

Syllabus

Intro to Programming I - COMP 150

Section 1: 11:00 MWF Science 207

Section 2: 2:00 MWF Science 207

Fall 2007

Instructor: Frank McCown
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Home Page: <http://www.harding.edu/fmccown/> (Syllabus, Outline, class grades, useful links)
Office Hours: Science 208: 10 – 11, 3 – 4 MWF and 2 – 5 TR or by appointment

Course Description

Fundamental concepts of problem solving and computational algorithms will be covered as well as an overview of the computer science field. Using the C++ programming language, a study will be made of language syntax, program control flow, algorithm implementation and modular program design. Computer science topics to be examined include machine architectures, operating systems, algorithm analysis and design, and programming languages.

Textbook: Introduction to Programming with C++ (Brief Version) by Y. Daniel Liang (2007). ISBN: 0-13-232049-5

Tutoring: Sci 201 Computer Lab. Tutor hours are mostly in the evening and on weekends. Tutors are upper-class computer science majors who have completed this course and more advanced programming courses. If you ever have problems getting help from a tutor, please contact me ASAP.

Attendance

You are expected to be in class **every time** we meet. You may have two “free skips,” but each unexcused absence after that will result in 1% being subtracted from your final grade. Attendance will be taken daily at the beginning of class. If you are late, it is your responsibility to see me after class; otherwise you will be counted as being absent. Absences that are excused (illness, school sponsored trips, etc.) will not be held against you. Those who attend class regularly will usually do much better than those who miss frequently. After missing a class, it is **your responsibility** to get the notes from a classmate and get any assignments and handouts from me. I will not redo a lecture for someone missing class although I’d be happy to explain things further to you during scheduled office hours.

Exams

Two hour long exams (100 points each) will be given along with a cumulative final exam (150 points). If you are unable to take an exam as scheduled due to a serious illness or some other emergency, it is **your responsibility** to call me and leave a message **before** the exam or as soon as you are physically able. If an official school function takes you out of class on an exam date, it is your responsibility to make arrangements *one week prior* to the exam as to when you will take the exam. Usually it will be given early, not late.

Programming Assignments

Approximately 3 large programs will be assigned, and you will usually have about two weeks to complete each assignment. These are major assignments which will require dedicated effort and time to complete. You will use Microsoft Visual Studio .NET 2005 to write the programs; it is installed on all machines in the classroom and 201 lab. To obtain a free copy of VS .NET to install on your own computer, first complete the Student Use Agreement and then install VS from \\cs1\MSDNAA\VS2005_Install\VS\setup.exe on the Harding network. After you install, you will need to download and install several service packs (the software will warn you) before you can run VS.NET.

Homework and Labs

There will be several homework assignments and in-class labs. Homework and labs are due at the beginning of the class period the day after they are assigned. The lowest homework or lab score will be dropped from your final grade.

It is important that you **check your e-mail regularly (everyday)** because I occasionally give hints or corrections to homework assignments via e-mail. This is also the best way to communicate with the class outside of the classroom.

Extra Credit

You will receive **0.1%** points extra credit added to your final grade for each Computer Seminar that you attend. Seminar meets every Friday at 7:05 am in Science 113. The first seminar will begin around the 3rd week of the semester. There will be approximately 11 seminars, thus allowing you to increase your final grade by 1.1%. See <http://www.harding.edu/comp/calendar.html> for the complete schedule.

The McChallenge: 1% will be added to your final grade for the completion of a program which will be made available to you later in the semester. The program will be due the Friday before final exams. You can skip the program and still get the 1% added to your final grade if you beat me in a game of basketball, tennis, racquetball, Halo, chess, Trivia Pursuit, or any other sport/game that I know how to play. If you lose, you've still got to write the program to get your 1%. Only one challenge per semester. Come by my office to schedule a time to play.

Grades

Standard letter grades: A = 90-100%, B = 80-89% C = 70-79%, D = 60-69%, F = 0-59%

Final grades will be computed as follows:

Exams:	30%
Programming Assignments:	30%
Homework and Labs:	20%
Final Exam:	20%

Important! Keep all of your programs, homework, labs, etc. so if I marked your grade down incorrectly, the problem will be easily resolved. Everything I hand back to you will also be very beneficial when studying for the final.

Late work: A maximum of 10% will be taken off *each day* (not each class period) a program or assignment is late, up to 50%. Every day is counted, including weekends.

