

University of Colorado at Colorado Springs
Computer Organization and Assembly Language Programming
MW 10:50-12:05 Osborne B134, TTh 3:05-:20PM Columbine 323

Instructor: Al Glock
E-Mail: aglock@uccs.edu
Office: Engr 246
Office Hours: Tuesdays 8-11 AM, or by appointment.
Phone: 255-4779

Topics to be covered

Basics of Performance, Circuit Design, Instruction Sets, Machine Arithmetic, Processor Design, Memory Hierarchy, Parallel Processing

Course Objectives

- Understand how and why computer performance is measured and calculated.
- Understand central processing unit design basics and how they affect performance.
- Understand how computers are designed to increase performance.

Course Outline

The course is based on Patterson & Hennessy Computer Organization and Design, 5th Edition, Copyright 2013 Elsevier. ISBN 978-0-12-407726-3. The course will focus on chapters 1-6 and Appendix B.

In itself, assembly language programming is not an objective of the course. Rather it is a means to understanding the foundations of CPU architecture. Through assembly language instructions, students will gain an understanding of memory addressing schemes, logical operations inside the CPU, representations of data (e.g., character, integer, floating point) and interfaces with the outside world (e.g., memory, I/O devices). This foundation, in turn, will prepare students for the more in-depth topics covered in CS 4200, Computer Architecture.

Material will be presented in reading assignments which are roughly 30 pages per class. There will be a quiz covering most readings. In general, the lectures will cover the material to be tested on the midterm and final, however, the text book is the standard against which student performance will be measured. The mid term and final exams will be composed of questions drawn from the same pool as the tests (so you can expect some familiar questions). 10% of the mid term and final questions will be unpublished

questions. There will also be a number of word problems to solve. The midterm will have 50 multiple choice questions which will be worth half the value of the exam. The final will have 100 multiple choice questions covering the whole course. These questions will also be worth half the value of the exam. The remainder will be word problems. There will be three assembly language homework assignments. Periodic e-mails from me will update you on your current grade.

Contact

Send email to me at aglock@uccs.edu. Include CS2160 as the first part of your subject like so I can (quickly) distinguish it as important. If you e-mail me from a non-UCCS account, your e-mail may not get to me if it is captured by the spam filters. Use your UCCS account if the email is important. Office hours are managed in FIFO style. The non-computer world knows this as first-come/first-serve. If you need a guaranteed time, please make an appointment with me in advance.

General Grading

Quizzes/Homework	10%
Programs	20%
Midterm	30%
Final Exam	40%

Numerically:

Percentage	Grade
[93, 100]	A
[90, 93)	A-
[87, 90)	B+
[82, 87)	B
[80, 82)	B-
[77, 80)	C+
[72, 77)	C
[70, 72)	C-
[67, 70)	D+
[63, 67)	D
[60, 63)	D-
Below 60	F

Quizzes, Homework, Tests and Grading

Quizzes will be at the beginning of the class period and are 5-7 minutes long. They will be corrected right away. If you miss a quiz, you may take up to 3 quizzes at a later time with no penalty; a 40% grade reduction will be taken for each late quiz over three. Homework assignments are due on Blackboard at 3:05 PM on the due date. Paper submissions will be discounted 10% because I have to scan them and integrate them into the download I get from Blackboard. Acceptable file formats are .doc/.docx, .ppt/.pptx, .pdf, .jpg and .png. Posting assignments in other formats will be graded as late because I will have to e-mail you and ask for the document in one of the above formats. Solutions to homework assignments will be posted at 4:20 PM on the due date. Programs must have a .asm file extent. If I have to rename your file to add the .asm extent, I will charge

you 10% of your grade. If you turn in your code in some inappropriate format such as .pdf or .docx, I'll charge you 20% of your grade to cut, paste and reformat your work. Due times are the beginning of class. Late assignments are discounted 40%.

