COSC519: **Operating Systems I** **Spring 2015**

Computer and Information Sciences
Towson University
Towson, MD 21252

COURSE

Number	Title	Timings	Text	Alt-texts	Section	Class room	Final Exam Date
COSC519	Operating Systems I	TH 3-6PM	Operating Systems Essentials 2nd Edition Silberschatz, Galvin, Gagne	Class Notes	101	YR 205	May 2015

FACULTY

Name	Office	Phone	Email	OfficeHours
Dr. Ramesh K. Karne	7800 York Rd #429, Lab 308	410-704-3955 410-704-4784	rkarne@towson.edu	Th 2-3 PM

GRADES

Homework	Project	Midterm	Final	Attendance and Class Participation
4-6 15%	Project 30%	25%	25%	5%

Course Objectives: An overall focus in this course will be based on a practical approach to design, implementation, and management of operating systems. This course objective also involves help doctoral students to pass their qualifying exam, which contains topics discussed in this course. The general objectives of the course include: build theoretical foundation for operating systems, understand operating systems role in emerging applications, learn process, memory, and file management techniques, study different operating system models, and get some hands on experience in building OS components. The course major objectives also focus on designing, developing, analyzing and evaluating a group project. The project grading will be done based on a rubric provided in this syllabus. **This course is not intended to teach a particular OS such as Windows or Linux.**

Homework: There will be 4-6 assignments from real world topics. Some of the homework requires you to write code and test it thoroughly. Homework must be returned on the due date, otherwise, there will be "**zero points**" given for that assignment. The homework must be done independently and they must be original. Late submissions may be accepted under emergency situations, with the consent of the faculty. There is no credit for group efforts. Plagiarized work counts as zero and a letter to that effect will be placed in your file.

Project: There is a mandatory group project based on the operating system concepts. Each group contains only two students. The two student group will be randomly selected in the class. Each group is responsible to implement their application for their chosen problem. Each student in the project must participate and play an active role to make the project successful. Group projects are competitive and will be graded based on the rubric provided in this syllabus.

The project application details will be given in the class and each group's requirements will be provided. The projects will be based students interest that may involve Linux OS, or simulation of any OS management functions. Windows OS related projects are not encouraged in this class. Some knowledge of assembly language is useful in development of these projects. It is assumed that you also have some C programming language background before you sign up for this course. If you do not have the C or assembly language background, you may consider taking this course later in your program. By the end of this project, you should become proficient in understanding and developing pieces of operating system building blocks.

The project topics will be presented in the class and each group can pick a topic of their choice. The project proposal should be limited to 2 to 3 pages and must include the following information: project title, names of the participants, objectives, project description, and a brief understanding of the problem. The project proposal is due after 8 classes. However, partner selection must be done as early as possible in the beginning of the semester.

The project must be implemented using a high-level language like 'C' or a low-level language such as MASM/NASM assembler. If you have picked simulation projects, you should use Visual C++ or Java for the implementation. You may be able to grab the code from the Web, but every line of that code must be understood and appropriate credit must be given to the original author of the code. You must clearly identify your contribution of the code in your project. You must make sure your group project is distinct and different from other groups.

The report must include complete details on the problem, description, source code, and design, analysis, implementation, testing and any other information pertinent to the project. In addition, follow the steps in rubric for evaluating project goals and learned outcomes. The report must not exceed 15 pages.

Each group must make a presentation in the last week of class. Each student in the group will present half of the project. The group can choose presenters who can clearly present the material, but the instructor can pose questions to any group member. Each group should also present their work in the lab to demonstrate the functionality of their project. The project report, code, and some sort of user's guide to compile and run code should be sent through email on the

last day of class. **If there is no actual working of any piece in your project, your entire project grade will be zero.**

If a student does not participate in the group project up to the expectations of the group members, one or more group members can report the name of the student to the instructor by an email. The instructor will discuss the issue with the student and his/her project grade will be given zero points. I strongly recommend that you should complain early in the semester (by midterm), so that the instructor has a chance to talk to the student and hopefully, the student may change his/her attitude to put full efforts in the project.

