

CSC 373 Systems I  
Winter 2016-2017  
Tues & Thurs 11:50AM – 1:20PM  
CDM 226  
<http://d2l.depaul.edu/>

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Office Hours: Tues & Thurs 10:00AM-11:30AM

## Course Summary

This course covers the concepts underlying all computer systems and how they affect the correctness, performance, and utility of application programming. We will cover, in particular, information representations, program representations and execution, and the memory hierarchy.

## Learning Objectives

Upon successful completion of this course, students should be able to:

- Use C's bit operators to manipulate data
- Simulate the execution of various x86 assembly instructions
- Explain how a buffer overflow attack works as well as carry one out
- Reverse engineer parts of a compiled program to understand what it is doing
- Correctly use pointers in the C language

## Prerequisites

The prerequisites for this course are data structures (CSC300, CSC383, or CSC393) and discrete math (MAT140). The assumption is that you are already familiar with structural programming concepts like branching, loops, functions, arrays, etc.

## The C programming language and the UNIX environment

We will be using C and UNIX extensively in this course; however, it is not the purpose of this to teach you C and UNIX. This course requires you to read, understand, and sometimes write small programs in C and to interact with a Linux server. I will provide a very brief introduction just to get you started, and I will answer questions about C and Linux in class, but students are expected to pick up C and UNIX on their own. This will require a great amount of time reading the C text for the course, interacting with the Linux server, writing and debugging programs, and looking things up in UNIX and C manuals.

## Grading Policy

Your overall grade for the course will be computed as follows:

Labs (homework)	30%
Online quizzes	10%

Practice Problems	10%
Midterm exam	25%
Final exam	25%

Letter grades will be assigned according to the table below; however, the instructor reserves the right to adjust the scale in the student's favor. In other words, the table indicates the minimum letter grade you will receive for the given overall percentage. You may receive a slightly higher grade if the instructor feels an adjustment is necessary.

93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
60-66	D
0-59	F

### **Textbooks and Printed Resources**

*Computer Systems: A Programmer's Perspective, 3rd Edition.* Bryant & O'Hallaron, Prentice Hall/Pearson, 2016. ISBN: 978-0134092669

*Programming in C, 4th edition.* Kochan, Prentice Hall/Pearson, 2015. ISBN: 978-0-321-77641-9

### **Lab Projects**

The heart of this course are the labs that students will be doing. Each of these labs requires a significant amount of time and work to complete. They really are projects and not simple homeworks. Students are urged to start early. Each lab has multiple pieces and is automatically graded so you can check your progress as you go. Note that late submissions will not be accepted. So submit early and often. Partial credit is better than no credit.

All labs are individual work. Students are expected to solve the problems on their own. Searching for answers to the problems online is considered cheating and will result in an F for the course. You are certainly welcome and encouraged to seek help with how to use the various tools. If you are ever unsure about whether some reference/resource is allowed, please just ask.

## Quizzes

Quizzes will be handled online on the D2L site for the course. Quizzes must be completed by 11:59PM on the day they are due (typically, the evening before a class meeting. Late quizzes will not be accepted and will receive a grade of 0, so make sure to finish them early and to save your work as you finish each problem. **Note:** Saving the problems is not the same thing as submitting. Make sure to submit when finished. Also, you may retake the quiz as often as you like to try to improve your score.

## Practice Problems

I will periodically post problems sets from the practice problems in the CS:APP text in a dropbox on D2L. For each problem set, you must:

1. Make a sincere attempt at answering each of the problems and rereading the preceding section if necessary.
2. Check your answer with the answer at the end of the chapter.
3. If your answer is different or if you failed to answer the question, try to understand the answer given in the text.
4. For each answer given in the book that you do not understand, post a specific question on the discussion forum for the practice problems. Students are encouraged to try to answer each other's questions.
5. Once you have completed 1-4 above for the problem set, submit a comment in the comment box indicating which ones problems you understood, which ones you struggled with, and which ones you were unable to understand. To submit the comment, you will also need to submit a small file. I will NOT look at the file. I will only look at your comment. You must do this by the deadline to get credit for the practice problems. For any problems you do not understand, make sure to post a question in the correct discussion forum topic.

