



Course: ENPM607 – Computer System Design and Architecture
Semester: Spring 2023
Day(s) & Time: Tuesday 1:00pm
Instructor(s): Dr. Manoj Franklin
Phone: 301-405-0432
Email: manoj@umd.edu
Office hours: TBD

Course Description

This course will cover advanced computer architecture topics. A good understanding of basic computer organization is important. The course will discuss the main concepts of Computer System Design and Architecture, such as Quantitative Principles of Computer Design and Cost/Performance factors; Memory Hierarchy designs, caches, and virtual memory; Pipelined Datapath design; Multiple-issue datapaths, superscalar, and VLIW; Multi-core design thread-level parallelism, memory consistency models, and cache coherence. Additional topics include hardware accelerators and power management techniques. The emphasis will be on understanding concepts and providing context to understanding hardware design decisions. The course format will include lectures, homework assignments, and two exams.

Class Web Site and communication:

Communication between instructor and students will take place primarily during lecture time and office hours, and through email. Questions by email will be responded to within 24 hrs when possible during Monday-Friday. In some cases, more time may be needed in order to provide a meaningful response. Please visit the course site (<http://elms.umd.edu>) regularly for assignments and announcements. If needed, audio/videoconferencing options may be available through CANVAS (ELMS).

Assessment:

The course grade will be calculated as follows:

Homework	30%
Midterm	35%
Endterm	35%
TOTAL	100%

Homework Assignments:

There will be homework assignments on several class topics. Further instructions will be provided. Assignments will be posted at least one week before they are due.

In exceptional circumstances (illness, university business, religious observances) extensions may be granted for assignments. However, all extensions must be approved by the instructor BEFORE the due date. Work that is handed in late without a university-accepted excuse will not receive credit and will not be graded. In some cases, flexibility for work related travel affecting access to online resources may be arranged, but requires advanced notification and instructor approval.

Homework assignments will be posted online. Students should view homework assignments as learning experiences. You may consult with your classmates, but you must work on your homework individually. As a courtesy to the grader, solutions should be written neatly. It is important that you show all your work in order to receive full credit.

Exams:

There will be one midterm exam and one endterm exam. For online students, it will be a proctored exam. Additional information regarding proctored exams can be found at

<http://advancedengineering.umd.edu/frequently-asked-questions-proctoring>

Make-up exams will be given only when a student can present evidence that an absence was caused by serious illness, a death in the immediate family, religious observance, or participation in University activities at the request of University authorities. Please contact the instructor before an anticipated exam absence, if at all possible.



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Academic Integrity:

The University of Maryland, College Park has a nationally recognized code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduates and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information, please visit <http://www.shc.umd.edu/>. Academic integrity is a foundation for learning. The University has approved a Code of Academic Integrity available on the web at <http://www.testudo.umd.edu/soc/dishonesty.html>. The Code prohibits students from cheating on exams, plagiarizing papers, forging signatures, etc. The Code is administered



by a Student Honor Council, which strives to promote a community of trust on the College Park campus. Allegations of academic dishonesty can be reported directly to the Honor Council (314-8206) by any member of the campus community.

The University Senate requires that students sign this statement if it is included on an exam or assignment:

"I pledge on my honor that I have not given or received any unauthorized assistance on this examination (or assignment)."

Plagiarism is taken seriously and will not be tolerated. Questionable instances will be submitted to the Office of Student Conduct for external review (and adjudication if necessary).

Required/Recommended Textbooks

- D. Gollmann, Computer Security, Third Edition, John Wiley.
- Required? (Strongly recommended—an effort will be made to provide content in slides, however, additional discussion of material and references may only be available in the textbook.)
- R. Anderson, Security Engineering, Second Edition, John Wiley.
- Required? (No, but a useful supplement/alternative reference with many references. Available online in PDF format for free from: <https://www.cl.cam.ac.uk/~rja14/book.html>)

Course Outline

Date	Topics
Monday 1/29/2018	Course Information & Expectations History of Computer Security Foundations of Computer Security
Monday 2/05/2018	Foundations of Computer Security Managing Security
Monday 2/12/2018	Identification and Authentication Access Control
Monday 2/19/2018	Access Control Security Models
Monday 2/26/2018	Security Models



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Monday 3/05/2018	Security Evaluation
Monday 3/12/2018	Unix Security
Monday 3/19/2018	Spring Break
Monday 3/26/2018	Windows Security Communication Security
Monday 4/02/2018	Communication Security Network Security
Monday 4/9/2018	Web Security Review for midterm
Monday 4/16/2018	Midterm exam (2 hours)
Monday 4/23/2018	Security tool presentations
Monday 4/30/2018	Security tool presentations Project presentations
Monday 5/7/2018	Project presentations
Monday 5/14/2018	Final project reports due