CS 265
Advanced Programming Tools and Techniques
Spring 2020

Sections: 002 and 003

Instructor Information

Filippos I. Vokolos
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Teaching Assistant

Paras Wadekar
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The TA will be grading the assignments and labs. Please contact the TA directly for clarifications and grade disputes.

Lecture Time and Location

All lectures will be pre-recorded and made available online, in Blackboard, on the Monday of each week. There will be no face-to-face or live-streaming meetings for this course.

Office Hours

All office hours will be conducted online via Zoom. The link will be available through Blackboard.

The office hours for the instructor and the TA are shown below. Please note that all times are Eastern Daylight Time (EDT).

Who	Monday	Tuesday	Wednesday	Thursday	Friday
Filippos I. Vokolos fvokolos@drexel.edu	10 AM – 11AM		11AM – 12 PM		
Paras Wadekar psw36@drexel.edu		8 AM - 10 AM		6 PM - 8 PM	

Student Learning Information

Course Description

Introduction to the basic principles of programming practice: testing, debugging, portability, performance, design alternatives, and style. Application in a variety of programming languages, programming environments, and operating systems. Introduction to tools used in the software development process for improving program functionality, performance, and robustness.

Goals

To provide students with the skills needed to effectively design, develop, implement, debug, test, and maintain programs and more generally to solve problems using a computer. The course will teach these skills through the use of different programming languages, tools, and environments, though the general principles are independent of any particular language, tool, or environment. General themes include clarity, simplicity, generality, and automation.

Objectives

This course will accomplish several things. You will:

- To use the Unix programming environment effectively - shell, file system, scripts, pipes, regular expressions, filters, program development tools
- To use scripting languages, such as AWK or Perl, to automate tasks and write simple programs
- To develop good programming style, organization, interface, and documentation habits
- To use effective procedures and tools for building, debugging, testing, tuning, and maintaining programs
- To be comfortable using and learning different programming languages (C, C++, Java, Perl) and choosing the appropriate one for a given task
- To use tools and write programs to assist in developing programs
- More generally, you will realize that there are different platforms out there. While we all have our favorite, we will abstract out similarities, so that, for any given platform, you can plan how to accomplish a given task

Audience

This is a required sophomore level course for Computer Science students. A graduate version of the course is available as a pre-core course for those students who are not sufficiently comfortable developing, debugging, testing, tuning, and porting programs.

Prerequisites

CS 172 or
CS 176 or
CS 133 or
SE 103 or
ECEC 301 or
ECEC 201

Course Materials

Book

Required

Kernighan & Pike, The Practice of Programming, Addison-Wesley, 1999, ISBN 020161586X
Available through the Drexel Library through http://tinyurl.com/rs6p9ye

Siever, Figgins, Love, Robbins, Linux in a Nutshell, 6 ed., O'Reilly, 2009, ISBN 978-0-596-15448-6
Available through the Drexel Library through http://tinyurl.com/vkmlodr

Software and Hardware Requirements

Students must do their homework on the CCI Unix servers (tux.cs.drexel.edu). Assignments that do not run on tux will not be accepted for credit.

An account on the CCI Unix computers tux.cs.drexel.edu (tux) is created for you, when you take your first CCI course and remains active while you are a Drexel student. If you do not have a tux account, or can't locate the relevant information, please contact ihelp@drexel.edu.

Drexel Blackboard Learn

This course is operating with the Drexel Blackboard Learn (aka Learn) Course Management System, which allows electronic submission of assignments, online office hours and threaded discussion groups. You can access the Drexel Learn course website from the Drexel portal https://one.drexel.edu/. You can also access Drexel Learn from the following page https://learn.dcollege.net/

Course Content

1. **Lecture Slides & Lecture Videos**

   All lectures will be pre-recorded and made available online, in Blackboard, on the Monday of each week. There will be no face-to-face or live-streaming meetings for this course. The lecture notes will be provided, together with any additional resources required for the week.

2. **Labs**

   There will be weekly labs that will reinforce the material we are learning in class. You will be required to submit the results of your lab every week in Blackboard. Normally labs would have been performed as part of the lecture but for this quarter, since everything is online, the labs will be individual student assignments.

3. **Assignments**

   There will be 3 assignments that will be longer projects that need to be completed over a 2-week period.