Class Schedules:

#1, #2	Chapter 1. Introduction
#3, #4, #5	Chapter 2: OS Structures
#6, #7	Chapter 3: Processes **Project Discussions**
#8, #9	Chapter 4: Threads
#10, #11	Chapter 5: Process Synchronization
#12, #13, #14	Chapter 6: Process Scheduling
#15	**MIDTERM EXAMINATION**
#16, #17, #18	Chapter 7: Memory Management **Project Discussions**
#19, #20	Chapter 8: Virtual Memory
#21	Chapter 9: Mass Storage Structure
#22	Chapter 10: File System Interface
#23, #24	Chapter 11: File System Implementation
#25, #26	Chapter 12: I/O Systems

#27 Chapter 15: The Linux System(very brief)

#28, 29 Presentations

Final Examination May 2015

Attendance Policy: Attendance is expected at all classes. Attendance will be taken in each class. There will be no makeup tests or homework given later to absentees. If you miss a class for some foreseeable reason arrange for an earlier test. If you miss classes consistently, or come late to classes, you will be deducted 20% from your final grade.

Examinations: There will be one mid-term and one final examination as scheduled. The examinations will cover material taught in the class, textbooks, classroom discussions, and class assignments. Class notes and attendance will be very crucial to score well in the exams. Class discussions, which are not in the textbook, will be tested in the exam.

Class Participation: The class participation of a student is mandatory. This includes: questions, interaction with other students, project discussions, and demonstrating your understanding of the subject among peers. A brief overview of the previous class presentations will be summarized in some classes. This is the best chance for you to participate and make your-self well known in the class and to the faculty. That is, you must come prepare for every class!

Make Up Policy: If a student must miss an exam, it is the student's responsibility to provide sufficient documentation of the reason for the absence. Otherwise, a grade of zero will be assigned.

Grading Policy and Discussions: All grading controversies and discussions must be done during office hours and not in the classroom. The grading as discussed in the syllabus will be strictly enforced. Plus, minus grading will be used as described in the catalog. Any grade less than "B" is a fail grade for graduate students.

GRADING

90-100	A
88-89	A-
85-87	B+
80-84	B
78-79	B-
70-77	C
60-69	D
<60	F

Office Hours: Even though office hours are as listed above, if someone needs immediate help and attention with the assignment, they are welcome to knock on my door when I am in the office or in the lab. I will not be reading email during the weekends. Please send email instead of a telephone call, or simply drop by in the lab YR308.

Classroom Policies: There is no food allowed in the classroom. If you happen to bring a soft or hot drink to the classroom, you must clean up the mess. You can't show any rude behavior with your fellow classmates or instructor in the classroom, which may result in removing you from the class. If you have any problems with people, you must discuss that with the instructor during the office hours and file an official complaint, which will be resolved by the instructor, or it will be taken to the Chair of the department for further resolution. **There is absolutely no gossip in the classroom.**

Operating Systems (COSC519) Assessment Plan and Rubric for Grading

I. Student Learning Outcomes that will be assessed based on the course project.

i. Design of Operating Systems (SLO3)
ii. Development of Operating Systems (SLO3)
iii. Analysis of Operating Systems (SLO3)
iv. Evaluation of Algorithmic Approaches (SLO3)

Grading rubric for the course project

Project Requirement	Excellent	Satisfactory	Unsatisfactory
Design a specific OS module as part of a group project 25 pts	• Highly innovative • Complete • Reusable (22.5-25 pts)	• Adequate • Partially complete • Portions reusable (20-22.4 pts)	• Inadequate • Largely incomplete • Not reusable (< 20 pts)
Develop a specific OS module as part of a group project, implement and test. Grading of the project report with respect to usability, completeness and development details. 25 pts	• Real-world • Complete • All features implemented (22.5-25 pts)	• Simulated • Partially complete • Majority of features implemented (20-22.4 pts)	• Toy problem • Largely incomplete • Few features implemented (< 20 pts)
Analysis of OS module with respect to its delays and limits. 20 pts	• Comparison with 2+ other approaches (18-20 pts)	• Comparison with 1 other approach (16-17 pts)	• No comparison with other approaches (< 16 pts)
Evaluation of overall project with respect to completeness, functional operations and error checking. 30 pts	• Fully operational • Highly extensible (27-30 pts)	• Partially operational • Moderately extensible (24-26 pts)	• Not operational • Not extensible (< 24 pts)