Comp 110 - Intro to Programming

Instructor

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Office Hours: TBD

Lectures

Room: SN 011

Time: M W F – 3:00-3:50

NOTE: Bring your laptop every Friday. You will use them for programming exercises.

Course Overview

This is an introduction to algorithms, their design, and their representation in a computer programming language. You will learn several programming language constructs including variables, types, conditionals, loops, functions, procedures, arrays, files, classes, interfaces, and inheritance. In addition you will apply several techniques using these constructs including stepwise refinement, modularity, recursion, design patterns, and abstraction.

If you already know most of these constructs and techniques, then you should take Comp 401. In this course, we will assume you have never programmed before. If you want to learn how to use a computer rather than program it, you should take Comp 101.

Although this course will teach you the programming language Java, it is a course in programming rather than a course in Java. We will emphasize conceptual material rather than practical skills.

By the end of the semester you will be practiced in the skills of algorithmic thinking. Your approach to complex problems will be more precise and logical. You will devise solutions in a step by step manner creating abstractions that clarify and simplify, and you will gain experience in analyzing and predicting the behavior of complex systems.

After this course, even if you never program a computer again, your thinking skills will be augmented and sharpened. In fact, you will approach problem solving in a different way. This will be of value to you throughout your life and in a surprising variety of contexts.

Prerequisites

There are no prerequisite course requirements for the course. However, you will need to be skilled in the use of basic mathematics and algebra, as well as, email and web usage.

Materials

Course Notes
A set of class notes describing all the concepts covered in class will be available to you through the course web page.

Textbook

Required Text:

There is no required text because in the past students have found the class notes sufficient.

Recommended Text:

Walter Savitch, *Java: An Introduction to Computer Science and Programming,* Prentice Hall, 1999, ISBN 0-13-287426-1. Buy it only if you find the class notes insufficient.

Software
We will be expecting you to use Eclipse IDE version 3.6.2 or higher for all the Java programming. You can download and install Eclipse at no cost from www.eclipse.org. You are free to use some other implementation of Java. But we do require the implementation to support JDK 1.5 or higher.

You will be using additional software implementing a tool called ObjectEditor. It is downloadable from the course web page.

Instructions on how to use Eclipse IDE and ObjectEditor are given in the class notes.

Attendance

Attendance is mandatory for all three weekly lectures. If you have a scheduling conflict, you should take this course another semester. No attendance will be taken but the instructor will not repeat material covered in class.

Note
Friday lectures will consist of programming exercises that will give you a boost on the current assignment. At the end of the lecture, you will be expected to submit a deliverable, such as a plan for how you will complete the assignment. If for some reason you cannot attend a Friday lecture, you are still expected to submit the deliverable for the lecture before 12pm (midnight) that Friday. I will post the deliverable requirements Friday afternoons the course webpage.

Course Web Page and Email

Web page   http://cs.unc.edu/~carterjl/teaching.html

Email   Send email to carterjl@cs.unc.edu for any programming problems, clarifications on assignments, etc. This email will be read frequently by the instructor.

We assume that you have a UNC electronic mail account and are familiar with using email and the World Wide Web. Email will be used extensively in this course. We will use to communicate to the class essential information concerning programming assignments. You will use it to ask questions and give feedback on the assignments and course. You should check your email at least five times per week. Every time you sit down at a computer to work on a COMP 110 assignment you should first check your email – there may be important information about the current assignment. The web page for this course will contain copies of many of the handouts, programming assignments, information on the reading assignments, etc.

Blackboard   We will be using blackboard alongside the course webpage to post course notes, PowerPoint lecture slides, and other information.

Grading

Assignments	55%
Midterm	15%
Final Exam	25%
Recitations	5%

The above percentages add up to 100%, but I reserve the right to apply a 10% fudge factor to give consideration to things such as good class participation, stellar programs, extra credit, answers to exam questions that go far beyond what is expected, and *bona fide* extenuating circumstances.

Letter grades will be assigned "on the curve".

Midterm and Final Exam Information

Midterm	Date: TBD
Final Exam	Date: TBD

Assignments

There will be several programming assignments, ranging in duration from 1-3 weeks. The number of points per assignment will generally increase during the course of the semester reflecting the increased length and complexity of the assignments. Several of the assignments will build on previous ones. Each assignment will be due on a specific date; **late assignments will not be accepted**.

The criteria for the grading of the programming assignments are:

Correctness   Programs will be expected to be 100% correct.

Style   Programs must be readable by humans as well as machines. This requires that they be based on clear thought and be well presented.

