Data Organization in C
CS 241L, Section 501, Spring 2022
UNM-Valencia
Fully Online
Remote Scheduled Zoom Lectures
Tuesday and Thursday, 1:30 - 2:45 PM

Instructor: Greg Barnett
Division Chair: Ariel Ramirez (aramirez8@unm.edu)

Office	Office Hours
Tomé: LRC 107	MW 8:15 - 9:00 AM at Tomé
WTC: 1107	MW 12:45-1:30 PM at WTC
gregbarnett@unm.edu	TR 4:30-6:00 PM in Zoom
505-925-8600	or by appointment

1 Overview

Welcome to CS 241L. Here is the UNM course description.

> Data representation, storage and manipulation. Covers the memory organization of data storage and its relation to computation and efficiency. Topics include: linked vs. contiguous implementations, memory management, the use of indices and pointers, and an introduction to issues raised by the memory hierarchy. Programming assignments in C provide practice with programming styles that yield efficient code and computational experiments investigate the effect of storage design choices on the running time of programs.

> Prerequisite: 152L with a grade of "B-" or better or 259L with a grade of "C" or better.

2 Learning Objectives

The two major goals of the course are to (1) achieve a working knowledge of the C programming language, and (2) understand some of the fundamental data structures used in Computer Science. At the end of the term, you should be able to:

- list and define data types, operators and expressions in C

- explain, summarize, and utilize the control flow structures in C

- describe, recognize, and apply the use of functions to create well structured C programs

- apply the input/output libraries in C, and manipulate files using a C program.

- manipulate strings and character arrays in C programs

- organize data using the C features of structures and unions

- define and explain arrays and their relationship to pointers in C

- describe, summarize, and implement basic data structures such as linked lists, stacks, queues, and trees in the C language

3 Required Text

- Problem Solving and Program Design in C, Eight Edition, by Hanly, Koffman, and Tahiliani.

- The electronic textbook (eText) will be available once you have an account on pearson.turingscraft.com. You will need our course ID (94201) to access the textbook and online practice exercises.

4 Attendance Policy

Each student is required to attend lectures each week in Zoom, and students should use this opportunity to get real-time feedback from me and the rest of the class. If a student does not attend Zoom lectures for two weeks in a row, I reserve the right (but not the obligation) to drop the student from the class. If you stop submitting your coursework for any reason, it is your responsibility to drop the class, or risk getting a failing grade.

Notification: Zoom lectures will be automatically recorded. I will post them to UNM Learn.

5 Technology

Students are expected to be able to

- Sign in and attend Zoom lectures twice a week

- Sign in and navigate UNM Learn

- Sign in and navigate pearson.turingscraft.com

- Type (editor of your choice), compile and run (gcc), and submit (UNM Learn) C programs

6 Course Structure

The course content includes the following. In all cases, your work will be submitted in UNM Learn.

- 10 Homework Assignments (300 points)
    - Programming Projects from the Textbook
    - 30 points each

- 25 Quizzes (100 points)
  - Multiple Choice and Short Answer
  - 4 points each

- Midterm Exam (50 points)
  - Timed Exam (2 hours)
  - Some Multiple Choice
  - Some Programming (file response in UNM Learn)
  - Available from 8:00 AM until 11:59 PM on exam day

- Final Exam (100 points)
  - Timed Exam (3 hours)
  - Some Multiple Choice
  - Some Programming (file response in UNM Learn)
  - Available from 8:00 AM until 11:59 PM on exam day

- Total (550 points)

Late homework assignments and quizzes will not be accepted, unless there is a valid reason. Exams may be made up in the event of emergency or extenuating circumstance only.

7 Grading Policy

Your grade will be calculated as follows.

Point Total	Grade
[539,550]	A+
[506, 539)	A
[495,506)	A-
[484,495)	B+
[451,484)	B
[440,451)	B-
[429,440)	C+
[385,429)	C
[374,385)	D+
[341,374)	D
[330,341)	D-
[0,330)	F

8   Netiquette

One of the overriding principles in online conversations is to "craft your responses effectively." It is sometimes difficult to remember that there are real people reading posted messages. This is especially true of online communication where others do not have the opportunity to see body language or hear tone of voice; therefore, misunderstandings are more likely.

Please, follow these guidelines in all of your online responses and discussion postings.

- Honor everyone's right to an opinion.

- Respect the right of each person to disagree with others.

- Respond honestly but thoughtfully and respectfully; use language which others will not consider foul or abusive. You may also use emoticons to convey a lighter tone.

- Respect your own privacy and the privacy of others by not revealing information which you deem private and which you feel might embarrass you or others

- Be prepared to clarify statements which might be misunderstood or misinterpreted by others.

A Special Note About Anger

- Do not send messages that you have written when you are angry, even anonymous ones. In the online world, angry messages are known as "flaming" and are considered bad behavior. Venting and flaming are two different things. It is possible to vent without becoming "ugly." Stick to the facts of what is causing you frustration.

- Do not send messages that are written all in upper case; this is the visual equivalent of SHOUTING. It is considered aggressive and is considered bad behavior. If you ever feel like shouting a message, take a deep breath and wait until you have calmed down before responding. Then, respond in a calm and factual manner.

UNM Netiquette Document

9   Academic Integrity

We will follow university policy on academic integrity.

> Having academic integrity is paramount to your success in any class. Plagiarism or cheating is not tolerated. Any instance of this will result in a grade of zero for that assignment. Here is the link to the UNM Academic Dishonesty Policy: https://policy.unm.edu/regents-policies/section-4/4-8.html. The policy states:

> Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or who otherwise fails to meet the expected standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course.

"Academic dishonesty" includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

10   Students with Disabilities

If you have a documented disability, please provide me with a copy of your letter from Equal Access Services as soon as possible to ensure that accommodations are provided in a timely manner.

11   EQUAL OPPORTUNITY AND NON-DISCRIMINATION:

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see page 15 of this link). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: https://policy.unm.edu/university-policies/2000/2740.html.