

CSci 430 Operating Systems

Course Syllabus

Spring 2015

Instructor

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Class Meetings

This course will be web enhanced. Lectures, notes and course materials will be distributed through our University's eCollege online course system.

01E 20941 TR 11:00a - 12:15p Location: EDS 133

Course Description

Operating Systems (OS). A study of operating systems with emphasis on a multiprogramming environment; concentrates on principles involved in resource management; topics such as job scheduling and memory management are also studied. **Credit hours: 3.**

Prerequisites

CSCI241: Machine Learning and Computer Organization; and CSCI270 Data Structures and Algorithms.

Student Learning Outcomes:

- (SLO430.1) Students will be able to identify the basic components, and functions of OS.
- (SLO430.2) Students will be able to identify modern memory management techniques.
- (SLO430.3) Students will be able to identify components of multiprogramming and multiuser OS.
- (SLO430.4) Students will be able to identify processes, threads, and their management by the OS.
- (SLO430.5) Students will be able to identify concurrent programming techniques and job scheduling.
- (SLO430.6) Students will learn about some commercially available modern OS.

Textbook

Required:

Operating Systems Internals and Design Principles (2011). 7th Edition. by William Stallings, Prentice-Hall Inc., 2011, ISBN-10:013230998X.

Recommended:

Operating System Concepts (2006). 7th Edition. by A. Silberschatz and P. Galvin, John Wiley & Sons, Inc., ISBN 0-471-69466-5.

Course Outline / Content

Part One: Background (Chapters 1, 2)

 Chapter 1. Computer system overview (Week 1)

 Parts of Chapter 2. Operating system overview (Week 2)

Part Two: Processes (Chapters 3, 4)

 Parts of Chapter 3. Process description and control (Week 3, 4)

 Parts of Chapter 4. Threads (Week 4, 5)

 Week 7: Test 1

Part Three: Concurrency (Chapters 5, 6)

Parts of Chapter 5. Concurrency I: Mutual exclusion (Week 8)
Week 9: Spring Break (March 16 through 22)
Parts of Chapter 6. Concurrency II: Deadlock/Starve (Week 10)
Week 11: Test 2

Part Four: Memory (Chapters 7, 8)

Parts of Chapter 7. Memory management (Week 12, Week 13)
Parts of Chapter 8. Virtual memory (Week 13, 14)

Part Five: Scheduling (Chapters 9)

Parts of Chapter 9. Uniprocessor scheduling (Week 14)
Review of the course material; Q&A; wrap-up (Week 15)
Finals Week (May 11 through 15): Test 3

Evaluation (Tentative)

Your grade for the course will be based on the following (approximate) percentages:

| | |
|--|----------------|
| Three Exams | 60% (20% each) |
| Labs / Programming Assignments (appx. 6) | 35% |
| Quizzes and Participation | 5% |

| Final Average | Letter Grade |
|---------------|--------------|
| 90 - 100 | A |
| 80 - 89 | B |
| 70 - 79 | C |
| 60 - 69 | D |
| Below 60 | F |

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.

Assignments: There will be regularly assigned homework problems. Assignments will be given and returned via the online eCollege system as a convenience to the students and the instructor. In general, we will probably have 1 written assignment and/or 1 programming assignment for each of the major parts of the course. It is very important that students follow the instructions carefully on the assignments. 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. Important material from the text and outside sources will be covered in class. Students should plan to take careful notes as not all material can be found in the texts or readings. Discussion is encouraged as student-procured outside material relevant to topics being covered. End of chapter activities and online activities may be assigned to reinforce material in the text.

Exams: Three exams will be given. The exams will not be comprehensive, and will focus on the particular materials/readings just covered in the previous 3 to 5 weeks of the course. The instructor may add other exams as they see necessary.

Quizzes: Unannounced pop-quizzes may be given in class and/or online through eCollege to help ensure students stay up with assigned material.

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.

Student's with Disabilities

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, StudentDisabilityServices@tamuc.edu

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 also includes the issue of plagiarism, and copying code for programming/lab assignments is just as serious as any other type of plagiarism. If you are caught sharing or using other people’s work in this class, 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.