CS201 - Computer Systems Programming, Summer 2019

Instructor:	Chris Kim (chris.kim at pdx.edu)
Office Hours:	Thursdays, 2pm - 4pm
Course Textbook:	Computer Systems: A Programmer's Perspective, 3rd ed. *(Required)* Bryant and O'Hallaron, Prentice Hall, 2015. ISBN: 9780134092669.
	The C Programming Language, 2nd ed. *(Optional)* Kernighan and Ritchie, Prentice Hall, 1998. ISBN: 9780133086218.
Course Webpage:	https://web.cecs.pdx.edu/~kimchris/cs201/
Anonymous Feedback:	CS201 Website > "Feedback"

Course Objectives

- Describe basic computer system organization including the operating system (processes, files, virtual memory) and the underlying hardware (CPU, registers, memory hierarchy).
- Describe the compilation system (preprocessing, assembling, compiling, and linking) and the function of object/executable files and shared libraries, as well as how basic system utilities such as debuggers and Makefiles work.
- Write C programs to illustrate basic systems programming concepts, including file I/O, system calls, memory management, exception handling and process management.
- Do arithmetic in hexadecimal, decimal, octal, and binary notation, and convert among these notations.
- Explain how data types such as integers, characters, floating point numbers, arrays, pointers, and structures are represented.
- Describe the basic instruction set architecture for the Intel x86 family (or similar machine), including the arithmetic/logic instructions, registers, memory model and addressing, and control instructions.
- Explain how high-level programming constructs such as loops and stack-based function calls are implemented in underlying machine code.
- Explain how exceptions, traps, and context switches occur and how they are handled at the machine level.
- Explain the performance impact of hardware features such as pipelining, and architecture principles such as memory locality.
- Understand and identify performance bottlenecks in C programs.

Grading Breakdown / Policy

Assignment 1	5%	MetaCTF	15%	Notes on Grading Policy: - Assignments are due at the beginning of class on the day marked. - No late work will be accepted
Assignment 2	7.5%	Attendance	10%	
Assignment 3	10%	Midterm	20%	
Assignment 4	7.5%	Final	25%	

Letter grades will be calculated according to the standard US system on a 10-point scale.
(A- ≈ 90%, B- ≈ 80%, C- ≈ 70%, etc.)

If there are special circumstances (medical issues, family emergency, etc.) that prevent you from turning in an assignment by the given deadline, please let me know *as soon as possible*. I will work with you to find a fair and workable solution.

Every assignment must be submitted to pass CS201.

Special Needs and Extraordinary Circumstances

Accommodations are collaborative efforts between students, faculty, and the Disability Resource Center. Students with accommodations approved through the DRC are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through the DRC should contact the DRC immediately.
The DRC may be reached at 503-725-4150 or visit the DRC web page.

If an extraordinary circumstance (for example severe illness) prevents you from working for a period of time, contact us as soon as possible to discuss your situation and arrange a special schedule. Scheduled work commitments do not constitute an extraordinary circumstance. Makeup exams will not be given except in cases of severe and documented medical or family emergencies. Please note that travel is not considered an emergency. If an emergency arises and you miss an exam, contact the instructor before the exam to arrange for a special circumstance.

Testing Accommodation

Students who are eligible to use the SHAC Testing Center are required to take the exam at a time that overlaps with the same time period as the in-class exam. You are encouraged to note the exam dates on the syllabus and make your appointments as soon as you can.

Policy on Academic Misconduct

Academic misconduct includes but is not limited to:

- Allowing another student to copy your work.
- Representing the work of others as your own.
- Receiving and/or providing detailed guidance on any graded work.

All assigned work is to be completed individually, unless otherwise noted by the instructor.
For assignments, source code plagiarism tools will check that code has not been duplicated.
Ensure your code is kept private. You are responsible for ensuring that others may not copy your work.

Cheating, or any other form of academic dishonesty will result in a grade of 0% for the assignment or exam, and the initiation of disciplinary action at the university level. For further information, refer to the University Student Code of Conduct.

Accounts and the CS Tutors

You will need an account to log into the Linux systems provided by the college. If you don't already have an account, go to the CAT student page for instructions. The Linux systems are located in FAB 88-09 and 88-10 as well as remotely using `ssh` to `babbage.cs.pdx.edu` and `ada.cs.pdx.edu`.

The CS tutors are a helpful resource. They cannot help you with assignments but are very good at helping you to interpret compilation errors and use debuggers.

Electronic Discussions

A space for electronic discussions (mailing list, Slack, etc.) will be provided for this course. Details will be provided in class. All students should sign up for the discussion channel to receive important course related announcements.

Respectful communication is required on all electronic discussion resources. Please be courteous and professional. Use of electronic resources is subject to Portland State's student code of conduct, and discrimination or harassment of any kind will not be tolerated.

Mandatory Attendance

Students are required to attend all class meetings. A student is marked as having attended a class if the student ID has been scanned in the first 5 minutes of the class meeting. Students may miss two class meetings without penalty. After that, each missed class will result in one attendance point being deducted from their final average in the class.