CIS 2107: Computer Systems and Low-Level Programming

Section 4

Spring 2021

Instructor: Krishna Kant

Office: SERC, Room 320

EMAIL: kkant@temple.edu

Lectures: Mon/Wed 2:00PM—3:20PM Via Zoom

Office hours (Tentative): Mon/Wed: 3:30 - 4:30 right after the class

Laboratory: Tuesday 11:00AM – 12:50PM Via Zoom

Lab TA: Marija Stanojevic, Tug73611@temple.edu

Office hours: **Thu 11:00 – 1:00pm**

Textbooks:

1. Required: Bryant and O'Hallaron, Computer Systems: A Programmer's Perspective, 3rd Edition. Pearson. 2015.
2. Required: Kernighan and Ritchie, The C Programming Language, Second Edition. Pearson. 1988
3. (Optional) Patterson and Hennessy, “Computer Organization and Design – Hardware /Software Interface”

Course description: This course introduces computer systems architecture at the level required to understand low-level systems programming. It examines issues of information representation, the form of machine instructions and addressing, the implementation of programming language constructs in terms of machine instructions, the interfaces to peripheral devices. Programming is done in assembly language and in C. NOTE: For Computer Science Majors.

Prerequisites: (CIS 1068|Minimum Grade of C-|May not be taken concurrently OR CIS 1073|Minimum Grade of C-|May not be taken concurrently) AND (CIS 1166|Minimum Grade of C-|May not be taken concurrently)

Course Objectives: The primary objectives for this course are to introduce you to computer hardware, machine instructions, and low-level programming in C.

Grading: Grades will be posted on Canvas

Note: Lab assignments are homeworks given to you in the class with 1-2 week time for submission. You can seek help from TA during the lab session for completing these homeworks. Quizzes will be given occasionally during lab sessions. Expect about 7-8 homeworks and similar number of quizzes during the semester.

Attendance	05
Lab assignments	25
Quizzes	10
Midterm	20
Final	40

Course Withdrawal: Students may withdraw as long as it meets university guidelines.

Academic Freedom: Temple has adopted a policy on Student and Faculty Academic rights and responsibilities (Policy 03.70.02) at: http://policies.temple.edu/.

Links to an external site.

Academic Integrity: Please review Temple's policies on academic honesty and other student

responsibilities at:

http://www.temple.edu/bulletin/Responsibilities_rights/responsibilities/responsibilities.shtm

Links to an external site.

Do not cheat in this class. I take this very seriously as does the university!! This includes plagiarism. If you quote someone else's material, you MUST cite it properly. This includes all material taken from the Internet. If you copy work from the Internet or another source, and do not cite it properly, you will fail this course. All of your work must be your own…this includes your homework assignments. Copying during an exam or quiz, copying homework, copying disks, sharing printed or digital homework files, or any other type of plagiarism in any form is strictly prohibited in this class.

Tentative Schedule: The table shows a tentative schedule.

Introduction to Advanced C	**Kernighan and Ritchie, Ch. 1-7**
A Tour of Computer Systems	Bryant and O'Hallaron, Ch. 1

	Bryant and O'Hallaron, Ch. 2
Data Representation and Arithmetic basics	
Instruction set architecture and Assembly Language	Bryant and O'Hallaron Ch. 3
Arrays, Pointers, structures, union, and debugging with gdb	Bryant and O'Hallaron, Ch. 9.9-9.11
Basic Logic and arithmetic	Bryant and O'Hallaron, section 4.2
Multicore architecture and parallelism	Bryant and O'Hallaron, Ch. 6
Caching and memory architecture	Bryant and O'Hallaron, Ch. 6
Program performance and Program Restructuring for increased performance	Bryant and O'Hallaron, Ch. 5
Storage Technologies – classical and emerging	Bryant and O'Hallaron, Ch. 6

Lab assignments will be posted to Canvas.

Special Needs: Any student that has a need based on a disability should contact me privately as soon as possible. Please contact Disability Resources and Services at 215-204-1280 in Ritter Annex to arrange for reasonable accommodations.