

# CPSC3125 COURSE SYLLABUS

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## INSTRUCTOR INFORMATION

INSTRUCTOR NAME: Jianhua YANG

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PHONE: 706-507-8180

OFFICE HOURS AND LOCATION: TBA, CCT440

MEETING TIME AND PLACE: MW: 6:00pm to 7:15pm, meet at CCT407 Twice a week.

## COURSE INFORMATION

COURSE CRN NUMBER/TITLE: 23362/Operating System

CREDIT HOURS/PREREQUISITES: 3/CPSC 2105 and CPSC 2108, both with grades of "C" or better

### COURSE DESCRIPTION

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

### REQUIRED TEXTBOOK AND MATERIALS

1. [Modern Operating Systems](#) by [Andrew S. Tanenbaum](#) and [Herbert Bos](#) [Required]
2. [C: A Reference Manual \(5th edition\)](#) by [Samuel P. Harbison](#) and [Guy L. Steele Jr.](#) [Recommended]
3. [Linux Pocket Guide \(2nd edition\)](#) by [Daniel J. Barrett](#) [Recommended]

## LEARNING OUTCOMES

### DESCRIPTION

This course is sequence designed to introduce students to the fundamental concepts of modern operating systems (e.g., CPU scheduling, memory management, synchronization, deadlock, file systems). The course focuses on the principles that underlie these concepts and to help students understand the role(s) each plays. Non-trivial assignments using the C/Java programming language provide students with a firsthand experience using these concepts. The course is also intended to give CS students: (1) A broad general education assuring an adequate foundation in science and mathematics relevant to computing; (2) A solid understanding of concepts fundamental to the discipline of computer science; (3) Good analytic, design, and implementation skills required to formulate and solve computing problems; and (4) The ability to function and communicate effectively as ethically and social responsible computer science professionals.

## ACADEMIC OBJECTIVES

1. Students will be able to define and discuss terms and concepts regarding processes and threads;
2. Students will demonstrate their ability to create multi-process/multi-thread programs and synchronize their actions;
3. Students will be able to analyze CPU scheduling algorithms, and memory management techniques; and
4. Students will also demonstrate basic skills in system programming.
5. Strategies and Actions used to produce the outcomes:
  1. Lectures and classroom discussions
  2. Individual programming assignments

3. ABET criteria covered: A, B, C, I, J, K
4. Assessment methods: Written exams and programming assignments

Where the ABET criteria are defined as:

- A. An ability to apply knowledge of computing and mathematics appropriate to the discipline.
- B. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
- C. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.
- D. An ability to function effectively on teams to accomplish a common goal.
- E. An understanding of professional, ethical, legal, security, and social issues and responsibilities.
- F. An ability to communicate effectively with a range of audiences.
- G. An ability to analyze the local and global impact of computing on individuals, organizations, and society.
- H. Recognition of the need for, and an ability to engage in, continuing professional development.
- I. An ability to use current techniques, skills, and tools necessary for computing practice.
- J. An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
- K. An ability to apply design and development principles in the construction of software systems of varying complexity.

PROGRAM/GEN ED LEARNING OUTCOMES (IF Applicable))

## COURSE ASSESSMENT

LEARNING ACTIVITIES

### Course Topics:

- Process and thread
- Memory management
- File system
- Input and output
- Deadlocks
- Security
- OS case study

### Class Format:

- Instructional class Delivery
- Online Course Materials
- Discussion Topics
- Assignments
- Programming project
- Midterm Exam and Final Exam

### Student Responsibilities

1. Attend class regularly (if so enrolled) and participate in all online discussions.
2. Complete all reading assignments and all homework assignments.
3. Ask the instructor questions.
4. Send the instructor e-mail with both comments and questions.

## Instructor Responsibilities

1. Give lectures on the course material.
2. Assign appropriate homework that illustrates the concepts of the course, and grade and return the homework in a timely manner with adequate explanation.
3. Give tests over the material and grade and return the tests in a timely manner
4. Provide a website that supports the course.
5. Provide at least four hours of office time primarily designated for assistance of students in this class, at times expected to be convenient for the students. It is expected that the instructor be available to the students during these hours.
6. Reply promptly (within one business day) to all student e-mail communications.