4. **Midterm and Final Exams**

   There will be a midterm and a final exam.

Course Schedule (tentative)

Week	Week Start	Lecture Topics	Reading	Lab Given	Lab Due @ 11:59PM	Assignment Given	Assignment Due @ 11:59PM
1	**6/22/2020**	Intro to the Unix Programming Environment	Class notes	Lab 1 given on 6/22/2020	Lab 1 due 6/28/2020		
2	**6/29/2020**	More Unix Intro to Bash	Class notes	Lab 2 given on 6/29/2020	Lab 2 due 7/5/2020		
3	**7/6/2020**	Intro to Bash - *continued*	Class notes	Lab 3 given on 7/6/2020	Lab 3 due 7/12/2020	Assignment 1 given on 7/6/2020 (Bash & AWK)	
4	**7/13/2020**	AWK, regular expression and Git/Github	Class notes	Lab 4 given on 7/13/2020	Lab 4 due 7/19/2020		Assignment 1 due 7/19/2020
5	**7/20/2020**	Programming style (C) Intro to C	Chapter 1 Class notes	Lab 5 given on 7/20/2020	Lab 5 due 7/26/2020	Assignment 2 given on 7/20/2020 (C Programming)	
6	**7/27/2020**	**Midterm Exam** Details to be provided.	Material from weeks 1-5.				
7	**8/3/2020**	Intro to C – *continued* Makefiles Interfaces	Chapter 4 Class notes	Lab 6 given on 8/3/2020	Lab 6 due 8/9/2020		Assignment 2 due on 8/2/2020
8	**8/10/2020**	Algorithms and data structures	Chapter 2, 3 Class notes	Lab 7 given on 8/10/2020	Lab 7 due 8/16/2020	Assignment 3 given 8/10/2020 (database-backed application)	
9	**8/17/2020**	Debugging Testing	Chapter 5,6 Class notes	Lab 8 given on 8/17/2020	Lab 8 due 8/23/2020		Assignment 3 due on 8/23/2020
10	**8/24/2020**	Performance	Chapter 7,8 Class notes	Lab 9 given on 8/24/2020	Lab 9 due 8/30/2020		
11	**8/31/2020**	**Final Exam** Details to be provided.	Material from weeks 7-10.				

Grading

9 Weekly Labs	30%
3 Assignments	30%
Midterm Exam	20%
Final Exam	20%

Grading Policies

1. There is a 2-day window for late submissions of labs and assignments, except for Lab 9 which has a hard deadline.
    a. If submitted within 24 hours of the deadline, the penalty will be 20%.
    b. If submitted within 24-48 hours of the deadline, the penalty will be 40%
    c. If submitted after 48 hours, the assignment or lab will get a zero.
2. Submitting the assignment over email is not acceptable. You must submit the assignment in BBLearn.
3. If you miss taking an exam, you will get a zero.
4. If you get caught cheating in an assignment or test, you will get a zero and you will be reported for academic dishonesty.
5. There will be no extra work for extra credit if you are unhappy with your grade.
6. There will be no extra work for extra credit if you missed the deadline for an assignment or test.
7. If you have questions about the class, an assignment or test, please post the question to the BBLearn discussion board.
8. If you want to dispute your grade for an assignment, talk to the TA. If you can't work things out with the TA, I could look at your assignment, but I will regrade the whole assignment, which may result in a higher or lower grade.

Grading Scale

A+	97-100
A	93-96
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	60-66
F	0-59

Academic Policies

Academic Policy	Link
Academic Integrity, Plagiarism, Dishonesty and Cheating Policy	https://drexel.edu/provost/policies/academic-integrity/
Student with Disability Statement	https://drexel.edu/oed/disabilityResources/students/
Course Add/Drop Policy	https://drexel.edu/provost/policies/course-add-drop/
Course Withdrawal Policy	https://drexel.edu/provost/policies/course-withdrawal/
Course Change Policy	The instructor may, at her/his discretion, change any part of the course during the term, including assignments, grade breakdowns, due dates, and schedule. Such changes will be communicated to students via the announcements tool in Blackboard Learn, as well as during the lecture. Students are encouraged to regularly check Blackboard Learn for such changes and other important course announcements.