

CS 3204: Operating Systems

Course: CS 3204
Class: 2:00 – 3:15 pm Tu Th
Room: McB 209
URL: <http://courses.cs.vt.edu/~cs3204>

Instructor: Dr. Srinidhi Varadarajan (srinidhi@cs.vt.edu)
Office: 2160K Torgersen Hall
Phone: 231-5275
Office hours: 10:00 am - 12:00 pm Th Th
GTA: Yuxin Chen (yuchen@csgrad.cs.vt.edu)

Course Objectives

This course covers both theoretical and practical issues underlying operating system design and implementation. Lectures and homework assignments focus primarily on theoretical and conceptual aspects of operating systems. Programming projects focus on the application of concepts and implementation details. The topics discussed in this course will concentrate on elements crucial to operating system activities, including (but not limited to) process scheduling, deadlock avoidance, memory management and synchronization of concurrent activities.

Course Prerequisites:

- Passed ECE 2504: Introduction to Computer Engineering
- CS Major/Minor: ≥ 2.0 (C) in CS 2604
- CpE Major: ≥ 1.7 (C-) in CS 2604,

Resources

Textbook:

- ***Operating Systems: A Modern Perspective***, 2nd Edition, by Gary Nutt, Addison Wesley, 2001, ISBN: 0201741962.

Reference:

- ***Modern Operating Systems***, Second Edition, by Andrew S. Tannenbaum, Prentice Hall, 2001. ISBN 0-13-031358-0

Web:

- <http://courses.cs.vt.edu/~cs3204>

Electronic Discussion:

- <http://forum.cs.vt.edu>

Grade distribution

Semester grades will be determined after all work is completed and graded. Point ranges for letter grades will be based on absolute grading. At instructor discretion, final grades may also be based on grading curves.

Scores in this class will be on a 1000 point scale distributed as follows:

Quizzes	50
Homework	100
5 Projects	500
Midterm Exam	150
Final Exam	200

Quizzes - 50 pts

Short quizzes (including pop-quizzes without any prior notification) will be given during lecture sessions throughout the semester. Quizzes will mostly cover material from the previous and **current** lecture.

Homework - 100 pts

There will be a number of homework assignments that may consist of problems from the textbook or small programming assignments. All solutions should be submitted electronically using the curator system as a word, PDF or plain-text file.

Programming projects - 500 pts

The majority of your grade will come from individual programming assignments. There will be five programming assignments. The number of points per assignment will be indicated on the assignment description. All programs have to be submitted to the curator system. Precise instructions regarding each individual submission will be provided with each assignment specification.

- **Note:** These projects will be quite challenging and will require extensive investment of your time and effort. Make sure that you start early on the assignments, understand the specifications and ask questions if you face any problems.
- **No late submissions of homework or programs will be accepted.**
- Your programs must work on the lab machines in McB 124. You will be asked to demo your program to the GTA in that lab.

Exams - 350 pts

The midterm exam will cover approximately half the course material and is tentatively scheduled for middle of March. The final exam will be a comprehensive exam covering the entire course material.

Note: There will be no make-up of the midterm or final exam, unless there is a valid reason. If you have a valid excuse for not being able to take the exam in the scheduled time-slot, please inform the instructor at least 24 hours in advance. The request has to be accompanied by a letter from the Dean's office.

Grading Policy

Upon receiving grades for attendance, quiz, homework, or project, you have **two weeks** to question/contest your grade. After that, you will not be able to contest the grade, which you received on an assignment, project, exam or quiz. This is to ensure that the grader remembers the grading criteria and is able to fairly consider any re-grading request.

Class web site and Electronic discussion board

The URL for the class is <http://courses.cs.vt.edu/~cs3204>. Announcements regarding availability of assignments and grades will be posted to the class website. Additionally, this class will use a one-way listserv for announcements, which will reach every student in the class over email. Every student who is registered by the first day of class is automatically subscribed to the class listserv.

A discussion forum for the class is available at <https://forum.cs.vt.edu>. The forum should be used for discussion about the projects. Questions (and answers) of relevance to the entire class will be posted to the class listserv by the instructor and/or the GTAs.

The Honor Code does NOT permit posting of problem/assignment solutions to the forum.

Late Policy

Absolutely **NO** late homework assignments or programming projects will be accepted. Plan in advance to make sure that you submit before the deadline.

Operating System

All programming assignments and any homework assignments involving programming will be expected to run under Linux with gcc/g++. Assignments are expected to compile and execute on the Linux machines in the Computer Science undergraduate lab, which run Mandrake Linux 8.2. You are required to have a CS undergraduate lab account. See <http://www.cslab.vt.edu/online.html> for details on obtaining an account.

At least one assignment will require modifying the source code of the Linux kernel. To complete this assignment, you will need root access to the operating system. Since you cannot have root access in the CS undergraduate lab, you will be required to install Linux on your personal machine. It is recommended that you do this at the beginning of the semester as possible to identify any potential difficulties with this process.

You are encouraged to download and install the Mandrake system on your own machine. Information and downloads can be obtained from <http://www.mandrake.org/>. A local mirror site for downloading different versions of Linux, including the latest version of

Mandrake, is <http://raven.cslab.vt.edu/pub/Linux/>. Installing Linux can be a tricky task, and differs widely depending on your own system configuration. The Virginia Tech Linux/UNIX User's Group <http://www.vtluug.org/> is available to help you with this process.

The Honor Code

The Honor Code applies to this course and will be enforced. All graded assignments must be your own work. You may seek help during office hours from the instructor or the Graduate Teaching Assistants. Always give credit for work that is not entirely yours (e.g., parts of programs or homework answers borrowed from a book). You can find the Computer Science departmental policy on koofers at <http://www.cs.vt.edu/academics/ugrad/Handbook/koof.html>

Other notes

If any student needs special accommodations because of a disability, please contact the instructor during the first week of classes.

- There are no make-ups on the homeworks, programs, or tests except under special circumstances as explained above.
- Keep all returned assignments until the end of the semester.
- Keep a personal backup copy of each assignment/program you are to turn in. This is particularly important for programming assignments. Make sure that you save your assignments on a different machine and/or disk. Hard disk/machine/data crashes are NOT a valid excuse for turning in any assignment or project late.