# CS 265
# Advanced Programming Tools and Techniques
# Winter 2021

Section: 003

## Instructor Information

Dimitra Vista
3675 Market St, Room 1152
dimitra.vista@drexel.edu

## Lecture Time and Location

Section 003 – MWF 3:00 PM-3:50 PM EST

All lectures will be online via Zoom and administered using Blackboard Learn. All lectures will be delivered synchronously at the designated time and will be recorded for future viewing.

## Teaching Assistant(s)

John Greaves jsg339@drexel.edu

The TAs will be grading all assignments and labs. Please contact the TAs directly for clarifications and grade disputes.

## Office Hours

Office Hours with the instructor are via a Zoom meeting at the times designated below. The link for the Zoom meeting is posted to Blackboard.

Office Hours with the TAs are held at the Virtual CLC. The link for the Virtual CLC is posted to Blackboard.

All times are Eastern Standard Time (EST).

| Who | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| Dimitra Vista dimitra.vista@drexel.edu | 4 –5:30 PM EST | | 4 – 5:30 PM EST | | |
| John Greaves jsg339@drexel.edu | | 10 AM - 12 PM EST | | 6 - 8 PM EST | |

## CS265 Slack Workspace

We use Slack for communication and questions. An email with the information on how to join will be sent to you via email and posted on Blackboard.

## Student Learning Information

## Course Description

Introduction to the Unix environment and the C programming language. Students will be introduced to Unix from an application development point of view. They will become proficient at Unix command-line basics, scripting in Bash, Regular Expressions, with other useful development tools. Students will learn to use the C programming language with emphasis on pointers, linked lists and interface development. Students will be exposed to Unix tools that support C programming, such as the Make utility and a debugger.

## Goals

This is a development-focused course to introduce students to a command-line interface, give them experience with a compiled, statically-typed language with pointers.

## Objectives

- Be able to use the Linux command line and traverse a filesystem
- Be able to write scripts to aid development and other tasks
- Write non-trivial C programs
- Effectively use pointers in C
- Use C memory mgt. functions to use heap memory
- Use a debugger
- Use the Make utility to help manage builds

## 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 [Min Grade: C] or
CS 176 [Min Grade: C] or
ECEC 201 [Min Grade: D] or
ECEC 301 [Min Grade: D]

## Course Materials

## Required:

*K.N.King*, C Programming : A Modern Approach, 2nd ed., 2008, ISBN 978-0393979503
Must purchase. Not available through the Drexel Library online.

## Optional:

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

## Additional:

Supplemental material and online resources will also be made available.

## Software and Hardware Requirements

Homework must be done 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)* has been 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 cannot locate the relevant information, please contact *ihelp@drexel.edu*.

## Drexel Blackboard Learn

This course is operating with the Drexel Blackboard 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. **Lectures**

   All lectures will be synchronous at the designated time for each section. Lectures will be recorded and made available online, in Blackboard, after the actual lecture takes place. The lecture slides and any additional notes and resources will also be provided.

2. **Labs**

   There will be weekly labs that will reinforce the material we will be learning in class. You will be required to submit the results of your lab every week in Blackboard. Labs will be given after each week and must be submitted the following week.

3. **Quizzes**

You will have a weekly quiz, online (Blackboard), to be completed during each week. The quizzes will check to see that you've done the reading for the week and might go a little more in-depth into the previous week's material. They are there to prepare you for the final exam. Watch the lecture videos and read the lecture notes, before taking the quiz. You will have only one try for each quiz.

4. **Assignments**

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

5. **Final**

   There will be a final exam but no midterm.

**Course Schedule (Tentative)** The schedule is tentative and may change during the course.

| Week | Week Start | Notes | Lecture Topics | Work is due on Thursdays @ 11:59pm | Work assigned on Fridays @ 4pm |
|---|---|---|---|---|---|
| **1** | **1/11/2021** | | Introduction to Unix<br>Unix Editors | | Q1, L1 given 1/15/2021 |
| **2** | **1/18/2021** | **No Lecture on Monday (MLK Day)** | More Unix<br>Introduction to Bash | Q1, L1 due 1/21/2021 | Q2, L2 given 1/22/2021 |
| **3** | **1/25/2021** | | Bash Scripting | Q2, L2 due 1/28/2021 | Q3, L3, A1 given 1/29/2021 |
| **4** | **2/1/2021** | | Regular Expressions<br>AWK<br>sed | Q3, L3 due 2/4/2021 | Q4, L4 given 2/5/2021 |
| **5** | **2/8/2021** | | C Fundamentals | Q4, L4, A1 due 2/11/2021 | Q5, L5 given 2/12/2021 |
| **6** | **2/15/2021** | | C Pointers & Strings<br>Command Line Arguments | Q5, L5 due 2/18/2021 | Q6, L6, A2 given 2/19/2021 |
| **7** | **2/22/2021** | | C Pointers and Arrays<br>C Pointers and Functions<br>C Pointers and Dynamic Memory | Q6, L6 due 2/25/2021 | Q7, L7 given 2/26/2021 |
| **8** | **3/1/2021** | | C Structs, Unions, Enumerations<br>C Linked Lists<br>Make Utility | Q7, L7, A2 due 3/4/2021 | Q8, L8 given 3/5/2021 |
| **9** | **3/8/2021** | | C Declarations<br>C Interfaces<br>Debugger | Q8, L8 due 3/11/2021 | |
| **10** | **3/15/2021** | The **Final** is on the material from the entire class. It can be taken any time between **3/16/2021 at 8 AM and 3/17/2021 at 11:59 PM.** It is time limited to 60 mins from the start of the test and will auto-submit after 60 mins. | **Finals Week** | | |

35 questions on final

## Grading

| Work Assigned | % of total grade |
|---|---|
| 8 Weekly Quizzes (2% each) | 16% |
| 8 Weekly Labs (4% each) | 32% |
| 2 Assignments (11% each) | 22% |
| Final Exam | 30% |

## Grading Policies

1. All assignments, labs, quizzes and exams will be posted on Bb Learn with a due date.
2. The weekly quizzes can be taken once. You will not be able to repeat the quiz in order to improve your score.
3. There is a 2-day window for late submissions of labs and assignments.
    a. If submitted within 24 hours of the deadline, the penalty will be 10%.
    b. If submitted within 24-48 hours of the deadline, the penalty will be 20%
    c. If submitted after 48 hours, the assignment or lab will get a 0.
4. The lab with the lowest score will be disregarded from the student's total grade.
5. All work must be submitted in Blackboard. Submitting the assignment over email is not acceptable.
6. If you miss taking the final, you will get a zero in the course.
7. If you get caught cheating in an assignment or lab, you will get a zero and you will be reported for academic dishonesty. You must be the original author of all submitted work. Do not cheat.
8. There will be no extra work for extra credit if you are unhappy with your grade.
9. There will be no extra work for extra credit if you missed the deadline for an assignment or test.
10. If you have questions about the class, an assignment or test, please post the question to the Slack workspace for the class. Do not email your questions.
11. If you want to dispute your grade for an assignment, talk to the TAs first. 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

| score >= | but < | equals |
|---|---|---|
| 97 | 100 | **A+** |
| 93 | 97 | **A** |
| 90 | 93 | **A-** |

| | | |
|---|---|---|
| 87 | 90 | **B+** |
| 83 | 87 | **B** |
| 80 | 83 | **B-** |
| 77 | 80 | **C+** |
| 73 | 77 | **C** |
| 70 | 73 | **C-** |
| 67 | 70 | **D+** |
| 60 | 67 | **D** |
| 0 | 60 | **F** |

## 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. |