

CPSC 3125 Syllabus, Fall, 2021

Charles Carter

August 13, 2021

1 Course Information

Name: CPSC-3125, Operating Systems

Description: An introduction to basic operating system level software concepts. Course topics include processes, threads, symmetric multi-processing, thread synchronization and memory management techniques.

Location: CCT 408

Times: Tuesday, Thursday, from 4:30 p.m to 5:45 p.m.

Instructor: Charles Carter

Email: carter_charles@columbusstate.edu

Office Hours: by appointment only

2 Learning Outcomes

An introduction to basic operating system level software concepts. Course topics include processes, threads, symmetric multi-processing, thread synchronization and memory management techniques. Upon completion of this course, students will:

- contrast the most common designs of operating systems.
- identify the major components of an operating system.
- identify the key functions of an operating system.
- write C implementations of a number of scheduling and interprocess communication algorithms.
- write C implementations of a number of memory management algorithms.

3 Resources

Unless indicated, all resources are available without cost.

Title	ISBN, URL
<i>Operating Systems, Three Easy Pieces</i> ¹	https://pages.cs.wisc.edu/~remzi/OSTEP/ , ISBN: 978-1985086593
Book repository	https://github.com/remzi-arpacidusseau
gcc compiler	https://gcc.gnu.org/
git SCM	https://git-scm.com/
<i>Pro Git</i> , Chacon and Straub ^{2 3}	https://git-scm.com/book/en/v2
Programming in C, 3rd Edition, Kochan ^{2 3}	ISBN: 978-0672326660
C language reference ²	https://en.cppreference.com/w/c/language
Understanding and Using C Pointers, Reese ^{2 3}	ISBN13: 9781449344184
PThreads Programming, Buttler, Farrell, et al ^{2 3}	ISBN-13: 978-1565921153

¹Required text.

²This resource is optional.

³Available commercially.

4 Course Assessment

Evaluation Item	Weight	Metrics
Homework	30%	Homework and class discussions are based on the assigned homework. Completion of the written homework assignments is mandatory. Homework/discussions will be assessed on a pass/fail basis, based on class presentations. You will receive a discussion grade for every homework assignment completed and your class participation.
Exercises & Labs	30%	Programming exercises receive a grade on a 0 to 100 point scale. Ordinarily, we will do exercises outside of class over the weekends. These are open book/open note exercises. You may work individually or in groups/pairs as directed. If you do not complete a graded exercise, you will receive a grade of 0 for that exercise.
Exams	40%	There will be four examinations during the term approximately every four weeks, including the final exam. The exams are non-cumulative. The exams will be closed book, closed note, and individually completed.
Quizzes	% TBD	Optional, at the discretion of the instructor. These are <i>quizzes</i> , except that these will be timed, in-class labs completed individually on an open note, open book, open internet basis. There are no makeups. A failure to complete a quiz during the allocated time will result in a zero. The intention of quizzes (if any) is a checkpoint.

5 Course Schedule

Homework and programming exercises are due at the beginning of class on Tuesdays. Labs and quizzes are due by midnight on the date they are assigned. All assignments shall be in written form, and may be delivered electronically. Format shall be in plain text files, or alternately, in Markdown format if desired. Please do *not* use Word or any other word processing software. **Late policy:** Ordinarily, I do not penalize late assignments. We will usually go over the assignments in class after the due date, and it is expected that students will correct their errors and resubmit their assignments. I reserve the right to enforce a late policy if students are not diligent about submitting the assignments. Please do not fall behind — this class is hard enough without having to catch up.

Week	Due Date	Homework	Exam	Readings	Pages
Week 1	August 17			Pages 1 – 48	48
Week 2	August 24	Homework 1, 2, 3		Pages 49 – 88	39
Week 3	August 31	Homework 4, 5, 6		Pages 89 – 129	40
Week 4	September 7	Homework 7, 8, 9	Exam 1	Pages 131 – 165	34
Week 5	September 14	Homework 10, 11, 12		Pages 167 – 212	45
Week 6	September 21	Homework 13, 14, 15		Pages 215 – 259	44
Week 7	September 28	Homework 16, 17, 18		Pages 261 – 314	53
Week 8	October 5	Homework 19, 20, 21	Exam 2	Pages 315 – 366	51
Week 9	October 12	Homework 22, 23, 24		Pages 367 – 411	44
Week 10	October 19	Homework 25, 26, 27		Pages 419 – 465	46
Week 11	October 26	Homework 28, 29, 30		Pages 467 – 524	57
Week 12	November 2	Homework 31, 32, 33	Exam 3	Pages 525 – 561	36
Week 13	November 9	Homework 34, 35		Pages 563 – 599	36
Week 14	November 16 ⁴	Homework 36, 37			
Week 15	November 23				
Week 16	November 30				
Finals	December 5 ⁵		Final Exam	Happy Holidays!	

⁴Last class day is November 18

⁵Final due date TBD

6 Administrative Policies

6.1 Attendance Policy

Student attendance is required for all lecture and laboratory sessions. Any work missed as a result of absence may be made-up at the discretion of the instructor. In class quizzes may not be made up. Work missed as a result of an excused absence may be excused.