## COURSE EVALUATION

<b>GRADED LEARNING ACTIVITIES</b>	<b>Percentage</b>	<b>Points</b>
Programming (2)		20
Assignments (6)		30
Midterm Exam		20
Final Exam		30
<b>TOTAL</b>		<b>100</b>

<b>Percentage Range</b>	<b>Final Grade</b>
90-100%	A
80-89%	B
70-79%	C
60-69%	D
59% and below	F

## ADMINISTRATIVE POLICIES AND ACADEMIC RESOURCES

### CSU DISABILITY POLICY

If you have a documented disability as described by 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 Office of Disability Services located in Schuster Student Success Center, Room 221, 706-507-8755 as soon as possible. Students taking online courses can contact the Office of Disability services at <http://disability.columbusstate.edu/>. The Office of Disability Services can assist you in formulating a reasonable accommodation plan and in providing support. Course requirements will not be waived but accommodations may be able to assist you to meet the requirements. Technical support may also be available to meet your specific need.

## 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.

Please be aware that anyone caught cheating or plagiarizing in this class will receive a "0" for the assignment/exam and may receive a "0" for the course.

## 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/>.

## COURSE ATTENDANCE POLICY

Students are required to take part in the discussion related to each chapter through D2L.

## TECHNICAL RESOURCES

### HARDWARE REQUIREMENTS

[How do I know if my computer will work with D2L?](#)

### SOFTWARE REQUIREMENTS

An- office suite such as Microsoft Office or Open Office

- To open PDF files you might need Acrobat Reader
- Browser Plugins (Pdf files, QuickTime files, Mp4 files) can be usually be obtained at the browsers website.

[Google Chrome](#)

[Firefox](#)

[Safari](#)

[Internet Explorer](#) (Caution: IE is often problematic for D2L-CougarVIEW)

If you need technical support or need assistance configuring your computer, you can refer to the link located in the "Support Resources" widget located on your "My Home" and your "Course Home" pages. If you cannot solve your problem after reviewing the knowledge base help pages, you can call help center 24-7 and talk to a Help Center agent. The number is 1-855-772-0423.

## COLLEGE SPECIFIC SECTION

N/A

## COURSE SCHEDULE

## Tentative Class Schedule

Weeks		Subjects	Assignment/Exam	Programming Assignment
1	1/11	Class Introduction, C Programming	<a href="#">Obando's C Programming Lecture</a>	
	1/13	C Programming		
2	1/18	<b>Martin Luther King, Jr. Holiday</b>		
	1/20	C Programming		
3	1/25	Chapter 1 Introduction (1-25)		
	1/27	Chapter 1 Introduction (26-47)		
4	2/1	Chapter 2 Process & Thread (1-25)		
	2/3	Chapter 2 Process & Thread(25-50)		
5	2/8	Chapter 2 Process & Thread(50-74)		
	2/10	Chapter 2 Process & Thread CE		
6	2/15	Chapter 3 Memory Management(1-25)	Assignment 1: Process and Thread	
	2/17	Chapter 3 Memory Management(26-56)		
7	2/22	Chapter 3 Memory Management CE		Programming Assignment 1
	2/24	Chapter 4 File System (1-20)		
8	2/29	Chapter 4 File system (21-49)	Assignment 2: Memory Management	
	3/2	Chapter 4 File system CE		
9	3/7	Midterm Exam Study Guide		
	3/9	Midterm Exam		
10 (Mar. 14 – 20)		<b>Spring Break!</b>		
11	3/21	Chapter 5 Input/Output (1-20)	Assignment 3: File System	
	3/23	Chapter 5 Input/Output (21-40)		

12	3/28	Chapter 5 Input/Output (40-57)		
	3/30	Chapter 5 Input/Output CE		
13	4/4	Chapter 6 Deadlock (1-20)	Assignment 4: Input/Output	
	4/6	Chapter 6 Deadlock (21-45)		
14	4/11	Chapter 6 Deadlock CE		
	4/13	Chapter 9 Security (1-27)		
15	4/18	Chapter 9 Security (28-57)	Assignment 5: Deadlock	Programming Assignment 2
	4/20	Chapter 10 Unix/Linux (1-24)		
16	4/25	Chapter 10 Unix Linux (25-48)	Assignment 6: Security/Unix/Linux	
	4/27	Chapter 9 &10 CE		
17	5/2	Final Exam Study Guide		
	Final Exam	TBA		

**Note: CE: Class Exercise**