We use a 42mm iwatch to do the usability test.

1. Task list:

1) View personal information
2) View detailed information for course “Human Computer Interactn”
3) View list of classes for Fall Term 2015
4) View holds
5) View balances
6) View schedule of today
7) View schedule of tomorrow

2. User demographics

Since our Tufts SIS is designed for Tufts students, we mainly chose students from Tufts University, except one student from Umass Lowell to compare our system with Umass Lowell system.

User1: a master at Tufts, female, 25 years old, major in Chemical Engineering, used Tufts SIS before, native English speaker

User2: a master at Umass Lowell, male, 25 years old, major in Computer Science, used Umass Lowell system before, ESL speaker

User3: a junior at Tufts, female, 20 years old, major in Quant econ+math, used Tufts SIS before, native English speaker

User4: a PhD at Tufts, male, 29 years old, major in Chemical Engineering, used Tufts SIS before, ESL speaker

User5: a master at Tufts, male, 34 years old, major in Computer Science, used Tufts SIS before, ESL speaker

User6: junior at Tufts, male, 22 years old, major in Computer Science, used Tufts SIS before, ESL speaker

3. Post-questionnaire

3.1 Questions in questionnaire

1) Please rate the overall performance by circling the appropriate value. (5: excellent, 4: good, 3: average, 2: below average, 1: poor)

2) Is the software intuitive to use?

3) What features did you like most from our prototype?

4) What features did you like least from our prototype?

5) What areas were confusing to you? Or what problems or misunderstandings did you have?

6) Is there any redundant functionality?

7) What are your suggestions for improving the prototype?

8) Would you recommend this software to other users? (Yes/No)

3.2 Answers collected from testers and quantitative data according to doing test:

Answers from user1:

1) 4
2) Very intuitive
3) I liked being able to check the class schedule
4) I don't like pressing home every time I want a different page.
5) None
6) no
7) have a drop down menu so you can go to different pages without going back to home.
8) yes

quantitative data from user1:

a) task time: 5s, 7s, 26s, 3s, 4s, 4s, 8s
b) success rate: 8/8
c) error rate: 0/8

Answers from user2:

1) 4
2) Yes
3) Simple and straightforward functionality
4) Blank portion is quite a lot in several pages
5) I figure out how to select a term for a while
6) I don't think we need a balance part without being able to pay in this application
7) Add forward and backward button in Classes page
8) yes

quantitative data from user2:

a) task time: 9s, 8s, 30s, 5s, 4s, 5s, 10s
b) success rate: 8/8
c) error rate: 0/8

Answers from user3:

1) 5
2) Yes, except for semester selection in Classes
3) The color scheme I guess
4) Button in calendar is too small to click
5) I don't know we can slide to see last/next semester's classes
6) No
7) Change calendar showing days in week
8) Yes

quantitative data from user3:

a) task time: 7s,6s,33s,3s,4s,3s,10s
b) success rate: 8/8
c) error rate: 0/8

Answers from user4:

1) 4
2) Generally intuitive to use, except checking class in a specific term.
3) Slide the screen to view the schedule in recent days
4) Why do I need to check other term classes on watch?
5) Term is not highlighted enough.
6) Put the holds, balance, personal information in the first page is not necessary.
7) I function to customize first page.
8) Yes

quantitative data from user4:

a) task time: 8s,7s,45s,3s,3s,4s,8s
b) success rate: 8/8
c) error rate: 0/8

Answers from user5:

1) 5
2) yes
3) the layout is clear and easy to follow.
4) color is kind of boring
5) have to sweep the screen to get information, not quite intuitively.
6) no
7) more clear guide for information navigation
8) yes

quantitative data from user5:

a) task time: 4s,6s,inf,4s,5s,4s,7s
b) success rate: 7/8
c) error rate: 1/8 (task3 failed)

Answers from user6:

1) 4 good, generally I only need 1 to 2 steps to go my target function. However, to find Fall 2015 classes, there is no guidance about how to do this. I was just lucky that sliding works, but it's just luck.
2)Most of the time. The loophole is also the lack of "sliding" guidance
3)Home button, because I can quickly go to the menu page.
4)Sliding function without guidance!!!
5)Sliding function without guidance!!!
6) Everything is useful. No redundancy
7) Beside the sliding guidance, in the calendar, the dates buttons can be larger (especially for i-watch)
8) Yes, after following my improving suggestions

quantitative data from user6:

a) task time: 6s,9s,10s,3s,4s,5s,6s
b) success rate: 8/8
c) error rate: 0/8 (He first got wrong with task 3, but quickly fixed it)

4. Analysis of post-questionnaire

1) Please rate the overall performance by circling the appropriate value. (5: excellent, 4: good, 3: average, 2: below average, 1: poor)

Among 6 users, 2 of them rated this prototype Excellent and 4 of them rated this prototype Good. Overall, the average rate of this prototype is 4.33, which meets our expectation.

