Dear CS 320 Students,

In the middle of grading and working on lectures for next week, I reviewed the survey responses and here are some comments (Mark and Cheng reviewed this and “approve this message”). I’m happy to talk to anyone about this at any time in my office, or in lecture.

There were several threads, which I will address one at a time.

Workload

There were a variety of written comments with the expected range of responses from “all good” to “this course is ruining my life”. Best to focus on the data, however. We agree that HW 03 was misconceived and had too much material, here are the results:

But the other homeworks were what I consider more normal, and the data on HW 04 workload shows that there was a lot of variance, but the average was about 6.4 hours with a median of 6:¹

¹ Full disclosure, in both data sets, I deleted two outlier data points which claimed to have spent 48-60 hours on each homework.
I would expect that people would spend about 2.5 hours on reading the book/links and reviewing lecture slides each week (more when preparing for tests). Then there are 3.3 hours of lecture and lab. So the average is about 9 hours of outside work, for a total of 12.2 hours/week, admittedly with a lot of variance (more on this below).

Since learning a new language requires a lot of immersion in the syntax and culture of a programming community, when I teach programming classes (currently 112 and 320) I expect about 10 hours of outside work on average. So the survey did not surprise me.

But is 10 hours outside work a reasonable expectation?

The first data point for comparison is the federal guidelines (which BU also follows) that a 1 credit = 1 hour of supervised instruction (lecture, lab, or discussion) + 2 hours minimum of outside work. So for a 4 credit class such as 320, that means 8 hours minimum of outside work, although BU in its wisdom says that you need only 3 1/3 hours of lecture and lab. Since you are getting 4 credits, it does not seem unreasonable that the average amount of outside time devoted to the class is 2 hours over the federally-mandated minimum.

The second data point is: what are the normal expectations for the average amount of time spent outside lecture in BU science/math departments? I polled a bunch of colleagues around BU, and most of the physical sciences said the average is about 10-12, with Chemistry being somewhat higher (both in supervised time and work outside class). In math and EC it was about 8. In our department it was about 8 - 10 with some outliers such as West's 410 and 552, which he said averages 15+ hours. Therefore my expectation that you work 10 hours average outside class is at the higher end for CS, but at the lower end for other lab sciences.

Finally, my understanding from the data is that there is a huge variance in skill/preparation/commitment in this class, and hence a huge variance in how hard students are finding the course. This is an unfortunate symptom of a larger problem, which is that our enrollments are growing exponentially, whereas we can only hire faculty and instructors at a linear rate. Class sizes are WAY too big, and so we can’t offer the variety of classes that would be optimal for this diverse group. This is true across the country. Again, and painfully for some students, there is not much to do about this in the short term. We are planning a bunch of new classes for next academic year.

My conclusion: HW 03 was too long, but that otherwise this course is about where it should be in terms of workload. If you are really struggling in this regard, I am sympathetic and you should come talk to me.
HW and Lecture issues

A common complaint was that we introduce a concept in hws and only later explain it in lecture. With the exception of the case expression (which--my fault--I did not cover until right before the hw where it was really needed) we thought about this and did it deliberately, trying to have you explore a concept in concrete terms before the abstract discussion. But most people found this confusing and perhaps it is not working. We'll definitely think about this in future.

Other comments said that lectures and homeworks are disconnected, and many people wanted less abstraction and more “here’s how to do the homework problems” kind of lectures. Actually I will be showing more syntax and details about coding techniques going forward, but otherwise if you want less abstraction you are in the wrong department (I’ve been hearing this complaint for 30 years!). Honestly, the lecture format is not ideal for learning programming, but the ideal system (just have labs) isn’t scalable to our enrollments. I had intended to use TopHat and in-classes quizzes/responses in this term, but there were too many other new things and I decided against it. I will try it in future.

Others complained that homework problems were not sufficiently motivated or we didn’t give enough background information. Yeah, point taken, we’ll try to motivate these problems more. But if you don’t remember something basic you studied in a prerequisite class, such as binary search trees or proof by contradiction, it is on you to review the concept!

Test Cases for Code

There were lots of complaints about the test cases not being ready in time and buggy or confusing. Point taken, and going forward we are going to give you preliminary test cases along with the option to use the comprehensive tests (which are being improved all the time). Cheng is working long hours with the graders to set up the grading infrastructure.

Weekly Schedule

A lot of people expressed frustration with the conflict of various courses which have deadlines around the same time. I’m not sure, honestly, what I can do about this in real time. I am trying to influence the department’s scheduling policies which put most courses on T & Th (for example by teaching M W). But given the schedule of labs and lectures, it does not make sense to do homework deadlines at another time. I am being pretty flexible with the analytical deadlines, putting them at 6am after the midnight deadline for code. I’ll try to work this out for future classes.

A quite reasonable complaint was that there were too many office hours early in the week right before the deadline. We have moved Mark’s office hours to Friday, so now you have office hours Th 2-4 and F 2-4.
There were a variety of other issues, and I am happy to talk with anyone at any time about them, but these were the general concerns. We have made the changes we reasonably can make, while not changing our basic approach to this course and this material. This course is obviously a work in progress; thanks for helping us to improve it!