

CSC 373 - 420 Computer Systems I

Fall 2020-2021

Overview

A course on computer systems topics, focusing on machine-level programming and architecture and their relevance for application programming. Information representations, assembly language, C programming, and debuggers.

Instructor

Professor: Zhen Huang

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I will reply to all student emails and voice mails within one business day. Please ensure you put "CSC 373" as the subject line of your email. I will answer emails twice a day during weekdays: once in the noon and once in the evening. I will not be available during weekends, while the course materials are available 24/7.

Course format

The course is taught entirely online in an asynchronous mode. Asynchronous means that you will not have to be online at a specific time. You can progress through weekly content at your own pace. However, please keep in mind there will be deadlines to complete assignments, quizzes, labs, and exams. Your participation in this online course will equal, or exceed, that of a typical face-to-face class.

You must make sure that you have the necessary technical resources needed to access the course content and complete class activities. You will need:

- Frequent and continued access to a computer that connects to the Internet.
- A working e-mail account that you check regularly (and that is updated in Campus Connection).
- Access to a software suite such as Microsoft Office (Word, Excel, Power Point).
- The ability to view video files, either in a streaming (Flash) or other common formats (QuickTime, iTunes, 3GP, etc.).
- A webcam on a computer installed with Respondus Lockdown Browser to take quizzes and exams.

This online course is taught on [D2L](#), DePaul's Learning Management System (LMS), while the course discussion forum is hosted on [piazza](#). Participation on the course discussion forum is an important part of the course. Particularly answering the questions of other students on the discussion forum is highly encouraged as that will not only help other students but also improve your own understanding of the course materials.

Office hours

My office hours for this course are held via web meetings between 2:00pm to 3:30pm on Mondays.

Please make use of my office hours. Asking questions about the assessments, course notes, or the readings can improve your understanding enormously. It will also let me know if I need to review a topic with the class. If you want to talk to me during my office hours but are unable to do so for any reasons, please contact me to make an appointment outside those hours.

Course website

The course lecture videos, lecture slides, lab assignments, quizzes, and other course materials are located on the course web page on [D2L](#). The course discussion forum is located on [piazza](#). Please check the course web page and the discussion forum regularly.

Prerequisites

You must have taken (CSC 383 or CSC 393 or CSC 300) and Math 140.

Learning goals

After the successful completion of this course:

- you will have basic C programming skills;
- you will understand how integers, floating point numbers, strings, arrays and other structures are represented and manipulated at the machine level;
- you will understand how programs are represented at the machine-level;
- you will be able to read, understand, and debug 64-bit Intel Assembly code in GAS (GNU Assembler) format;
- you will know how to take advantage of the parallelism in modern CPUs to optimize program performance;

Course calendar

The following gives all the important dates for this course. The topics covered are subject to change.

Week	Date	Topic/Deadline
1	Monday, September 7, 2020 -- Sunday, September 13, 2020	Information representation; UNIX; C (BO Ch. 1-2 and K Ch. 1-5, 7)
2	Monday, September 14, 2020 -- Sunday, September 20, 2020	Bit manipulations; logical operators (BO Ch. 2 and K Ch. 11)
3	Monday, September 21, 2020 -- Sunday, September 27, 2020	Integer representation and arithmetic (BO Ch. 2)
	Tuesday, September 22, 2020	<i>The last day to drop classes with no penalty</i>
4	Monday, September 28, 2020 -- Sunday, October 4, 2020	Floating point number representation (BO Ch. 2)
5	Monday, October 5, 2020 -- Sunday, October 11, 2020	Intro to machine representation of programs (BO Ch. 3)
6	Monday, October 12, 2020 -- Sunday, October 18, 2020	Machine representation of programs (BO Ch. 3)
7	Monday, October 19, 2020 -- Sunday, October 25, 2020	Arithmetic and logical operations; intro to control (BO Ch. 3)
8	Monday, October 26, 2020 -- Sunday, November 1, 2020	Control; procedures; buffer overflows (BO Ch. 3)
	Tuesday, October 27, 2020	<i>Last day to withdraw from classes</i>
9	Monday, November 2, 2020 -- Sunday, November 8, 2020	Arrays, strings, pointers, and structures (BO Ch. 3 and K Ch. 6, 8-10)
10	Monday, November 9, 2020 -- Sunday, November 15, 2020	Optimizing program performance (BO Ch. 5)
11	Monday, November 16, 2020 -- Friday, November 20, 2020	Final exam

Textbooks

Bryant & O'Hallaron, *Computer Systems: A Programmer's Perspective, 3rd Edition*, Prentice Hall/Pearson, 2016. ISBN: 9780134092669

Kochan, *Programming in C, 4th Edition*, Prentice Hall/Pearson, 2015. ISBN: 9780321776419

Grading policy

Course assessments include lab projects, quizzes, and a final exam. The course grade will be computed as follows:

Assessment	Percentage
Lab projects	18 %
Quizzes	44 %
Final exam	38 %

The final grade in the course will be determined according to the standard D2L grading scheme:

A	95-100%	C	73-76%
A-	91-94%	C-	69-72%
B+	88-90%	D+	65-68%

B	85-87%	D	61-64%
B-	81-84%	F	<61%
C+	77-80%		

I will grade your submitted work within 7 days of the due date. To do well in this course, you should follow the class regularly, participate in the discussion, read the chapters in the textbook and do the homework exercises assigned for each week, start working on the quizzes and labs early, and talk to me promptly if you have any problems.

Homework exercises

There will be a total of 6 homework exercises consisting of problems from the BO textbook. **Although your homework exercises are not graded, they are used to devise questions for the exams.**

Quizzes

There will be 4 quizzes that focus on conceptual questions and test on basic skills. The quizzes are in the form of D2L quizzes composed of multiple-choice questions, short-answer questions, matching questions, and filling-the-blank questions. For each quiz, you can choose a time to take it in a period of 3 days specific to the quiz.

Lab projects

There will also be a total of 3 labs, each a *major* assignment involving long hours of technical work.

All quizzes and labs must be submitted by the deadline and no later. Any quiz or lab not handed in by the deadline will receive 0 points, without any exceptions.

Final exam

The Final exam is comprehensive and consists of questions drawn from the textbook, the lectures, all labs, and all homework exercises. The final exam is in the form of D2L quizzes. Similar to the quizzes, you can choose a time to take the exam in a period of 3 days specific for the exam.

Make-up exams will not be given. If you wish to petition for a make-up exam, you must notify me at least one week in advance and provide documented evidence of the emergency that will cause you to miss the exam. Failure to contact me in advance of the exam date and time will disqualify you from being allowed to take a make-up exam.

Lateness and absence

No late quiz or lab will be accepted. If you don't hand in a quiz or lab in time, you will receive 0 points for the quiz or lab.

Changes to syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.

Online course evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in Campus Connect:

<http://campusconnect.depaul.edu/>

Academic integrity and plagiarism

This course will be subject to the university's academic integrity policy. More information can be found at <http://academicintegrity.depaul.edu/>.

Academic policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal,

grading and incompletes can be found at: <http://cdm.depaul.edu/enrollment>.

Incomplete grades

An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptions cases will receive such approval. Information about the Incomplete Grades policy can be found at

<http://www.cdm.depaul.edu/Current%20Students/Pages/Grading-Policies.aspx>

Students with disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at: csd@depaul.edu. Lewis Center 1420, 25 East Jackson Blvd. Phone number: (312)362-8002 Fax: (312)362-6544 TTY: (773)325.7296