Sections 1; Class: TTh 1:30 – 2:50 PM; Fully Online
Class webpage: Moodle
Zoom requires advance registration:
https://lsu.zoom.us/meeting/register/tJ0rceqqrzOiH92xj7pu
PHfnu6COTpxsf0Os
After registering, you will receive a confirmation email containing information about joining the meeting.

Teaching Assistant(s):
TBD

Virtual Office Hours:
Monday & Wednesday 1PM -3 PM
and by Appointment
https://lsu.zoom.us/j/94929415156?pwd=eFBkODFha3JZV
mNSYtFby9yS1RSUT09

Course Description
Introduction to systems programming, using the C programming language. Topics include machine-level representation of data and programs, the C programming language and development tools, OS command and shell basics, file I/O, process creation and control, system calls, signals, and virtualization.

Course Topics
- OS command and shell basics
- C language syntax, data types, and control flow
- C strings, pointers, and structs/unions
- C development tools - gcc, gdb, make, version control using git
- machine-level representation of data and programs
- file I/O unbuffered and buffered file I/O
- memory-mapped I/O
- process creation and control, using fork & exec
- pipes
- signals
- basic threading using pthread library
- Unix/Linux network I/O: client/server model, internet protocol, and
- basic socket programming with TCP & UDP
- virtualization
- optimizing program performance
- introduction to concurrency and parallelism

Prerequisites:
Credit or enrollment in CSC 3102.

Course Layout
- Course Lectures: The class will be fully online. Class lectures will be livestreamed, using Zoom. Lecture attendance is strongly encouraged, but not required. All graded assignments and assessments will be online.
- Homework: Students will complete homework on their own time. Assignments are to be completed in or uploaded to Moodle, as instructed. Students can expect homework practice problems each week that should take about 2 hours to complete.
**Programming Assignments:** Students will complete programming assignments on their own time. Assignments are to be completed in or uploaded to Moodle, as instructed. Students will be asked to apply systems programming constructs to solve small problems, using the C programming language in the Linux environment. Students can expect approximately 5 programming assignments during the course of the semester that should each take approximately 6 hours to complete. Programming assignment grades will be based on the following:

- Correct use of systems programming constructs
- Proper use of C programming language
- Program runs in the Linux environment on the classes server
- Shell program provides compiling, linking, testing, and running commands for the C program

**Exams:** There will be an 80 minute midterm exam and a two hour non-comprehensive final exam. The midterm exam will be online, but it will be held during a scheduled class time. The final exam will be held online, at the date/time established by the LSU final exam schedule. Arrangements for a make-up test must be made prior to the test. The instructor will be following LSU policy PS-22 with regards to valid reasons for missing an exam.

**Evaluation**

Grading will be based on homework/programming assignments and two exams:

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<thead>
<tr>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>90-92.99</td>
<td>A-</td>
<td>93-96.99</td>
<td>A</td>
<td>97-100</td>
<td>A+</td>
</tr>
<tr>
<td>80-82.99</td>
<td>B-</td>
<td>83-86.99</td>
<td>B</td>
<td>87-89.99</td>
<td>B+</td>
</tr>
<tr>
<td>70-72.99</td>
<td>C-</td>
<td>73-76.99</td>
<td>C</td>
<td>77-79.99</td>
<td>C+</td>
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<td>0-59.99</td>
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Final grade will be determined by overall average as follows:

- 10% Homework
- 30% Midterm Exam
- 30% Final Exam

**Textbooks**

Required Texts:
- Computer Systems: A Programmer’s Perspective by Bryant & O’Hallaron

Recommended Texts:
- Advanced Programming in the UNIX Environment by W. Richard Stevens
- C++ for Programmers by Paul J & Harvey M Deitel

**Class Policies**

- **Moodle:** The course Moodle will be the official avenue for communication between the instructor, teaching assistants, and students. Moodle will be used for providing general course information, making announcements, making assignments, turning in assignments, and posting grades. Check it often for new or updated information. If you don’t see something in Moodle that you think should be there, report it to the instructor as soon as possible.

- **Communication:** All electronic communication between students and the instructor and teaching assistants should maintain a professional decorum (e.g., address the recipient properly, use whole words, complete sentences, and proper grammar). Be sure to include enough detail of the problem so that you form a well-thought out question. The more detail you can give as to your problem, the more likely the instructor or teaching assistant will be able to help you.

- **Distractions:** Please mute yourself Zoom when not addressing the class. Please avoid activities that will distract your classmates. The instructor reserves the right to expel a student from the lecture Zoom for distracting, disruptive, or disrespectful behavior.
• **Preparation for class:** It is important that you come to class prepared. That includes completing the reading assignment in advance and bringing pencil(s) and paper for in-class practice problems.

• **Grading Change requests:** All grades are uploaded to the course Moodle. Concerns about grades must be addressed within one week after the graded work is made available. Thereafter, all grade book entries are final. Grade change requests must be submitted to the instructor, in writing, and must include the following:
  - Name of student
  - Date of the assignment/project/exam
  - Date of submission
  - Course number
  - List of the items that need to be corrected along with a concise reason as to why the grade change is needed.
  - Original assignment/test/quiz (not a copy).

Grade change request decisions are at the discretion of the instructor and will be returned as the instructor has time to complete the regrade. Final exam and final grade change requests can be submitted up to two weeks after the final exam. After that time, grade change requests will be denied.

