Operating Systems
CSCI 411-001
Spring 2015

Syllabus

Class Time: Mondays and Wednesdays 2:00 – 3:15 PM in Carroll 200
Credit Hours: This course is worth 3 credit hours
Course Website: http://faculty.winthrop.edu/domanm/csci411/

Objectives: Survey the functions of operating systems and the concepts necessary for the design of an operating system

Course Description: A survey of the design and structure of an operating system. The course will cover the operating environment, the algorithm s and data structures used in the development of operating systems, and various aspects of the computer and human interface. Students are required to complete programming projects concerning operating system internals.

Topics Covered: Process Control, Mutual Exclusion, Deadlock, Memory Management, Processor Scheduling, I/O Management, and File Management.

Text:
The basic book we will be following in this class is "Operating Systems: Principles and Practice" by Tom Anderson and Mike Dahlin. This is a new book.

We will also be using a variety of different materials for this class including some references from books and papers.
The following textbooks are good reference guides:

1. Operating Systems Concepts by Abraham Silbershatz
2. Commentary on the Sixth Edition of UNIX by John Lions
3. Modern Operating Systems by Andrew Tanenbaum.
4. UNIX Programming (useful for early labs)
5. TCP/IP Socket Programming (useful for later labs)

The following two classes in other universities present a very good reference guide:

1. 6.828 Operating Systems Engineering at MIT
2. CS140 – Operating Systems at Stanford

Instructor: Dr. Marguerite A Doman
Office: Thurmond 525
Email: domanm at Winthrop.edu -- Please put **CSCI411** subject line
Office Hours:
Tuesday: 9:00 – 11: 00 1:00 – 3:00
Thursday: 9:00 – 11: 00 1:00 – 3:00
By Appointment / Through Skype

Winthrop University
College of Business Administration

Attendance:

Attendance will not be taken. You are expected to attend each and every class. There will be no formal relationship between grade and attendance. However, of course, there is the informal relationship that always exists. You are responsible for the material covered in the classes you miss.

Prerequisites: A grade of C or better in CSCI 211.

CSCI 411 is used by the CSQM Department to assess the performance of CSCI majors as part of the program assessment plan for ABET accreditation.

CSCI Program Outcome	Measurement Performed in CSCI411	Metric of Student Performance
B1. Proficiency in the Foundations of Computer Science	Performance in upper-level CS Foundations courses.	Comprehensive Final Exam Grades

Course grade:

Your course grade will be based on the following weights (tentative):

MidTerm	20%
Final Exam	30%
Individual programs/lab	25%
In-class and other assignments	25%

Your course grade will be determined by a 10 point grading scale, that is,

average >= 90%	A
90% > average >= 80%	B
80%> average >= 70%	C
70%> average >= 60%	D
average < 60%	F

Tests**:**

You are expected to take tests at the scheduled times. If you cannot take a test at the scheduled time, then you must request a makeup exam before the scheduled exam date. The instructor will judge the validity of the request, and either disallow it or assign another time.

The final exam will be comprehensive

In-class lab exercises**:**

Lab exercises done in class will be open book/open internet and group work. The problems/programs will be given at the start of class. These are expected to be completed during class time. These must be submitted to Blackboard by 5:00 the day of assignment.

Assignments:

End of chapter problems will be assigned. These are intended to help you understand the material. They will not be graded.

Individual Program/labs

Projects are will be assigned throughout the semester. They are due on the date declared. If they are late, you will lose 10 points for each day they are late.

Absolutely NO projects will be accepted after the last class day.

SYLLABUS CHANGE POLICY
The grading and attendance policies for this course, as described above, will not change and are adhered to strictly. The schedule of class meetings, listed below, may change due to unexpected events such as class cancellation

Schedule (TENTATIVE)

