# COSC 3360 SYLLABUS

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| **Semester and Year the Course is Offered:** | Fall 2022 |
| **Department:** | Computer Science |
| **Course Number and Name:** | 3360 - Fundamentals of Operating Systems |
| **Instructor:** | Carlos Alberto Rincon Castro |
| **Email Address:** | carincon AT uh DOT edu |
| **Class Schedule:** | Tu and Th 11:30 am. to 1:00 pm. (SEC 103). |
| **Office Hours:** | Mo, Tu, We, and Th from 10:00 am. to 11:00 am. (MS Teams). |
| **Course Web Page:** | UH Blackboard Official Website<br>Moodle server (moodle2 DOT cs DOT uh DOT edu) |
| **Teaching Assistants:** | **TBA**<br>Email: TBA<br><br>**TBA**<br>Email: TBA |

**NOTES:**

- The information contained in this class syllabus is subject to change. Students are expected to be aware of any additional course policies presented by the instructor during the course.

- Computer and internet access required for course. For the current list of minimum technology requirements and resources, copy/paste/navigate to the URL http://www.uh.edu/online/tech/requirements. For additional information, contact the office of Online & Special Programs at UHOnline@uh.edu or 713-743-3327.

**LEARNING OBJECTIVES**

At the end of this course, the student should be able to:

- Describe the key functions of an operating system and its relationship with the components of a computer system.

- Understand the process management aspects of the operating system: control and description of processes, threads, interprocess communication, and concurrency mechanisms.
- Explain how operating systems schedule processes and threads.
- Understand the different memory management solutions provided by the operating system.
- Understand the I/O management tools and file system design aspects and implementation.

## TENTATIVE LIST OF DISCUSSION/LECTURE TOPICS

| WEEKS | TOPIC |
|---|---|
| 1 – 4 | UNIT 1:<br>Computer Systems Overview<br>Operating Systems Overview<br>Processes: Description and Control, Threads. |
| 9/22 | Exam Unit 1 |
| 6 – 9 | UNIT 2:<br>Interprocess communication.<br>Processes concurrency: Mutual exclusion and synchronization, Deadlock and starvation |
| 10/27 | Exam Unit 2 |
| 11 – 15 | UNIT 3:<br>Uniprocessor Scheduling and Multiprocessor Scheduling<br>Memory management and Virtual Memory<br>I/O and File Systems |
| TBA | Exam Unit 3 |

## TENTATIVE PROGRAMMING ASSIGNMENTS SCHEDULE

| DATES | TOPIC |
|---|---|
| 9/23 | ASSIGNMENT 1: Processes and Threads |
| 10/28 | ASSIGNMENT 2: Interprocess Communication |
| 12/2 | ASSIGNMENT 3: Interprocess Synchronization |

## GRADING

| Evaluation | % |
|---|---|
| Exam Unit 1 | 20 |
| Exam Unit 2 | 20 |
| Exam Unit 3 | 20 |
| Programming Assignment 1 | 10 |
| Programming Assignment 2 | 15 |
| Programming Assignment 3 | 15 |

## GRADING SCALE

| A >= 92.5<br>Excellent | A- >= 89.5 and < 92.5<br>Outstanding | B+ >= 86.5 and < 89.5<br>Very Good |
|---|---|---|
| B >= 83.5 and < 86.5<br>Good | B- >= 79.5 and < 83.5<br>Above Average | C+ >= 76.5 and < 79.5<br>High Average |
| C >= 72.5 and < 76.5<br>Average | C- >= 69.5 and < 72.5<br>Low Average | D+ >= 65.5 and < 69.5<br>Below Average |
| D >= 62.5 and < 65.5<br>Poor | F < 62.5<br>Failing | |

## TEXTBOOK

William Stalling. *Operating Systems: Internals and Design Principles*. Seventh Edition. Prentice Hall. 2011.

Other Useful Books:

- Tanenbaum, *Operating Systems: Design and Implementation*
- Silberschatz, Galvin. *Operating System Concepts*.
- Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau, *Operating Systems: Three Easy Pieces,* http://pages.cs.wisc.edu/~remzi/OSTEP/. (Free online)

## IMPORTANT NOTES

- All programming assignments will be in C or C++ under Linux and submitted through the Moodle server.
- Assignments must be submitted on the due date. No late or email submissions will be accepted.
- The Moodle server flags all programming assignment submissions with a similarity ratio greater or equal to the similarity threshold set for each assignment. Programming assignment solutions flagged by Moodle will receive a **zero** as a proposed grade. Students will have the opportunity to discuss this issue with the instructor.
- A Attendance will be considered when grading the extra credit activities. Students with attendance less than 75% will not get any points for extra credit activities.
- Academic Honor Code: **Cheating** and/or **plagiarism will not** be **tolerated**. It is each student's responsibility to read and understand UH Academic Honesty Policy (https://www.uh.edu/provost/policies/honesty/_documents-honesty/academic-honesty-policy.pdf).

## COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS) STATEMENT

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can

reach CAPS (**www.uh.edu/caps**) by calling **713-743-5454** during and after business hours for routine appointments or if you or someone you know is in crisis. No appointment is necessary for the "Let's Talk" program, a drop-in consultation service at convenient locations and hours around campus: **http://www.uh.edu/caps/outreach/lets_talk.html**


**COVID-19 INFORMATION:**

If you are experiencing any COVID-19 symptoms that are not clearly related to a pre-existing medical condition, do not come to class. Please see Student Protocols for what to do if you experience symptoms and Potential Exposure to Coronavirus for what to do if you have potentially been exposed to COVID-19. Consult the (select: Undergraduate Excused Absence Policy or Graduate Excused Absence Policy) for information regarding excused absences due to medical reasons.

COVID-19 Information
Students are encouraged to visit the University's COVID-19 website for important information including diagnosis and symptom protocols, on-campus testing, and vaccine information. Please check the website throughout the semester for updates.

Vaccinations
Data suggests that vaccination remains the best intervention for reliable protection against COVID-19. Students are asked to familiarize themselves with pertinent vaccine information and to consult with their health care provider. The University strongly encourages all students, faculty and staff to be vaccinated.

Reasonable Academic Adjustments/Auxiliary Aids
The University of Houston complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for disabled students. In accordance with Section 504 and ADA guidelines, UH strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustments/auxiliary aid, please contact the Justin Dart Jr. Student Accessibility Center (formerly the Justin Dart, Jr. Center for Students with DisABILITIES).

Excused Absence Policy
Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston Undergraduate Excused Absence Policy and Graduate Excused Absence Policy for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Under these policies,

students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to military service, religious holy days, pregnancy and related conditions, and disability.

Recording of Class
Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the Justin Dart, Jr. Student Accessibility Center. If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with *anyone* without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

Syllabus Changes
Due to the changing nature of the COVID-19 pandemic, please note that the instructor may need to make modifications to the course syllabus and may do so at any time. Notice of such changes will be announced as quickly as possible through MS TEAMS and via email.