

Operating Systems
CSCI 411-001
Spring 2019

Syllabus

Class Time: Mondays and Wednesdays 11:00 – 12:15 PM in Thurmond 408

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 algorithms 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, Introductions to networking, security and distributed programming

Text:

Operating System Concepts, Enhanced eText

by: Abraham Silberschatz; Greg Gagne; Peter B. Galvin

Publisher: Wiley

Print ISBN: 9781119329480, 1119329485

eText ISBN: 9781119320913, 1119320917

Edition: 10th

Copyright year: 2018

Instructor: Dr. Marguerite A Doman

Office: Thurmond 314

Email: domanm at Winthrop.edu -- Please put **CSCI411** subject line

Office Hours:

Monday: 1:00 – 4:00

Tues: 9:30 – 11:00

Wed: 1:00 – 4:00

Thurs 11:00 – 11:30

By Appointment and through Skype/Google Hangout

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.

Student learning outcome: 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):

Exam one	18%
Exam two	18%
Final Exam	24%
Homework Assignments	10%
Individual programs/lab	30%

Your course grade will be determined as follows:

Final Grade Range	Reported Grade	Quality Points
90-100%	A	4.0
90>average >=88.5	A-	3.67
88.5>average >= 85	B+	3.33
85>average >= 80	B	3.0
80>average >=78.5	B-	2.67
78.5>average >= 75	C+	2.33
75>average >= 70	C	2.0
70>average >=68.5	C-	1.67
68.5>average >= 65	D+	1.33
65>average >= 60	D	1.0
60 > average	F	0

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

Homework / Labs

Homework exercise questions and Labs will be assigned from the book. You may use any resources, including conversations/discussions, to find the answers to these questions. However the work submitted should be your own. They are due on the date declared. They will not be accepted late. However, you have 4 slip days. That means you have 4 days in the semester that you can use to hand something in after the due date without penalty or excuse.

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

Cheating

When working in a professional software development environment it is expected that you will frequently consult with your colleagues regarding problems you encounter. But in an educational environment, each student is expected to do all of his/her own work. In freshmen courses, such as CSCI 207, you were encouraged to help each other debug code. That was because overcoming syntax was a problem common to all students and you could frequently learn from others' mistakes. In sophomore courses, such as 271, debugging help was not allowed while sharing design ideas was allowed. In this upper-division course, you are expected to be able to design the entire application by yourself and you are expected to be proficient at debugging your own code.

You are allowed to discuss problems at a high level, but sharing code, pseudo-code, or algorithms is not acceptable.

Tentative Schedule of Topics:

During the semester, the topic schedule may change. Please see Blackboard for current schedule.

Dates	Topic
Part 1: Overview	
Jan 7	Chapter 1: Introduction
Jan 9	Chapter 2: Operating System Structures
Jan 14	Lab in Carroll Hall 215: Introduction to Linux Kernel Modules
Part 2: Process Management	
Jan 16	Chapter 3: Processes
Jan 21	No class: Martin Luther King Day
Jan 23	Chapter 3: Interprocess Communication
Jan 28	Chapter 4: Threads & Concurrency
Jan 30	
Feb 4	Chapter 5: CPU Scheduling
Feb 6	
Feb 11	Test 1: Operating System Structures; Process Management
Part 3: Process Synchronization	
Feb 13	Chapters 6 and 7: Synchronization
Feb 18	Chapters 6 and 7: Synchronization
Feb 20	Chapters 8: Deadlock
Part 4: Memory Management	
Feb 25	Chapters 9: Main Memory

Feb 27	No class
Mar 4	Chapters 10: Virtual Memory
Mar 6	Lab Carroll Hall: Buffer Overflow Lab
Mar 11	Spring break
Mar 13	
Part 5: Storage Management	
Mar 18	Chapters 11: Mass Storage
Mar 20	Chapters 12: I/O Systems
Mar 25	Test 2: Process Synchronization; Memory Management; Storage Management
Part 6:File Systems	
Mar 27	Chapters 13: File-System Interface
	Chapters 14: File-System Implementation
Part 7:Security and Protection	
Apr 1	Chapters 15: File-System Internals
Apr 3	Chapters 16/17: Security and Protection
Apr 8	Lab Carroll Hall: Capabilities Lab
Part 8:Advanced Topics	
Apr 10	Chapters 18: Virtual Machines
Apr 15	Chapters 19: Networks
Apr 17	Chapters 19: Distributed Systems
Apr 22	Lab Carroll Hall: Parallel Processing Lab
Comprehensive Final Exam 8:00 AM Thursday April 25	

Syllabus Change Policy

See course Blackboard site for day-by-day textbook reading assignments, programming assignments, lecture note outlines, and exam dates.

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.