evidence for finding: When Buffy was asked to change the section for Math 1020, she was unable to find the button to do so. Additionally, there was no way to see what section the current selected class is.
  - b. Justification: This is important because it made us realize that the button needed to be easier to find. It also demonstrated that showing the section on the class page is important as that shows the different times.
4. User was confused when exiting a page.
  - a. Evidence for finding: When buffy was trying to exit the compare classes page, she didn’t know whether to press the “x” or the “back” button.
  - b. Justification: It is unusual and unnecessary to have both of these buttons on the compare classes page. After discovering this, we removed the “x” button so there was only one button.

## Usability Test 3

### Most Important Findings:

5. The filter function wasn't user-friendly
  - a. Evidence for finding: When RE needed to filter for a specific professor, it was confusing. He thought the filter function might be in the search function. It took a while for him to figure out how to use it.
  - b. Justification: This is an important finding because users may often need to filter for different categories, such as professor, or credits, or days/times. Our application should support an efficient way to do this and it was unclear for RE how to use the tool.
6. Student reviews need to be more apparent
  - a. Evidence for finding: RE ended up finding the correct class and then comparing it to another before he found the student reviews. The student reviews are on the course page itself.
  - b. Justification: This is an important finding because, from what we have found from our last report, student reviews are important to students considering taking a class. Our application needs to make this section very obvious.

## Heuristic Evaluation

### Most Important Findings:

1. We needed to add a calendar view
  - a. Evidence for finding: During the heuristic evaluation, the guy that I was paired up with said that he would have liked to see a calendar view of his courses. Being able to see a calendar view is something that the current system already supports so to not be able to is a downgrade.
  - b. Justification: This is an important finding because it highlights an area in which our design is actually worse than what already exists. Our design should be at least as good, but ideally better, than what is already out there in every way.
2. Need to add option to remove course
  - a. Evidence for finding: From our heuristic evaluation, my partner didn't know how to remove a course from his schedule. He wanted to be able to simply press a button and it would be taken away.
  - b. Justification: This falls under visibility of system status. It was unclear what the status of the course was or how to remove it from the schedule. This is important because it is obviously something users will want to do often.

## 6. Reflection and Learning

### Usability Test Techniques

#### A. Something done well - Task Design

- a. Detailed Description: The first task was for the participant to find and add a class taught by professor Joe Joe. The second task was to find a student review for MATH 1020.
- b. What makes this a good example of Task Design: It is very clear what the task is. We don't give any hints or provide too much or too little information. We state what the task the user needs to accomplish is. It isn't a goal, either, which we've had trouble differentiating between in the past. It is obvious that this is an "assignment" for them to complete.
- c. Useful Data: RE knew exactly what was asked of him. He may have had trouble getting through the tasks, but he knew what they were and he understood why he was confused. He was able to provide us with good feedback since he knew what he was supposed to do and how it could be made easier.

#### B. Something to improve - Testing with a Low-Fidelity Design

- a. Detailed Description: Our design could have had a few more things to make it interactable. It is difficult and tedious to create everything by hand, but it would have helped because it would have been easier for RE to interact with our paper prototype.
- b. What could be improved about Testing with a Low-Fidelity Design: Our next iteration of our prototype will have more interactable elements to give a more realistic representation of our application.
- c. Potential Data Loss: Since we didn't have a way for RE to see certain elements, for example what the search screen looks like, we aren't able to see their reactions to it. We aren't able to see if it is intuitive and if they have any issues using it.

### Further Reflection - 3

The most important thing we learned through Getting the Design Right is being patient with the participant in a usability test. The point is not to get them to do the right thing, it is simply to see what they believe the right thing is. Understanding this is the key to reconstructing and improving your solution. You will be able to get data from your participant that indicates what

needs to be improved upon. For example, in usability test 3, it was clear that RE was unable to figure out how to filter by professor. So, we revised it and improved it in our digital mockup.

I will apply what I learned when I get into the industry. Particularly, as a front-end developer, there may be times when I need feedback. Usability testing is a great way to get feedback on an application that is meant to tackle a specific problem. I'm sure it is used quite often, so it is good that I learned how to do it in this class.