2) Is the software intuitive to use?

All of the users think the prototype is intuitive to use in general. 3 of them mentioned that the semester selection in Classes is not easy use, so we need to fix that part or add a guidance in the following design.

3) What features did you like most from our prototype?
We got various answers for this question.
The features users mentioned that they like most are:

- functionality of checking the class schedule;
- overall simple and straightforward functionality;
- the color scheme;
- slide the screen to view the schedule in recent days;
- the clear layout;
- home button.

So we can get a conclusion that this prototype has lots of good features, which satisfy different users.

4) What features did you like least from our prototype?
We got various answers for this question.
The features users mentioned that they like least are:

- need to press home every time want a different page;
- blank portion is quite a lot in several pages;
- button in calendar is too small;
- check other term classes on watch is redundant;
- color is boring;
- without guidance of sliding function.

Different user has different preferences, for example, one user like our color but the other does not. But there is definitely some features we need to improve since more than one user mentioned that, for example the guidance.

5) What areas were confusing to you? Or what problems or misunderstandings did you have?
4 of them mentioned that the prototype does not have the guidance for sliding the screen and they don't know they can slide to see last/next semester's classes.
1 user said that term is not highlighted enough.
1 user said nothing is confusing.

Since most users pointed out the guidance of sliding issue, this part definitely need to be fixed in the following design.

6) Is there any redundant functionality?
All the users think there is no redundant functionality except User2 and User4. User 2 thinks that "we don't need a balance part without being able to pay in this application"; User4 thinks that "Put the holds, balance, personal information in the first page is not necessary."
So we can get a conclusion that most of features of this design is useful and valuable.

In the following design, we will keep all the functionalities but move some of them from the main page.

7) What are your suggestions for improving the prototype?
2 of them suggested to change the design of the calendar page, (by changing calendar showing days in week or making the dates buttons larger)
2 users suggested adding guidance for sliding.
1 user suggested adding the function to customize home page.
1 user suggested having a drop down menu so you can go to different pages without going back to home.
These are the features we will consider to improve in the next.

8) Would you recommend this software to other users? (Yes/No)
All of users would like to recommend this software to other users, indicating that this design is pretty good in general.

quantitative data analysis:
a) average task time: 6.5s, 7.16s, 28.8s (except User5, who failed this test), 3.5s, 4s, 4.17s, 8.17s
b) average success rate: 7.83/8
c) average error rate: 0.217/8
In general, the average task time is short and average success rate is high. So we can get a conclusion that this prototype is very easy use. Task 3 takes more time than other task and one user failed this task. So we need to improve the function relative to task 3 in our future design.

5. Summary of observations and conclusions

The results of usability testing show that participants found many smartwatch Tufts SIS features useful and valuable. However, usability testing also showed that many participants were either indifferent or not happy with elements of the Term selection design in Classes. Time and error rate data supports these negative impressions. In short, some participants took too much time to complete the tasks users attempt to accomplish. Besides, if the prototype redesign is to fulfill the goals outlined by the user4, we would shift to a more user-centered approach. This approach includes incorporating a user-based taxonomy for links and pages, and using text and logos together to help users navigate the system.

We concur with most of the suggestions in the Term selection in Classes and have included some additional discussion below. Overall, we find that although the term selection redesign improves on the original small left and right button, usability problems still exist and should be addressed because of lack of instructions on this invisible functionality.

Results of questionnaire and quantitative data show that male and female participants, overall, surfed the prototype in a similar manner. In addition, task time in quantitative results show that ESL participants took longer complete tasks than did native English speakers. However, even though ESL participants required more time to surf than native English-speaking users, ESL participants did not reflect as many negative impressions. Also, previous and new user impressions of the prototype are markedly different. Participants who were familiar with the mobile Tufts SIS design expressed a clear preference for the new design. Overall, this report concludes that the smartwatch Tufts SIS redesign is a success.

In addition, we find that participants value information architecture, site navigation, and taxonomy. We believe participants' expressions of positive feelings for the redesign positively supports shifting from the organization reflected in the redesigned Tufts SIS to a more user-based organization. User-centered design philosophy, ease of navigation, or improved organizational taxonomy, these technical terms offer a clear set of suggestions for the next round of smartwatch Tufts SIS redesign and improvement.