

**ECE 2220: C Programming and Systems Programming Concepts
Section 400**

Part I: Course-Specific Information

Course Modality	Asynchronous
Class Location/Time	Location: Online Time: Video recordings are posted on Mon. Weds. and Fri.
Instructor	Lu Yu < luy@g.clemson.edu >, Office: 300B Riggs Hall (Email me for any questions and do NOT message me on Canvas.)
Instructor's Office Hours	<ul style="list-style-type: none"> • Online • Time: 9:30 – 10:30 a.m.@Thurs. • Other times by appointment.
Prerequisites	CPSC 1110 or ECE 2210 with a C or better.
Important Dates	<ul style="list-style-type: none"> • May 21st, Tue. – Last day to drop a class or withdraw from the University without a W grade. • Jul. 9th, Tue. – Last day to drop a class or withdraw from the University without final grades but with a W grade.

Course Description

This course has three goals. First, it teaches the tools available in **Unix-like** operating systems (mainly Linux and MacOS) for C program development. These tools may include C standard library, system calls, the shell environment, system programs, and the basic Unix/Linux file system structure. Second, it is intended to rigorously develop the C programming skills in Linux systems of students. Towards that end, there will be frequent programming assignments. Third, it is intended to introduce students to code reading and the principles of code management. Each week in class, time will be spent examining existing code, to fix bugs, extend features, and to learn programming style and principles.

Student Learning Outcomes

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

1. Use the tools available in Unix-like operating systems for C programming development, including C standard libraries, system calls, the shell environment, system programs, and the basic Unix/Linux file system structure.
2. Able to program competently in C on Linux.
3. Read/debug C code and utilize the principles of code management.

Required Materials

Required textbook: Adam Hoover, *System Programming with C and Unix*, Addison-Wesley Publishing, 2009.

Required computer: Students are required to have a laptop with Linux installed for completing projects. Ubuntu Linux is preferred: <http://www.ubuntu.com/>

Topical Outline

Part 1: Details of the C Programming Language

- Data types, Conditionals, and Loops
- Bit Models and Memory Maps
- Arrays, Strings, Pointers, and Structures

Part 2: System Programming

- I/O: Streams, Buffers, Pipes, and Devices
- Program Building and Code Organization
- System and Process Calls
- Libraries*

Grading

Final grades will be based on the following weights: 10% homework, 50% programming projects, 20% for midterm, and 20% comprehensive final. In addition, all programming projects **must be completed** to receive a grade of C or higher.

Midterm: Chapter 1 (Review of C) ~ Chapter 4 (Pointers & Structs)

Final: Comprehensive

A – 90% - 100%; B – 80 to < 90%; C – 70 to < 80%; D – 60 to < 70 & F – < 60%

Attendance Policy

As an asynchronous course, there is NO scheduled weekly meeting times.

Additional Policies

- **Homework:** All HWs must be **handwritten**. For the submission of HWs, you are required to upload a clear scan copy of your handwritten HW to Canvas. All problem sets are due at the time and date specified on the assignment. **No** late assignments will be accepted.
- **Programming projects:** Submission of programming projects will be **electrical** throughout the semester, and policies for late submission will be defined for each machine problem. A passing grade in the course will not be awarded **without completion of all programming projects**.

We encourage you to discuss interpretations of problems and assignments with each other but we expect that you will construct and write up your own solutions to any assignments that you turn in for credit. If students are found to have collaborated excessively or to have blatantly cheated (e.g., by copying or sharing answers or computer code), all involved will at **a minimum receive grades of 0 for the first infraction**. Further infractions will result in **failure in the course** and **possibly recommendation for dismissal** from the university.

For the programming assignments it is fine to discuss with your classmates about your train of thought. But when it comes to writing down your answers, we expect your words and computer code to be yours alone. Do not share your work with your classmates, as they may not have the same work ethic as you do. Do not ask your classmates to share their files with you, either. In the end, your work should be a reflection of what you understand about the topic, presented in your own words and computer code.

- **Examinations:**
 - No make-up exams will be given unless an acceptable reason is presented to the instructor at least one week before the examination date. We shall have **one midterm**, and **a final exam**. The midterm is one hour and 30mins. The final exam is 2hrs and 30mins.
 - The student can bring **one double-sided hand-written note sheet (A4 letter)** to the midterm, and **two double-sided hand-written note sheet (A4 letter)** for the final. The use of cellphone and tablet is not allowed during the test.
- **Re-grades:** Re-grade requests must be submitted **in writing** on a separate piece of paper within **one week** of the return of the graded item.

Part II: University Policies and Student Support

Academic Integrity

As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning." Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.

All infractions of academic dishonesty by undergraduates must be reported to Undergraduate Studies for resolution through that office. In cases of plagiarism instructors may use the Plagiarism Resolution Form.

See the [Undergraduate Academic Integrity Policy](#) website for additional information and [the current catalogue](#) for the policy.

For graduate students, see [the current graduate student handbook](#) for all policies.

Access Accommodations

Clemson University values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of facilities, course design, technology used for curricular purposes, or other campus resources. Students who experience a barrier to full access to this class should let the instructor know and make an appointment to meet with a staff member in Student Accessibility Services as soon as possible. You can make an appointment by calling 864-656-6848, by emailing studentaccess@lists.clemson.edu, or by visiting Suite 239 in the Academic Success Center building. Appointments are strongly encouraged – drop-ins will be seen, if at all possible, but there could be a significant wait due to scheduled appointments. Students who have accommodations are strongly encouraged to request, obtain and send these to their instructors [through the AIM portal](#) as early in the semester as possible so that accommodations can be made in a timely manner. It is the student's responsibility to follow this process each semester.

You can access further information at the [Student Accessibility website](#). Other information is at the university's [Accessibility Portal](#).

Anti-Harassment and Non-Discrimination

The Clemson University Title IX statement: Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex,

sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. This [Title IX policy](#) is located on the Campus Life website. Ms. Alesia Smith is the Clemson University Title IX Coordinator, and the Executive Director of Equity Compliance. Her office is located at 223 Brackett Hall, 864.656.0620. Remember, email is not a fully secured method of communication and should not be used to discuss Title IX issues.

Emergency Procedures

Emergency procedures have been posted in all buildings and on all elevators. Students should be reminded to review these procedures for their own safety. All students and employees should be familiar with guidelines from the Clemson Police Department. Visit [here](#) for information about safety.

Clemson University is committed to providing a safe campus environment for students, faculty, staff, and visitors. As members of the community, we encourage you to take the following actions to be better prepared in case of an emergency:

1. Ensure you are signed up for [emergency alerts](#)
2. Download the [Rave Guardian app](#) to your phone (<https://www.clemson.edu/cusafety/cupd/rave-guardian/>)
3. Learn what you can do to [prepare yourself](#) in the event of an active threat (<http://www.clemson.edu/cusafety/EmergencyManagement/>)

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