## Exams

The midterm exam is on Thursday, February 2, at the usual class time. The final exam is on Tuesday, March 14, at 11:30AM in the usual classroom. Students must take the exam at the scheduled time on the scheduled date so clear your schedule now. Students may bring a single 8.5" by 11" sheet of notes (both sides) to the exams, but no other resources will be allowed. The sheet of notes must be turned in with the exam and will not be returned. Please make a copy for yourself before bringing it to the exam.

Online Students: You must register through D2L to take the exam. Note that you will have a 2 day window to take the exams (2/2-2/3 for the midterm and 3/14-3/15 for the final). Even if you are not ready to register now, check that this option is available to you on D2L. If it is not, you are registered for the live section and must take the exam in the classroom with the live class.

## Course Server and Required Software

All lab work must be done on the UNIX server for the course. This will require you to have some kind of terminal/telnet application as well as an FTP application that uses SSH. You can find a link to PuTTY in the Content section of D2L. You will need both PuTTY and PSCP.

The hostname is marrero373.cstcis.cti.depaul.edu. Your username is the first letter of your first name followed by at most the first 7 letters of your last name. Your password is your DePaul student ID including leading zeroes if there are any. Please change your password as soon as you login by typing in "passwd" (without the quotes) and then following the instructions.

Accounts will be generated from the class roster on January 3. If you cannot login, contact the instructor ASAP especially if you registered late for the course. You may not have an account yet.

You will also need to become familiar with its text/terminal based tools, including the editor (either emacs or vi), the compiler (gcc), and the debugger (gdb). See the Reference Documents module under Content on D2L if you are unfamiliar with these tools or with the UNIX command line interface.

Please be aware that I may look at the files under your account on the server. Please do not place anything on the server that is not related to the course or that you do not want me to see.

## Email and Discussion Forum

Email and the discussion forum on D2L is the primary way I communicate with students outside of class. To make communication as smooth as possible, please make sure to do the following:

- Students should be sure their email listed under "demographic information" at <http://campusconnect.depaul.edu> is correct. All my emails to you will go to that address.
- All students must subscribe to the discussion forum on D2L. Students should use it to post questions about the course, including questions about lectures and assignments, but please do not post any code on the forum nor should you discuss solutions to the labs on the forum. Posting your question on the forum allows other students to answer the question and so you could get your answer faster. Also, any questions I receive by email that are not of a personal nature will be posted to the forum together with my answer.
- Send me email from an address that identifies who you are. You have the best chance of getting through the email spam filter if you use your DePaul email address. You have the greatest chance of the email being filtered or of me ignoring it if you send it from an address that I cannot recognize immediately as a student in my class. (I once had a student send me email from way2sexy@hotmail.com and complain 2 weeks later that I wasn't answering his email.) Also include the course number (CSC373) in the subject of all emails. This will make it easier for me to spot your email and will eliminate the possibility that my first response would be "What class are you in?"

- If your question was answered in the lecture or in another email, I will simply refer to the lecture or email. So if you did not understand something I said in class or in an email, be specific. Point out exactly what you didn't understand in my prior communication so that you don't get the generic reply of watch the video/read the email.

### **Online Teaching Evaluation**

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.

### **Email**

Email is the primary means of communication between the instructor and students enrolled in this course outside of class. All students must make sure that the email address listed for them under "demographic information" on campus connect is correct.

### **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 on D2L and notice 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 [CampusConnect](#).

## **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/>. If you have any questions be sure to consult with your professor.

## **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: [cdm.depaul.edu/enrollment](http://cdm.depaul.edu/enrollment).

## **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](mailto:csd@depaul.edu).

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