

Syllabus

Programming I – COMP/CENG 150
9:00 MWF, Science 213
Spring 2013

Instructor: Frank McCown
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Home Page: <http://www.harding.edu/fmccown/classes/comp150-s12/> (Syllabus, useful links)
Office Hours: Science 208: 1 – 3 and 4 – 5 MWF, 2 – 3 and 4 – 5 TR or by appointment

Course Description

This is a course for those with little to no programming experience. Fundamental concepts of problem solving and computational algorithms will be covered with solutions programmed in the C++ programming language. Comp 151 continues where this class ends.

Optional textbook: Starting Out with C++: From Control Structures through Objects (Brief Version, 6th edition) by Tony Gladis (2010). ISBN: 0-13-602253-7

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 let me know.

Attendance

Those who attend class regularly will usually do much better than those who miss frequently, so you are expected to be present at every class meeting. Attendance will be taken 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. You may have two “free skips,” but each unexcused absence after that will result in 1% being subtracted from your final grade. Absences that are excused (illness, school sponsored trips, etc.) will not be held against you. After missing a class, it is **your responsibility** to get the notes from a classmate and check Easel for homework. 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

Three hour long exams will be given along with a cumulative final exam. If you are unable to take an exam as scheduled due to a serious illness or some other emergency, it is **your responsibility** to email or 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. Makeup exams for excused absences will be given, but a penalty of up to 75% will apply for unexcused absences, at the teacher’s discretion.

Homework and Labs

There will be numerous homework assignments and in-class labs. Homework and labs are usually due at the beginning of the class period following the day they are assigned. The homework is to be completed *individually*, but most labs are to be completed in *pairs* (2 people). Partners will be assigned later in the semester.

Pair programming has been shown to have a number of benefits including increased personal satisfaction and fewer errors¹, and it helps most students perform better when first learning to program. When working 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 their partner present and watching.** Both of you should understand completely what is being written.

Programming Projects

Approximately 3 large programming projects will be assigned, and you will have one to two weeks to complete each project. These are major assignments which will require dedicated effort and time to complete. You will use **Microsoft Visual Studio 2010** to write the programs; it is installed on all machines in the classroom and 201 lab. To obtain a free copy of VS 2010 to install on your own computer, first complete the *Student Use Agreement*, and then follow the instructions given on the *How to Access DreamSpark Software* web page (both are available from the class website).

¹ See *All I Really Need to Know about Pair Programming I Learned in Kindergarten* (2000) for more information on effectively using pair programming,

You may work independently on your projects or in pairs (with your assigned partner or someone else). Just like the labs, both people must work together on a *single* computer, and both must write *approximately half* of the code. **No code can be written without their partner present and watching.** Both people should understand completely what is being written. When you submit a program that has been written in pairs, you must document at the top of the program the names of both individuals who worked on the program. Only one student should submit the program.

Extra Credit

You will receive **0.1%** points extra credit added to your final grade for each Computing 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.

Giving blood at the Red Cross blood drives will earn you 0.2% added to your final grade each time you donate. Donate as many times as you'd like, and give me a signed note confirming your donation each time you donate.

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 still may complete the program to get your 1%. Only one challenge per semester, and all challenges must be made *before* the final week of class. Come by my office to schedule a time to play.

Grades

Final grades will be computed as follows:

Exams	30%
Programming Projects	30%
Homework and Labs	20%
Final Exam	20%

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

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. Nothing late more than 1 week will be accepted.

Note: If you do not score **at least 70% on the final exam**, the highest score you can earn in this class is a **C**, even if your class average is 80% or above!

Expectations

1. Notes for each day will be made available to you on Easel. They are usually available the evening before the next day of class. If you want to print them out, please do so *before class, not during class* so you don't disrupt others. Please print them out using a small font to save paper.
2. To be successful in this course, be prepared to spend at least **two hours outside of class** for every hour in class studying, completing homework, working on projects, and preparing for exams. If you do not have this much time to dedicate to the course, you should take it some other semester when you can make that commitment.
3. 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.
4. I expect every one of you to hold to the **highest standard** of personal conduct and **integrity**. Cheating in all its forms is inconsistent with Christian faith and practice and will result in sanctions up to and including dismissal from the class with a failing grade. Homework should be completed *individually* (not in teams or pairs), and it should be *your work*, not the work of someone else. One thing that you should *never do* is give someone your source code to look at... this often leads to cheating. Come by during office hours (or we'll arrange a time) for assistance on programs. Also take advantage of the tutor who will be available throughout the week.
5. I expect you to adhere to the **dress code** as spelled out in the Student Handbook. This includes men removing caps while in class. Please wear shoes to class (flip flops are OK).
6. There is **no food or drink** allowed in the lab. The lab has expensive equipment and carpeting that is easily spoiled by an accident.

7. Lab computers may be used during class to **take notes and write programs**. Students that use the computers for other purposes (e-mail, surfing the Web, Facebook, games, etc.) will lose their privilege to use the lab computers.
8. Silence your phones, and **put them away**. It is very distracting to me and those around you when you text in class.

Computer science is one of the most fascinating fields you can study and currently has the **most stable and satisfying job markets**. 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. 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.

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.**

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 205 in the Student 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 Jan 14	Introductions History of computing	Week 7	Lab 2 – Flow chart to code Nested ifs & loops Project 1	Week 11	Lab 5 - Debugger Output parameters Lab 6 - Functions
Week 2	<i>MLK Day – No class</i> Hardware and software basics Algorithms and flowcharts	Week 8 Mar 4	Chars & complex conditions Lab 3 – Nested ifs and chars Exam 2	Week 12 Apr 8	Project 3 Exam 3
Week 3	Flowcharting	<i>Spring Break</i>		Week 13	Intro to arrays Arrays and loops
Week 4 Feb 4	C++ syntax intro Lab 1 - Compile and run Exam 1	Week 9	Data validation Project 2 for loops and switch statements	Week 14	Arrays and functions Lab 7 - Arrays
Week 5	Arithmetic expressions and ops C++ logical conditions	Week 10	Lab 4 – Ave, max, min Intro to functions Functions that return values	Week 15	Sorting algorithms Lab 8 – Sort
Week 6	if and if-else statements while and do-while statements			Week 16	Final Exam May 6

“Whatever you do... do it all to the glory of God.” – 1 Cor 10:31