LEARNING OBJECTIVES
Understanding the fundamental aspects of operating system operation; learning how to create and control processes in a UNIX environment, how to establish communication channels between processes, and how to synchronize processes and threads.

MAJOR ASSIGNMENTS/EXAMINATIONS
Your grades will be based on three quizzes (60 percent of your grade), three programming assignments (39 percent) and class participation (1 percent). People failing the assignments or the examinations will fail the course. The three main quizzes will be closed book. You will be responsible for all materials discussed in class, but not for the readings. You will be allowed a single 8.5"×11" page of notes for each quiz.

All programming assignments will be in C or C++ under Linux and submitted through your Blackboard account. They will be graded for correctness and respect of good programming practices such as modularity and documentation. Be sure to dedicate enough time to them. Late assignments will be assessed a penalty of 5 points per day unless announced otherwise. You will be given a total of three grace days to be used at your discretion. You do not need anyone’s permission to use them.

No cheating will be tolerated on any graded assignment: what you turn in must be your own work. The minimum penalty for any transgression will be an F grade for the course. You have been warned.

REQUIRED READINGS
J.-F. Pâris, Fundamentals of Operating Systems
(PowerPoint presentations on instructor's web site and Piazza course page).

RECOMMENDED READINGS
Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau, Operating Systems: Three Easy Pieces,
http://pages.cs.wisc.edu/~remzi/OSTEP/. (Free online)
TENTATIVE LIST OF DISCUSSION/LECTURE TOPICS

<table>
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<th>Week</th>
<th>Topic</th>
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<tr>
<td>1</td>
<td>Introduction, interrupts, O. S. organization.</td>
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<td>2</td>
<td>Processes, process creation and deletion, lightweight processes and threads.</td>
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<td>3</td>
<td><strong>First Quiz on Tuesday, June 18.</strong> Scheduling. Inter-process communication.</td>
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<td>4</td>
<td>Inter-process synchronization, semaphores. <strong>First Assignment due in late June.</strong></td>
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<td>5</td>
<td>Monitors, Deadlocks.</td>
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<td>6</td>
<td><strong>Second Quiz on Tuesday, July 9.</strong> Memory management. Virtual memory management.</td>
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<td>7</td>
<td><strong>Second Assignment due in mid-July.</strong> File systems</td>
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| 8    | **Last lecture on Monday, July 22**  
**Third quiz on Tuesday, July 23**  
**Third assignment due in late July** (after the last quiz). |

HANDS-ON LINUX EXPERIENCE

The best way to learn a computing environment is to try to use it to solve real problems. For this reason, you will all have to install some version of UNIX on your personal computer. In order of increasing sophistication, your options are:

1. Installing the Windows Subsystem for Linux (WSL) on your PC or learning to use your Mac shell. The best tutorial for installing WSL is: [https://docs.microsoft.com/en-us/windows/wsl/install-win10](https://docs.microsoft.com/en-us/windows/wsl/install-win10)
2. Finding a way to boot Linux/FreeBSD from your hard drive or from a flash drive.
3. Installing a Linux/FreeBSD virtual machine on your PC or your Mac.

I do not recommend installing Cygwin on your PC because it does not seem to handle all Pthread synchronization primitives. This might be your sole option if you have a PC that does not run the 64-bit version of Windows 10. If this is the case, you will be given an account on one of our servers.

IMPORTANT

1. The summer session packs fifteen weeks of classes and assignments into seven weeks and half: think about the assignments and do not overload yourself.
2. **Not turning in assignments is a guaranteed way to fail the course.**
3. Please contact me if you have any special need. We can and will work together around them. Do not wait until it is too late.
4. Please verify that the university has your correct email address: We will use it whenever we have to get in touch with you for things like missing assignments and so on.
5. Please refer to the Piazza course page for quiz solutions, review session questions and answers, and other announcements.

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to the demands of a professional program, or feeling sad and hopeless. You can reach CAPS ([www.uh.edu/caps](http://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](http://www.uh.edu/caps/outreach/lets_talk.html))