Assessment

Harding University, since its charter in 1924, has been strongly committed to providing the best resources and environment for the teaching-learning process. The board, administration, faculty, and staff are wholeheartedly committed to full compliance with all criteria of the Higher Learning Commission of the North Central Association of Colleges and Schools. The university values continuous, rigorous assessment at every level for its potential to improve student learning and achievement and for its centrality in fulfilling the stated mission of Harding. Thus, a comprehensive assessment program has been developed that includes both the Academic units and the Administrative and Educational Support (AES) units. Specifically, all academic units will be assessed in reference to the following Expanded Statement of Institutional Purpose: **The University provides programs that enable students to acquire essential knowledge, skills, and dispositions in their academic disciplines for successful careers, advanced studies, and servant leadership.**

Assessment of the knowledge, skills, and dispositions of each student for the purpose of assigning a letter grade at the completion of this course will be based on the projects, homework assignments, and exams that were described previously in this syllabus. Near the completion of your major in the department of Computer Science, you will be assessed by a comprehensive examination covering core courses in your major, including this course. This examination will influence your final grade in the senior capstone course.

Comments

Of course I expect every one of you to hold to the **highest standard** of personal conduct and **integrity**... that means you will not cheat on tests or programs. Cheating may result in you being dropped from the class with an F. That doesn't mean you can't help others with their programs; everyone will at some time struggle and need assistance from fellow students. But simply giving someone your source code to copy isn't going to help that person learn and certainly will hurt them in the long run. If you are unsure if your helping someone constitutes as cheating, please talk to me about it.

You may work independently on all programs or in pairs (two people only) when permitted. Pair programming has been shown to have a number of benefits including increased personal satisfaction and fewer errors¹. If you work in pairs, both of you must work together on a *single* computer, and both of you must write *approximately half* of the code. **No code can be written without the other partner present and watching.** Both of you should understand completely what is being written since you will have to complete your exams individually. When you submit a program that has been

¹ See *All I Really Need to Know about Pair Programming I Learned in Kindergarten* (2000) for more information on effectively using pair programming at <http://citeseer.ist.psu.edu/williams00all.html>.

written in pairs, you must include a printed log listing the dates and times you and your partner met to write the program. If you fail to provide a log or turn in a program that is nearly identical as someone else's will be considered cheating.

If you ever need assistance in this class or anything else, please don't hesitate to come by my office or give me a call.

Computer science is one of the most fascinating fields you can study. It is, however, a science, and as such requires a dedicated effort to master. It cannot be mastered without **persistence** and **practice**. You should expect to struggle with some of the difficult concepts in this course, but do not give up. It is possible to master the material, but you will have to work diligently to do so. Those who do the best in this course attend class regularly, turn in homework and assignments on time (because they don't procrastinate), and seek help from the tutor or myself when in a rut. Remember that I am here to help you.

Students with Disabilities

It is the policy for Harding University to accommodate students with disabilities, pursuant to federal and state law. Therefore, any student with a *documented disability* condition (e.g. physical, learning, psychological, vision, hearing, etc.) who needs to arrange reasonable accommodations, must contact the instructor and the Disabilities Office at the *beginning* of each semester. (If the diagnosis of the disability occurs during the academic year, the student must self-identify with the Disabilities Director *as soon as possible* in order to get academic accommodations in place for the remainder of the semester.) The Disabilities Office is located in Room 102 of the Lee Academic Center, telephone, (501) 279-4019.

Schedule

The following schedule is subject to change but gives you an idea of how the class will progress:

Week 1	Introductions Brief history of computing	Chars and complex conditions Lab #3 – Nested ifs and chars
Week 2	Hardware and software basics Algorithms and flowcharting	Week 10 Data validation for loops and switch statements Review
Week 3	Flowcharting Binary numbers	Week 11 Exam 2 Critique exam Intro to functions
Week 4	C++ syntax intro Lab #1 - Compile and run	Week 12 Lab #4 - Debugger Functions that return values Program 3
Week 5	Arithmetic expressions and operators Review Exam 1	Week 13 Output parameters Lab #5 – Functions Software Development
Week 6	Critique exam C++ logical conditions if and if-else statements	Thanksgiving Break
Week 7	while and do-while statements Lab #2 – Flow chart to code Program 1	Week 14 Intro to arrays Arrays and loops
Week 8	Nested if statements Nested loops Program 2	Week 15 Sorting algorithms Lab #6 - Arrays Review
Week 9	Machine architecture	Week 16 Final Exam Section 1: Thurs 10:30 am – 12:00 pm Section 2: Mon 1:00 – 2:30 pm

“The possibility that we may fail in the struggle should not to deter us from supporting a cause we believe to be just.”

Abraham Lincoln