**Tentative Course Syllabus**  
*The more up-to-date version is on the eCollege course shell*

**TEXAS A&M UNIVERSITY – COMMERCE**  
**CSCI 530 OPERATING SYSTEMS**  
Section: 01W (Web-based/online class) Course Call #: 10044  
Winter 2014/2015 (12/15/2014 through 01/08/2015)

<table>
<thead>
<tr>
<th>CLASS MEETINGS:</th>
<th>Instructor Office Hours:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time &amp; Location:</strong> Online, E-College Course Shell will be used: <a href="https://secure.ecollege.com/tamuc">https://secure.ecollege.com/tamuc</a> or <a href="http://online.tamuc.org">http://online.tamuc.org</a></td>
<td>Online class; I will be responding to your questions via email and on eCollege. If necessary, we can arrange for a Skype video session.</td>
</tr>
</tbody>
</table>

**INSTRUCTOR:**  
Ünal “Zak” Sakoglu, Ph.D.  
Assistant Professor, Department of Computer Science  
Texas A&M University - Commerce  
Instructor Office: JOUR209  
e-mail: unal.sakoglu@tamuc.edu  
Office Phone: 903-886-5242  
URL: [http://people.tamu.edu/~sakogluunal](http://people.tamu.edu/~sakogluunal)

**REQUIRED TEXTBOOK:**  
*Operating Systems Internals and Design Principles - 7th Edition*  

**SUPPLEMENTARY/RECOMMENDED (NOT REQUIRED):**  
*Operating System Concepts – 7th Edition*  

**COURSE DESCRIPTION:**  
The general theory, concepts and application of general purpose operating system design and implementation are discussed in this course. Topics include the basic components of modern computing systems (CPU, memory, system bus and I/O devices), concurrent programming, memory management and process scheduling. Students will study the implementation of these OS components by examining and discussing real OS implementation details as well as through the development of simulations and algorithms of these components in class. Students will be expected to complete several programming projects and assignments implementing basic and advanced operating system algorithms and concepts during this course. This course is one of the required core courses for the graduate programs in computer science at Texas A&M University – Commerce.  
**Credit hours: 3. Prerequisites:** CSCI 515; and CSCI 516

**STUDENT LEARNING OUTCOMES:**  
(SLO530.1) Student will be able to analyze the major elements and relationships between them of fundamental general purpose operating systems, including memory, CPU, the system bus and I/O devices.  
(SLO530.2) Students will be able to compare the trade offs and effects of differing memory management techniques such as paged and segmented memory, and will be able to demonstrate the advantages and uses of virtual memory in particular.
(SLO530.3) Students will be able to produce and understand software simulations of fundamental OS components, such as memory management and page replacement, process selection, and process state transition management for multiprogramming.
(SLO530.4) Student's will be able to analyze and understand issues with concurrent and parallel execution of program threads, including concepts such as mutual exclusion, starvation, deadlocks and race conditions.
(SLO530.5) Students will be able to analyze concurrent algorithms for deadlock avoidance, detection and management of concurrent processes using mutual exclusion mechanisms.
(SLO530.6) Student's will be able to evaluate and judge the benefits and disadvantages of process scheduling algorithms, and be able to implement and understand simple process scheduling procedures.

COURSE OUTLINE/CONTENT/SCHEDULE:

Note, exact schedule can change, but the chapter slides will be available on eCollege at 1AM CST on the following dates. This is an accelerated course! You are expected to study the course materials the same exact day. There may be online pop-quizzes and HWs assigned regarding the course material the very same day. Due to tight schedule of the course, the pop-quizzes will only be available for only two-to-five hours. HWs will be due within one day or less, as soon as they are posted. Usually, HWs will be posted just before the evening and they will be due next evening. Quizzes may be posted any time of the day, but they will usually be posted during early evening. Due to this reason, in order to check for any assignments and quizzes, you should login to your eCollege and check the course materials and announcements and your leomail as frequent as every two hours! I will track your eCollege activity and whether you spend any time going through the course slides there; and if there is a discussion assignment, you are supposed to contribute by replying. These will be part of your eActivity grade, which is 10% of your overall grade.

| Day 1: | 12/15/2014 | Chapter 1. Computer system overview  
Chapter 2. Operating system overview | Part I: Background |
| Day 2: | 12/16/2014 | Chapter 3. Process description and control  
Chapter 4. Threads | Part II: Processes |
| Day 4: | 12/18/2014 | Chapter 6. Concurrency II: Deadlock and starvation | |
| Day 5: | 12/19/2014 | Online Midterm exam, covers Chapters 1-6. The exact time will be announced on the course shell.  
Chapter 7. Memory management | Part III: Memory |
| Day 6: | 12/22/2014 | Chapter 8. Virtual memory | |
| Day 8: | 01/05/2015 | Chapter 10 Multiprocessor and Real-Time Scheduling | |
| Day 9: | 01/06/2015 | Chapter 11. I/O Management (partial chapter) | Part V: Input/Output and Files |
| Day 10: | 01/07/2015 | Chapter 12. File Management (partial chapter)  
(Online Final exam is either this day (during afternoon or evening), or one day later on 01/08/2015. The exact time will be announced on the course shell. It is comprehensive of ALL chapters covered). | |

Note: 12/24/2014 – 01/04/2015: Holiday break.

