CS 315 – Operating Systems – Fall 2013

Course Information

Section 01	Professor Necaise
201 Copley Science Center	221 Copley Science Center
TR 9:50 – 11:20	rancenecaise@rmc.edu
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This course provides an introduction to the internal workings of an operating system. We will focus on three main areas of an operating system: process management (process scheduling and control, process synchronization, and CPU scheduling), memory and storage management (segmentation, paging, virtual memory, and file-system interface and implementation), and I/O systems (kernel I/O, secondary-storage, and disk structure and scheduling).This is a programming intensive course with most assignments dealing with real world applications.

When you successfully complete the course, you should be able to:

- Explain how operating systems manage concurrent processes including the complete life-cycle of user processes, threads, process synchronization, and deadlock avoidance.

- Evaluate algorithms used for process scheduling, memory allocation and disk access.

- Understand how operating systems manage physical and virtual memory including segmentation and paging.

- Describe the organization of different file systems used with the Windows and UNIX operating systems.

- Develop programs which demonstrate the use of inter-process communications with pipes, sockets, threads, and shared memory.

RESOURCES

Text Book. *Operating System Concepts*, by Silberschatz, Abraham, Galvin, Peter Baer and Gagne, Greg, John Wiley & Sons.

Daily Schedule. A day by day schedule that includes reading assignments, handouts, and code samples is provided on the course web page. The schedule is tentative, but daily events will be posted ahead of each class meeting.

Office Hours. (tentative) MTWR: 1:00 – 2:00, or by appointment.

Please note that these are my formal office hours. I am usually on campus most of the day, and can be found around my office. You should feel free to come by if you need help. Also, email contact is generally an efficient way to get an answer to a simple question.

Course Work

The assigned work for this course will include programming projects, written assignments, exams, and a final project.

Programming and Written Assignments. There will be 7 - 10 programming and written assignments. All programming and written assignments are due by the date/time specified by the assignment. Any project or assignment turned in after the due date/time will be penalized 50% of the total value for that assignment. No assignment will be accepted that is more than *three* days late. If you turn an assignment in late, you must indicate this on the top of the paper. All assignments are to be done on an individual basis, unless otherwise indicated.

Exams. There will be two one-hour exams during the term. There will be no make up exams except for official college events. If you have to miss an exam due to an official event you must inform me at least two days in advance of the scheduled exam.

Final Project. The culminating experience for this course will be a final project. The final project, which will be due on the last day of classes, will also include a presentation.

Policies

Programming Environment. This is an advanced computer science course with a moderately heavy programming component. All of your programs must be done in C/C++ under Linux.

Slip Days. You will be given 5 "slip" days (includes weekends and holidays) that can be used on any of the programming assignments. A slip day allows you to turn the assignment in late without penalty. If you plan to use a slip day, you must indicate this on the assignment when it is turned in. It is your responsibility to keep track of the number of slip days you have used.

Attendance. You are advised to attend all class meetings. The lectures typically supplement the material found in the textbook or online resources. You are responsible for all material related to any class meeting from which you were absent. Note, a portion of your final grade will be based on attendance and class participation.

Grade Distribution. Your final grade will be computed according to the following approximate distributions:

- 50% for programming and written assignments
- 30% for the two one-hour exams
- 15% for the final project
- 5% for attendance and class participation

and the letter grade assigned as follows: A: ≥ 94, A-: $[90\ldots93]$, B+: $[87\ldots89]$, B: $[83\ldots86]$, B-: $[80\ldots82]$, C+: $[77\ldots79]$, C: $[73\ldots76]$, C-: $[70\ldots72]$, D+: $[67\ldots69]$, D: $[63\ldots66]$, D-: $[60\ldots62]$, and F: < 60.

Extra Credit. No extra credit will be assigned on an individual basis.

Academic Integrity. The College's Code of Academic Integrity sets out a list of prohibited behavior, including plagiarism, cheating, and tampering with or destroying College property (including computers in computer labs). The most common act of academic misconduct is plagiarism, which is defined as "Passing off a source's information, ideas, or words as your own by omitting to acknowledge that source–an act of lying, cheating, and stealing." (Gordon Harvey, Writing with Sources: A Guide for Students) Any student who commits a violation of the Code of Academic Integrity will be subject to the policies and procedures outlined in Fishtales. It is each student's responsibility to read and be familiar with the Code.

All assignments must be done individually, unless otherwise indicated. You may discuss programming assignments informally with other students. However, sharing a solution in the form of experimental results or the design or implementation of a program, or parts of a program, is an honor violation. If you have any uncertainty about what this means, consult with me before you collaborate.

Students with Disabilities. The Americans with Disabilities Act of 1990 and other Federal laws require Randolph-Macon College to provide a "reasonable accommodation" to any individual who advises us of a physical, psychological, or learning disability. If you have a physical, psychological, or learning disability that requires an accommodation, you must first register with the Office for Disability Support Services, located in the Higgins Academic Center. Please arrange a meeting with the course instructor to discuss your needs and how to register for support services.

College Final Exam Policy. Students are required to take all final examinations during the time specified for their administration. However, a student may, with the permission of the course instructor, take an examination with another section of the same course taught by the same instructor. Any other rescheduling of exams requires the approval of the Provost or Associate Dean of the College. Failure to obtain the permission of the Provost's Office will result in an automatic failure of the course. Absence from a final examination can only be excused by the Provost or the Associate Dean of the College. Absence from a final examination without such an excuse will result in failure of the course.

Use of Laptops. The use of laptops and mobile computing devices are permitted during class so long as they are being used for the course such as for taking notes, finding information related to the course, etc. Laptops are not to be used during class for reading email, social networking, completing assignments for other courses, etc. If the use of laptops becomes distracting for myself or other students in the course, *I reserve the right to prohibit their use during class.*

Common Courtesy. Please be courteous to everyone in the classroom. Do not leave the room during class unless you absolutely must as this is distracting to others. If you are late to class, please be as quiet as possible when entering the room and find a seat close to the door so as to not disrupt the class. Do not use a mobile phone during class and make sure the phone is turned off or the ringer is muted before entering the classroom. Finally, my office door is open most of the time. *If it is closed, however, this is an indication that I can not be disturbed at the moment.* Please respect this and try back again later. You are always welcome to contact me by email.