L1: Introduction

The class is about designing, analyzing and using fundamental data structures.

Knowing how to use a hammer and a saw doesn’t mean you can build a house. In csci101 (or in your previous Java course) you learn how to use a hammer and a saw. In csci210 you’ll learn how to build a house. In csci101 the focus was upon the basic tools available in writing a program - loops, if statements, etc. In csci210 the focus will be upon how we can put all of these tools together in some sort of coherent way to create large programs. To extend the building analogy, data structures are akin to the frame of the house - they provide support, they hold things, and they are specifically tailored to the needs of the task.

For better or worse, it is necessary to start 210 with a lot of syntactic review. We are going to use a slightly different set of tools than you learned in 101. You’ll find there is significant overlap, but there are also some important differences. We’ll be using Java. There is a tendency among people who do not understand computer science to think that learning to program is a matter of learning individual languages. The reality is that after the initial startup, individual languages become almost insignificant. One goal of this course is to teach you to be a computer scientist, not just a Java programmer. The first step, however, will be to teach you some Java.

In 101 there is a lot of what I would call ”hand holding.” You are given all the basic tools you need to do any assignment and are free to concentrate on the tools themselves. When you have just learned what a loop is, after all, it is hard to keep straight how it works, let alone figuring out when its appropriate to use it and all the ways in which it can be used. Throughout this course my goal is to progressively drop the hand holding. At the start I will give you lots of information to help you do your assignments, and as we move through the course I will give you less and less. This serves two purposes:

(1) you need to learn to think like a computer scientist, and
(2) you need to learn to find out what you need to do to get a task accomplished.

At times this process will be somewhat painful, and it is possibly that you will find the occasional assignment unfair. However, at the end of the term when you look back, I think you’ll find that you’ve learned a lot, and are far more capable of creating your own programs than you are now.

As part of the process of helping you all become more autonomous during the term, it is my plan to spend less and less time lecturing as time goes on. By the end of the term we ought to be spending at least as much time in the lab as we do in class. The more hands-on we can make the class the better.

The most important part of the course will be the labs. You’ll have 9 or 10 labs. I’ll post the labs on the web, generally a day or two before the lab itself and the lab period will be a time for you to work on the lab with me right there in case
you need help. Labs will be due one week after they are assigned. Attendance at all labs is mandatory and labs must be handed in when due. The only reason to believe a lab can be handed in at any other time is if you hear it directly from my mouth, or you get email from me. Again, labs are the most important part of the course. It is vital that you keep up, and for that reason there are no extensions. There will also be two tests. Roughly 60 tests. As of now everyone in the class has a 0. Points will be earned. It won’t necessarily be all that hard to earn them, but earn them you must.

You will not be responsible for any material which we don’t cover in class. In the early part of the course I will provide additional material which will be available off of the webpage. I have already posted lecture notes for the first two classes as well as introductory guides to programming in C++. The web will be a vital resource in this course. I will post all of the labs on the web, additional handouts, etc. I will not hand out hard copy of anything after today.

Having said all that. It should be a fun course.

Questions?