EXAMS & GRADING:
E-Attendance/E-Activity 10%
Homework Assignments 40%
Midterm Exam 20%
Final Exam (Comprehensive of all the material covered) 30%
COURSE REQUIREMENTS:

**Study:** To plan a minimum of three hours of outside preparation for each hour of class is a safe time allocation for successfully completing the course. You will need to activate and access your eCollege course shell account. Visit [https://secure.ecollege.com/tamuc](https://secure.ecollege.com/tamuc) or [http://online.tamuc.org](http://online.tamuc.org) for details:

“If at any time you experience technical problems (e.g., you can't log in to the course, you can't see certain material, etc.) please contact the eCollege HelpDesk, available 24 hours a day, seven days a week. The HelpDesk can be reached by sending an email to helpdesk@online.tamuc.org or by calling 1-866-656-5511”.

**Assignments:** There will be regularly assigned written problem sets which may include programming assignments, and there will be pop-quizzes which may be unannounced. Assignments will be given and returned via the online eCollege system as a convenience to the students and the instructor. **It is the student’s responsibility to login and check the course’s eCollege site as frequently as every two hours during the day for announcements, assignments and course-related content. It is very important that students follow the instructions carefully on the assignments.** The assignments will be uploaded by the instructor to eCollege course shell’s Doc Sharing, and the student will have to upload it to the course shell’s Dropbox by following the instructions on the assignment. It is the student’s responsibility to have all assignments ready on time by the given due date. Late assignment may not be accepted or may be penalized and assignment may not be accepted beyond a certain time. **If there are any problems with uploading your assignment to eCollege, you shall email me with the attachment, notify me of the eCollege problem, and then you shall still upload your assignment to the eCollege as soon as the eCollege problem is resolved.** Students are expected to go through the uploaded course slides and any other uploaded material in eCollege course shell. **Online discussion/activities are necessary.** Your online activity will be tracked and graded.

**Exams:** Two exams will be given, one midterm exam and one final exam. The instructor may add other necessary exams if he sees necessary.

**Programming Assignments/Simulations:** A significant portion of your course evaluation and learning will occur through the assignment and completion of several programming/simulation assignments. These assignments take the form of advanced simulations of major OS components, such as process scheduler algorithms and memory management algorithms. Students are expected to be proficient C/C++ programmers and have the necessary background and skills to complete a medium sized non-trivial programming assignment.

**Attendance:** Student participation will be graded by the level of online class participation and viewing of any course material uploaded to course shell. Students are expected to view the uploaded slides and any other course material uploaded to eCollege course shell. The student may fail the course if the attendance is below a certain percentage. The instructor maintains the right to modify the course syllabus & policies within the semester if need arises.

**ACADEMIC ETHICS:**
"All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See Student's Guide Handbook, Policies and Procedures, Conduct). Ethics include the issue of plagiarism, and copying parts or whole of assignments, quizzes and exams is just as serious as any other type of plagiarism. If you are caught sharing or using other people's work, you will receive a 0 grade and a warning on the first instance. A subsequent instance will result in receiving an F grade for the course, and possible disciplinary proceedings. The student who shares as well as the one who copies will both receive a 0.

**ATTENDANCE POLICY :**
Student participation will be graded by the level of class participation and attendance. **Students are expected to attend every class.** The student may fail the course if the attendance is below a certain percentage. If a student is absent from class on the due date of any assignment, they are expected to make alternative arrangements to assure that the assignment is turned in ON TIME. Any student
wishing to withdraw from the course must do so officially as outlined in the class schedule. THE INSTRUCTOR CANNOT DROP OR WITHDRAW ANY STUDENT.

COURSE REQUIREMENT DEADLINES:
Credit will be given for ONLY those exam(s), program(s), and/or project(s) turned in no later than the deadline(s) as announced by the instructor of this class unless prior arrangement has been made with the instructor. Late assignments will be penalized, and the instructor may not accept late assignments after a specified period.

METHOD OF EVALUATION (Tentative):
Final average Letter grade
90 – 100 A
80 – 89.99 B
70 – 79.99 C
60 – 69.99 D
Below 60 F

STUDENTS WITH DISABILITIES REQUIRING ASSISTANCE:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library
Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamuc.edu