

Syllabus

Software Development – COMP/CENG 170
9:00 am daily, Science 207
Spring 2019

Instructor: Dr. Frank McCown
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Home Page: <http://www.harding.edu/fmccown/classes/comp170-s19/>
Office Hours: Science 208: 3-5pm daily or by appointment

Course Description

Fundamental concepts of problem solving and computational algorithms. Using the C++ programming language, a study will be made of language syntax, program control flow, algorithm implementation, modular program design, arrays, file input and output, structs, and classes. No prior programming experience is required.

Required online textbook: C++ Programming with zyLabs from zyBooks.

To get your zyBook:

1. Sign in or create an account at learn.zybooks.com with your Harding email address
2. Enter zyBook code **HARDINGCOMP170McCownSpring2019**
3. Subscribe

Student Learning Outcomes

The student will be able to...

1. Formulate algorithmic solutions to problems in a structured flowchart.
2. Identify and eliminate syntax and logic errors in a program.
3. Use functions to build modular programs.
4. Design and develop programs that make use of vectors, single-dimensional arrays, multi-dimensional arrays, strings, file I/O, structs, and classes.
5. Test and verify that a program satisfies specific requirements.

Participation

Each class is a mixture of lecture, discussion, and trying things out on the computer. Your attendance is necessary to be successful. To encourage your engagement and to help the instructor gauge whether the class understands the material, you will often be asked multiple choice questions during class using Plickers. Your response is recorded, and the percentage of correct responses forms your participation score (5% of your overall grade).

You will be given a Plickers card on the second day of class. It is your responsibility to bring your Plickers card to class *every day*. If you forget your Plickers card, you will receive a 0 for your participation score that day.

Your attendance is recorded in Canvas. You may have four “free skips” that do not count against your participation score. However, each unexcused absence after that will result in a **0.5% deduction** from your participation score. Excused absences (illness, school sponsored trips, etc.) do not count against your participation score. After missing a class, it is **your responsibility** to determine what you missed and what homework might be due the following day. Normally you will want to watch the class video on Echo360 and check Easel.

You are encouraged to be on time to class. Three late arrivals will result in a 0 for one day’s participation score.

Reading and Challenge Activities

A reading assignment consisting of several sections will be assigned nearly every day. Reading assignments require students to read and complete the **Participation Activities** (animations and questions) in the zyBook *before* class. Points are awarded based on the percent of completed Participation Activities.

Some sections include **Challenge Activities**, which require you to type a few lines of code. Challenge Activities are due 2 days after the reading assignment is due.

Students may complete the Participation Activities or Challenge Activities one day late for half credit. No late credit is given for completing the reading/questions more than one day late.

Programming Assignments

A collection of short programming assignments is assigned each week and is to be completed outside of class. Only 50 points are required to earn 100%. More points are available but do not earn extra credit. The programs differ in difficulty, but you can complete any of them that you wish to earn the 50 points. The more you complete, the more you will learn.

You can complete the programs by yourself or work with a partner. Each student must submit their own solution. If you work with someone and both of you submit very similar solutions, put the name of the person you worked with in comments in your program. You are encouraged to write all the code yourself, but seeking help from friends, the class tutors, and myself is encouraged.

Usually once a week we will have an in-class lab, writing a program with Visual Studio .NET, a professional software development tool that you may install for free on your own computer. Labs involve working in pairs using pair programming, where two individuals work together on the same computer. One person types while the other gives helpful feedback for about half the time, then the two switch roles. Each lab is worth 25 points.

Exams

Four 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 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. Phones must be turned off and put away.

Grades

Final grades are computed with the following weights: Letter grades: A = 90-100%, B = 80-89% C = 70-79%,
D = 60-69%, F = 0-59%

Participation:	5%
Reading:	5%
Challenge Activities:	5%
Prog Assignments:	30%
Exams:	40%
Final Exam:	15%

Late work: A maximum of 10% will be taken off each day a program or assignment is late, up to 50%. Every day is counted, including weekends. Nothing more than one week late will be accepted.

Final grades are not rounded unless the student has given significant effort which is evidenced by regular attendance, completion of nearly all homework assignments, working well with partners in completing labs, etc.

Extra Credit

A maximum of 1.5% extra credit can be earned and applied to your final grade.

1. **Computing Seminar:** You will receive **0.1%** points extra credit for each Computer Seminar that you attend. Seminar meets every Friday at 7:00 am in Science 113, beginning around the 4th week of the semester. There will be approximately 10 seminars, thus allowing you to increase your final grade by 1%. See <http://www.harding.edu/academics/colleges-departments/sciences/computer-science> for the complete schedule.
2. **Giving Blood:** Donating 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.
3. **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.

Course Culture

1. Shortcuts don't exist.
 - You cannot learn without considerable effort. Be prepared to spend at least **two hours outside of class** for every hour in class (15 hours a week) studying, reading, completing homework and projects, and preparing for exams.
 - Keep up with your reading and homework. Start your homework and projects on time so you can get help from the instructor when needed.
 - Come by during office hours (or we'll arrange a time) for assistance on assignments. Visit the tutor in 201 who is available throughout the week in the evenings. Remember that I'm here to help you.
2. Be considerate of others.
 - Help create an environment where you and your classmates can effectively learn.
 - Be on time. Stay awake. Engage in class discussion. Ask questions.
 - Keep your phone put away.
 - Use your computer for coursework only so you do not distract yourself or those around you.
3. Glorify God in all you do.
 - "Whatever you do... do it all to the glory of God." – 1 Cor 10:31
 - God has given you this time to learn and develop a skill.
 - Everyone is expected 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. You are cheating when you submit work performed by someone else.
4. Miscellaneous
 - Check Canvas and Easel **daily** for announcements. Canvas is where you can ask questions and give help to others on homework, labs, and projects and where class recordings can be accessed.
 - Please adhere to the dress code as spelled out in the Student Handbook. Do not wear shorts to class. Men should remove caps while in class. Please wear shoes to class (flip flops are OK).
 - **No food** or drink is permitted in the lab. However, I will allow you to bring in a drink with a lid until we have a spill.

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. 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, and psychological) 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 of 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 Introductions Jan 14 Ch 1: Intro to C++	Week 6 Ch 4 cont. Feb 18 Exam 2	Week 11 Ch 7: More Strings
Week 2 <i>No class on Mon – MLK</i> Ch 2: Variables / Assignments	Week 7 Ch 5: Functions	Week 12 Ch 8: Streams Exam 4
Week 3 Ch 2 cont. Jan 28 Visual Studio lab Exam 1	Week 8 Ch 5 cont. Ch 6: Arrays / Vectors	Week 13 Ch 9: Structs
Week 4 Ch 3: Branches	<i>Spring Break</i>	Week 14 Ch 10: Objects and classes
Week 5 Ch 4: Loops	Week 9 Ch 6 cont. Mar 18 Exam 3	Week 15 Ch 11: Pointers
	Week 10 Ch 6 2D arrays	Week 16 Final Exam May 6