• **Due Dates:** All work intended for grading must be submitted on time. Any work not submitted before the cut-off period is not graded. Programming projects will be Zipped and submitted on the course Moodle. Homework assignments will be taken on or uploaded to Moodle. **Moodle is unforgiving, so do not wait until the last minute to upload your assignment.**

• **Missed Assignment/Exams:** A grade of 0 is awarded for missed assignment/exam in the absence of a valid excuse, as determined by the instructor. In the unusual circumstance that you must miss an assignment or exam due to medical reasons or other unforeseen emergency, you need to notify the instructor as soon as possible and provide sufficient documentation to verify the claim. The instructor will be following LSU policy PS-22 with regards to valid reasons for missing an exam. If the instructor deems that the excuse is valid and sufficiently documented, the instructor will determine how the missed work will be made up, depending on the circumstance.

• **Special Accommodation:** Students who have a disability that require accommodation(s) should make an appointment with the Office of Disability Services (Phone (225) 578-5919 or TDD: (225) 579-2600) to discuss their specific needs and present a letter from the ODS informing the instructor of their needs. All such matters, by University regulations, are strictly confidential.

• **Collaborative Work:** All class exams, programming projects, and homework assignments must be the independent work of the student. **CODE SHOULD NEVER BE COPIED FROM ANY SOURCE.** Students are encouraged to work together on programming projects, but the work you turn in must be your own. In other words, you can discuss problems and approaches to your programs, but you should never share answers and source code.

• **Exam Dates:**
  - Midterm Exam: Tuesday, March 2, during class
  - Final Exam: Monday, April 26, 3 PM – 5 PM

• **Important Dates:**
  - Wednesday, January 20 – Final day to drop without a W (4:30 PM deadline)
  - Friday, March 26 – Final day for dropping classes (4:30 PM deadline)
  - Friday, March 26 – Final day to request rescheduling a final examination when three examinations are scheduled in 24 hours
Academic Integrity

- Students are required to abide by the LSU Code of Student Conduct Handbook. “LSU is an interactive community in which Students, faculty, and staff together strive to pursue truth, advance learning, and uphold the highest standards of performance in an academic, social, and social media environments” [from LSU Code of Student Conduct]. It is assumed that all students enrolled in this course have read the Code of Student Conduct – specifically section 10.1 (Academic Misconduct).
- All assignments will be monitored against academic dishonesty. Examples of academic dishonesty include, but are not limited to:
  - Accessing the solution manual to the text and copying the solution before attempting the problem on your own, while attempting the problem on your own, or after checking your work and finding your solution to be incorrect.
  - Copying a problem solution from a classmate (be it one problem or the entire problem set). The copy may be identical or a rearranged version of another student.
  - Giving your completed problem set to another student who has not yet completed their problem set.
  - Copying a solution from another student verbatim.
  - Peeking at a problem solution without the knowledge of the spied upon student.
- All students, regardless of level of guilt, will be reviewed by SAA (Student Advocacy and Accountability) in the event that an academic misconduct violation is detected.
  - This is particularly important for those of you who “share” your homework with others. Many times this is done with the best of intentions to help a classmate, but the classmate may copy your solution and present the work as their own. The “sharer”, in the eyes of the university, is just as guilty as the copier.
  - Keep your work safe. Never leave your homework with other students or send your solution to other students.
- If there is evidence of academic misconduct on homework assignments, programming projects, quizzes or exams, all involved parties will be submitted to SAA for review.

Behavioral Misconduct

- Per section 5.1 of the Code of Student Conduct, the Code applies to conduct that occurs on the Campus, at LSU-sponsored activities, and/or when the Student or Registered Student Organization is representing LSU. The University shall have discretion to extend jurisdiction over conduct that occurs off campus when the conduct adversely and significantly affects the learning environment or University community and would be in violation of the Code if the conduct had occurred on campus. This includes behavior that may occur in a remote learning environment, such as email, discussion forums, zoom webinars, or any other platform or solution used for a course. In determining whether to extend jurisdiction, the University may consider its ability to gather information. Potential violations of the Code can be reported through LSU Cares.
COVID-19
We remain under pandemic conditions and expect to be in this state for the entire semester. In order to consistently provide the highest quality LSU education, all students should follow current LSU guidelines. These include the following:

- If you have any signs of illness, do not come to class.
- In order to protect all campus community members, the University requires everyone to wear facemasks/cloths on campus. Failure to do so is a violation of the code of student conduct.
- Wash hands with soap and water or clean with sanitizer frequently, and refrain from touching your face.
- If you have to cough or sneeze unexpectedly, please be mindful of others nearby and cough or sneeze into your elbow or shield yourself the best you can.
- If you have been exposed to others who have tested positive for COVID-19, self-quarantine consistent with current CDC guidelines.

Daily Symptom Checker:
You are required to respond to a daily symptom check request sent via email or text message each morning. Completing the symptom checker will take approximately one to two minutes. Once you have provided information about your symptoms, you will be given feedback on whether or not you are certified to return to campus and attend your classes. Additionally, if you test positive for COVID-19, you are required to report it in your daily symptom checker application.

Resources for Students:
Your health and safety are LSU’s top priority. If you are feeling ill or overwhelmed with anxiety, please contact the LSU Student Health Center for medical advice and mental health support. General health care and mental health support are available for all enrolled students through telehealth appointments.

Unexpected Changes to Courses:
Due to the unpredictable nature of the situation, the format of the course and/or requirements may be forced to change, and if this is the case that students will be given appropriate notification.