Section	Week	Dates	Topic	Reading Schedule
Overview	1	Jan 12 Jan 14	Introduction (PDF): Introduces the course and its contents; Discusses the history of OSs. Kernel Abstraction	Chapter 1 Chapter 2
	2	Jan 19	Martin Luther King Day	
		Jan 21	**In Class Project**	Linux /proc
Kernels and Processes	3	Jan 26 Jan 28	Programming Interface	Chapter 3
	4		Concurrency and Threads	Chapter 4
			In Class Project	
Concurrency	5	Feb 9	Synchronization	Chapter 5, 6
		Feb 11		
	6	Feb 16		
		Feb 18	**In Class Project**	
	7	**Feb 23**	**Mid-Term**	Chapters 1 - 6
		Feb 25	Scheduling	Chapter 7
	8	Mar 2		
		Mar 4	**In Class Project**	
Memory Management	9	Mar 9	Memory Management	Chapters 8- 10
		Mar 11	**In Class Project**	
	10	Mar 16	Spring Break	
		Mar 18		
Protection and Security	11	Mar 23	File System Interface	Chapters 11 - 14
		Mar 25	File System Implementation	
Security and Protection	12	Mar 30	Security and Protection	Handouts
		Apr 1		
Networking	13	Apr 6	Networking Overview	
		Apr 8		
	14	Apr 13	**In Class Project**	
Distributed Systems		Apr 15	Distributed File Systems Distributed Coordination	
	15	Apr 20	OS for Many-core Computing Intro to Clouds: Hypervisor	
		Apr 22	**In Class Project**	
		Apr 27	**Case studies and review**	
	Final Exam			

COLLEGE OF BUSINESS EXPECTATIONS REGARDING PROFESSIONALISM IN THE CLASSROOM

The College of Business Administration is a professional organization with a well-defined and widely disseminated mission of student development. Accordingly, each class represents a gathering of professionals and professionals-in-training. The instructor's job as a professional is to deliver quality instruction in each class, to start and end each class on time, to be responsive to student perspectives, issues and questions, and to treat each student respectfully. The student's job, as a professional-in-training is to be prepared for class, to be on time, to attend all classes, and to be respectful of others in the classroom.

In accordance with and pursuant to these roles the following guidelines were established to specify to students (both present and prospective) faculty expectations regarding their behaviors

1 **Students will attend all class meetings.** There are no automatically "excused" absences. In the event that you will be unable to attend a class session, you should inform your professor in advance as a matter of professional courtesy just as you would/should with an employer.

2 **Students will arrive in advance of the beginning of the class session.** Late arrivals are disruptive, inconsiderate and unprofessional. Professors may make arrangements for delinquents, but are not obliged to do so. Those not present at the beginning of the classroom period will be considered absent.

3 **Students will not converse among themselves during class except when instructed to do so.** When a student creates a disturbance in the classroom, instructors will either ask the student to desist immediately or speak to the student at the conclusion of class. Repeat offenders will be sanctioned.

4 **Students will not leave class before its conclusion.** Early departures are disruptive, inconsiderate and unprofessional. Professors may make arrangements under some circumstance, but are not obliged to do so. Those not present at the conclusion of the classroom session will be considered absent.

5 **Students will have procured textbook/materials prior to the first class.** Instruction will begin with the first class meeting and consume the remainder of the class period.

STUDENTS WITH DISABILITIES

Winthrop University is dedicated to providing access to education. If you have a disability and require specific accommodations to complete this course, contact Services for Students with Disabilities at 323-3290. Once you have your official notice of accommodations from Services for Students with Disabilities, please inform me as early as possible in the semester.

ACADEMIC SUCCESS CENTER

Winthrop's Academic Success Center is a free resource for all undergraduate students seeking to perform their best academically. The ASC offers a variety of personalized and structured resources that help students achieve academic excellence, such as tutoring, academic skill development (test taking strategies, time management counseling, and study techniques), group and individual study spaces, and academic coaching. The ASC is located on the first floor of Dinkins, Suite 106. Please contact the ASC at 803-323-3929 or success@winthrop.edu. For more information on ASC services, please visit www.winthrop.edu/success.

OFFICE OF NATIONALLY COMPETITIVE AWARDS (ONCA)

Winthrop University's Office of Nationally Competitive Awards (ONCA) identifies and assists highly motivated and talented students to apply for nationally and internationally competitive awards, scholarships, fellowships, and unique opportunities both at home and abroad. ONCA gathers and disseminates award information and deadlines across the campus community, and serves as a resource for students, faculty, and staff throughout the nationally competitive award nomination and application process. ONCA is located in Dinkins 222B. Please fill out an online information form at the bottom of the ONCA webpage www.winthrop.edu/onca and email onca@winthrop.edu for more information.