If you receive less than a 60 on a homework, you may study and copy the posted solution and turn it in for 60 points. If you post a late assignment, please notify me by e-mail that you have done so. At the end of the semester, the two lowest quiz and two lowest homework scores will be dropped when calculating the final grade. If you score above 60% on all three programming assignments, the lowest score will be dropped in final grading; otherwise, no program scores will be dropped. Attending the lecture during the final exam period will raise your course score by 3 points. In exchange for dropping scores and extra points, however, no additional points will be given to students who are close to the next higher letter grade. You may be able to obtain additional points by finding quiz or homework problems which have been scored incorrectly.

Make-up Exams (mid-term and final)

Please give at least a week's notice if you have business travel which must be accommodated. There is only limited flexibility to give the final exam on alternate dates. Except for a documented emergency will the midterm or final be given on a later date without prior arrangement. All make-up exams will be done in the testing center. If you do not make prior arrangements and you miss the midterm or the final for some reason other than an emergency, you may not make up the exam. This means you *have* to be there for the midterm and final.

Incompletes

No incomplete grades will be given without justification to the Dean of Engineering.

Military Students

If you are a military student with the potential of being called to military service and/or training during the course of the semester, you need to contact me the first week of classes to determine if it is feasible for you to remain in the class. Military service is not an excuse for late turn-in of homework.

Students with Disabilities

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to register with Disability Services and provide them with documentation of your disability. They will work with you to determine what accommodations are appropriate for your situation. To avoid any delay, you should contact Disability Services as soon as possible. Please note that accommodations are not retroactive and disability accommodations cannot be provided until a Faculty Accommodation Letter has been given to me. Please contact Disability Services for more information at Main Hall room 105, 719-255-3354 or dservice@uccs.edu.

Classroom Behavior and Conduct

(the following quotes CU/UCCS policy)

Students and faculty both share responsibility for maintaining a positive educational environment. Faculty have a responsibility to treat students with understanding, dignity and respect. Faculty also have the right and the authority to guide classroom discussion and to set reasonable limits on the manner in which students express opinions. Disruptive students in the academic setting hinder the educational environment. Students who fail to adhere to such reasonable limits shall be subject to disciplinary action(s). “Disruption,” as applied to the academic setting, means verbal and other behavior in the classroom that a faculty member judges as interfering with normal academic functions. Disruptive student conduct is prohibited by Regent Laws, the UCCS Student Code of Conduct and the Student Classroom/Course-Related Behavior Policy. For more information go to the Office of the Dean of Students website at

<https://www.uccs.edu/Documents/dos/Final%20Approved%20Code%20of%20Conduct%20Fall%202016%20.pdf>

All that said, the class should be informal, light and occasionally humorous.

Cell Phones

For normal classes, please set your phones to alert you quietly. If you receive a call and you need to answer it, you may leave the classroom and you can chat away in the hall. During in-class exams (and only during in-class exams) you may not answer phone calls at all, nor may you send or receive text messages. Handling your cell phone other than to turn it off may result in zero on the work in progress.

Cheating, Plagiarism, other bad stuff

You are a student in the University of Colorado system. You will be awarded a degree from the University of Colorado. This degree guarantees a certain set of standards in academic achievement and excellence. You are therefore responsible for all University of Colorado policies concerning cheating, plagiarism and matters of academic integrity. Any work submitted (tests or homework) with your name on it is to be done by you alone. You are permitted to talk to other students about assignments and consult the internet, but you must write out your solution alone. You may not give your homework solutions to anyone but the instructor. You may not accept a homework solution from another student. You may not copy solutions, in whole or in part, from the internet. Cheating or plagiarism incidents result in a negative grade on the work, and multiple incidents will result in more negative scores. A negative score will not be dropped in the final grade calculations, and you may not resubmit it for a higher score. If I have decided that you cheated on an assignment, you may appeal the decision to the department chair, Dr Kalita.