

K24: System Programming

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Goal of the course

- Introduction to Unix
- Shell Programming
- Using system calls in C:
 - Error Handling
 - Dispatch/receipt of Signals
 - Low level I/O Operations
 - Creation and termination of processes
 - Interprocess Communication: pipes, sockets, queues, semaphores, shared memory segments
 - Multi-threaded programming
 - Security
 - Performance
- In addition to the actual course material the goal is to:
 - Teach you how to write applications that interface directly with an OS
 - Linux in our case
 - Teach you how to think, debug, pace yourself, and organize such complex applications

Grading

- Programming Assignments: 20%
 - 2 assignments
 - **Must** run on Department's Linux Lab
- Midterm exam (on April 27): 40%
- Final exam: 40%
- September + February exams:
 - 100% grade based on the exam

Course logistics

- Web pages:
 - <http://cgi.di.uoa.gr/~mema/courses/k24/k24.html>
 - <http://www.di.uoa.gr/~antoulas/k24>
- Additionally:
 - Please join and follow piazza:
<https://piazza.com/uoa.gr/spring2026/k24/home>
 - Please check **regularly** for announcements (although both sessions will be in-sync)
 - Slides, videos and code will be available
 - **For project enrollment:** Just enroll in the K24 class at <http://eclass.uoa.gr>
 - **IMPORTANT NOTE:** We will soon send an announcement for cleaning up eClass – this means you will have to re-enroll in eClass.

Course Logistics

- Class textbook: M.J. Rochkind, [*Advanced Unix Programming*](#), Prentice-Hall Software Series, Englewood Cliffs, NJ, 2004
- We will make videos available
- Slides are based on material from Alexis Delis, Antonis Deligiannakis, Yannis Smaragdakis and Takis Stamatopoulos (thank you!)

A few more things

- We are here to teach you and help you learn
 - Neither pass you, nor fail you. Teach you and help you learn.
- Please, no lame excuses
 - I haven't passed data structures/I'm interested in theory/I'm getting married/I'm joining MasterChef/this is my last class/I'm joining the Marines/etc.
 - No deadline extensions
 - Same rules for everyone
 - No, you cannot skip projects because X,Y,Z
 - If there is some really special case please reach out, but please have a good reason

A few more things

- Please take care of your code and your project (this is part of your training)
 - Code needs to compile in department's Linux machines
 - Not windows, not your laptop, not your work's super cluster
 - Backup, it helps!
 - USB/email/pigeon/courier submissions are not accepted
 - You are welcome to (and expected to) discuss about code, approaches, solutions during the projects. Ideas are always useful.
 - Please **do not** cheat
 - Please, please **do not** cheat
 - Please, please, please **do not** cheat
 - You've been warned 3x
 - Safeguarding your code is your responsibility (e.g., no public git repo)
 - Cheating is not tolerated, and you and everyone involved immediately fails the class. Period.
 - And if you do, please, no excuses.

A few more things

- Please stay connected with the class throughout the semester
 - System programming is not something you pull an all-nighter and study and hope to pass
 - You need to put in some effort
 - If you devote time to projects, your chances are very good for getting a passing grade (if that's your goal)

Thank you!

Questions?