6.2 ADA and 504 Statement

Columbus State University provides reasonable accommodations for all qualified persons under the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973, Section 504. You may be eligible to receive accommodations to assist in programmatic and/or physical accessibility. We recommend that you contact the Center for Accommodation and Access located in Schuster Student Success Center, Room 102, 706-507-8755 as soon as possible if you think you are eligible for accommodations. The Center for Accommodation and Access can assist you in formulating a reasonable accommodation plan, in identifying additional resources, and in providing support. Accommodations may be able to assist you to meet the requirements. Technical support may also be available to meet your specific need. Please contact Lauren Jones McKown if you have questions. She can be reached at 706-507-8755 or at jones_lauren3@columbusstate.edu.

6.3 Title IX Discrimination

Under Title IX of the Education Amendments of 1972, harassment based on sex, including non-consensual sexual contact, stalking, sexual exploitation, domestic and dating violence, and harassment because of pregnancy or related conditions, is prohibited. If a student would like to file a complaint for Title IX discrimination or has any questions, please contact the CSU Title IX Coordinator (Lauren Jones McKown, J.D. 4225 University Avenue, Schuster 102, Columbus, GA 31907, jones_lauren3@columbusstate.edu, 706.507.8757) and/or the Office of Civil Rights (Atlanta Office, U.S. Department of Education, 61 Forsyth Street S.W., Suite 19T10, Atlanta, GA 30303-8927, 404.974.9406, OCR.Atlanta@ed.gov).

6.4 CSU Social Distancing Statement

Students and faculty are expected to remain socially distanced during the course of the pandemic. For courses that are designated for face-to-face or hybrid delivery, it is advised that information sharing should occur electronically. For safety, while physically present, all individuals should remain 6+ feet apart at all times. Unless otherwise necessary, syllabi and other educational materials should be provided via CougarVIEW, email, or other remote medium. The University System of Georgia (USG) requires all faculty, staff, students, and visitors to wear an appropriate face covering while inside campus facilities/buildings. Face covering use will be in addition to and is not a substitute for social distancing. All classrooms will be set up in adherence to physical distancing guidelines. While certain lab and studio courses may not meet the 6-foot recommendation, students and faculty are required to wear face coverings and adhere to the necessary sanitation requirements for the lab or studio space. Anyone not using a face covering when required will be asked to wear one or must leave the area. Repeated refusal to comply with the face mask requirement may result in disciplinary action through the applicable conduct code found in the COVID-19 Response and Updates - Columbus State University.

Any student asked to leave will be counted absent for that class period. Reasonable accommodations may be made for those who are unable to wear a face-covering for documented health reasons. Please notify your instructor immediately if you require a face-covering accommodation.

If you are not able to attend class due to illness, please send an email to indicate that you will be absent. In lieu of attending class, you may access the course materials through CougarVIEW, and participate remotely until such time that you are able to return to class. Please keep me informed on your ability to return to class, in accordance with CDC guidelines, as it is important for me to know when to expect you in-person.

6.5 Academic Integrity

All students are expected to recognize and uphold standards of intellectual and academic integrity. As a basic and minimum standard of conduct in academic matters that students be honest and that they submit for credit only the products of their own efforts. Both the ideals of scholarship and the need for fairness require that all dishonest work be rejected as a basis for academic credit. They also require that students refrain from any and all forms of dishonorable or unethical conduct related to their academic work. Students are expected to comply with the provisions of Section III, “Student Responsibilities,” of the Columbus State University Student Handbook. This specifically includes the sections on “Academic Irregularity,” and “Conduct Irregularity.” In particular, the Columbus State University Student Handbook states: “No student shall give or receive assistance in the preparation of any assignment, essay, laboratory report, or examination to be submitted as a requirement for any academic course in such a way that the submitted work can no longer be considered the personal effort of the student submitting the work.” Examples of Academic Dishonesty include but are not limited to: Plagiarism (see definition below), giving or receiving unauthorized assistance on exams, quizzes, class assignments or projects, unauthorized collaboration, multiple submissions (in whole or part) of work that has been previously submitted for credit. Plagiarism is any attempt to represent the work or ideas of someone else as your own. This includes purchasing or obtaining papers from any person and turning them in as your own. It also includes the use of paraphrases or quotes from a published source without properly citing the source. All written assignments may be submitted for textual similarity review to Turnitin.com for the detection of plagiarism. Any work turned in for individual credit must be entirely the work of the student submitting the work. All work must be your own. You may share ideas but submitting identical assignments (for example) will be considered cheating. You may discuss the material in the course and help one another with debugging, however, I expect any work you hand in for a grade to be your own. A simple way to avoid inadvertent plagiarism is to talk about the assignments, but don’t read each other’s work or write solutions together. Keep scratch paper and old versions of assignments until after the assignment has been graded and returned to you. If you have any questions about this, please see me immediately. No cheating in any form will be tolerated. Please be aware that anyone caught cheating or plagiarizing in this class will receive a zero for the assignment/exam and may receive an F for the course.

6.6 Student Complaint Process

Information and resources for student complaints and academic appeals are located at the following link on the Columbus State University website <http://aa.columbusstate.edu/appeals/>.

6.7 Changes to Syllabus

This syllabus is provisional and may be changed. Students will be given notice in a timely manner of all changes to this syllabus. Notice may be given orally in class. Updated syllabi completely replace all prior versions. The latest revision date is given on each page.