Making up Homework and Examinations

Serious illness, a death in the family, and activities such as intramural meets and student exchange programs can justify waiving or relaxing the usual rules for class work and examinations. (But the problems of student life, including the consequences of procrastination and commitments to other courses, cannot.) In circumstances that merit special treatment, documentation is usually available to the student, and I feel most comfortable when a request for special consideration is accompanied by appropriate written material supporting the request. In cases where events that will interfere with course work are foreseen, a student should discuss the matter with me well before the work is due.

Incompletes

Incompletes will be given only in dire emergencies. Documentation (such as a physician's note) will generally be required. Falling behind in your work is not an emergency.

WARNING: This is a very time-consuming course. Be prepared to spend an average of 10-12 hours each week outside of class. This time will be unevenly distributed and dependent on the timing of the programming assignments. Because several assignments will build on previous ones, it will not be possible to procrastinate early in the semester in the hope that you can catch up later.

WARNING: The last date to drop a course (for undergraduates) Oct 14th, by which time the first mid-term should have been given. However, the most difficult material in this course comes after this deadline.

Courtesy

We will try to be courteous to you; we ask that you be courteous to us. Please do not read the newspaper or other materials during main lecture or section meeting; or work on your laptop on anything but looking at the class notes or taking your own notes of the lecture. If you must be late once or twice, take an aisle seat quietly; likewise if you must leave early. If this becomes habitual, you should drop the course. Most importantly, please remain quiet, except, of course, to ask questions; private discussions between students, even whispers, carry surprisingly well and are a real distraction to those seated near you and to the instructors. Thank you.

Cooperation and Honor Code:

You are encouraged and expected to discuss the material in class and all assignments among yourselves.

You are permitted to discuss all aspects of the Java programming language with anyone.

You are encouraged and permitted to discuss and cooperate on all written assignments, but you are expected to understand all material that you submit. Examinations will consist primarily of material similar to that of the assignments.

You are encouraged to discuss all programming assignments, but not your solution to the assignments. **For details on how the Honor Code applies to these programs, consult the handout 'Honor Code Observation in Computer Science Courses.**

How to Succeed in This Course

Start Early on All Assignments

If a programming assignment takes 10 hours of work to complete (warning: many of them will take longer) and you start the assignment exactly ten hours before it is due, you have no hope of getting it done. Why? First, all the computers in the lab will be in use and you will waste time standing in line (this follows from Murphy's Law). More importantly, ten hours of work spread over five to seven days is completely different than ten hours in one marathon session; you simply can't work effectively once you get tired.

Here is some advice from students who took this course in earlier offerings:

- "Don't, I repeat DON'T, procrastinate."
- "Start the assignment the day it is handed out."
- "Don't wait until the last minute."

Take it from those who found out the hard way.

Participate in Class

With so many classmates, this seems scary, but it is not so bad once you get used to it. Class participation has been a big factor in my upgrading borderline cases.

Think in class

I will be distributing class notes, so you do not have to take your own detailed notes. Instead, you should be figuring out the material.

Review after Class

Review class notes after each class if they have been distributed. A good self-test is: Can I explain the material to someone else?

Schedule (tentative)

Lecture	Date	Topic	Readings	Hand Out	Hand In
Week 1					
1	W: Aug 24	Course Introduction Theater Model of a Computer		Honor Code Pledge	
2	F: Aug 26	Java installation and A1 booster		Assignment 1	Honor Code Pledge
Week 2					
3	M: Aug 27	Object-oriented Programming			
4	W: Aug 29	State and Properties			
		A2 booster			
Week 3					
	M: Sept 5	Labor Day – No Class			
6	W: Sept 7				
7	F: Sept 9				
Week 4					
8	M: Sept 12				
9	W: Sept 14				
10	F: Sept 16				
Week 5					
11	M: Sept 19				
12	W: Sept 21				
13	F: Sept 23				
Week 6					
14	M: Sept 26				
15	W: Sept 28				
16	F: Sept 30				
Week 7					
17	M: Oct 3				
18	W: Oct 5				
19	F: Oct 7				
Week 8					
20	M: Oct 10				
21	W: Oct 12				
22	F: Oct 14				
Week 9					
23	M: Oct 17				
	W: Oct 19	Fall Break – No Classes			
	F: Oct 21				

Week 10					
24	M: Oct 24				
25	W: Oct 26				
26	F: Oct 28				
Week 11					
27	M: Oct 31				
28	W: Nov 2				
29	F: Nov 4				
Week 12					
30	M: Nov 7				
31	W: Nov 9				
32	F: Nov 11				
Week 13					
33	M: Nov 14				
34	W: Nov 16				
35	F: Nov 18				
Week 14					
36	M: Nov 21				
	W: Nov 23	Thanksgiving Break – No Classes			
	F: Nov 25				
Week 15					
37	M: Nov 28				
38	W: Nov 30				
39	F: Dec 2				
Week 16					
40	M: Dec 5				
41	W: Dec 7				