

CSC 561: Principles of Computer Architecture Fall '14

Syllabus

Lectures: Tuesdays and Thursdays, 8:00-9:15AM, EBER 161

Instructor: Jing Deng

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Office Hours: Wednesdays 10:00-12:00

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Announcements: All announcements will be made on Blackboard as well as in class.

Prerequisites: Grades of at least C (2.0) in CSC 250, CSC 261 and CSC 330, or permission of instructor.

Catalog Description: Hardware and software components of computer systems, their organization and operations. Topics: comparative instruction set architectures, microprogramming, memory management, processor management, I/O, interrupts, and emulation of processors.

Student Learning Outcomes: Upon successful completion of this course students will be able to

- understand computer instruction set architecture;
- explain how arithmetic computations are performed inside CPU;
- have a solid understanding of computer processor's functionalities and hardware support for these;
- understand computer memory hierarchy in details;
- differentiate the characteristics of various computer storages;
- understand how I/O devices and systems work;
- explain modern multi-core multi-processor systems.
- work on some simple logic design

Class Web Page: blackboard.uncg.edu (you have to enroll before access is granted)

Textbook:

“Computer Organization and Design,” Patterson & Hennessy, 4th edition, Morgan Kaufmann, 2009. (required)

Other Reading: provided in class or through blackboard system.

Teaching Methods and Assignments: The primary method of instruction will be two 75-minute periods per week for lecture and lots of group discussion, with students responsible for completing assigned readings, assignments, and preparing for exams outside of class. Assignments will be a mix of written analysis and applied programming. Written assignments should be turned in electronically. Paper submissions are strongly discouraged.

- Electronic submissions are welcome and preferred. Please send your submission through blackboard's Course Document assignment.
- Make sure your click on “*send file*” instead of “add file”, the latter won't send the file to me for access.
- Please use file names of “*Lastname1.docx*”, “*Lastname2.docx*”, etc.
- When source files are required to be submitted, please put all files including your word file into a single folder, named “*Lastname1*” etc., and zip entire folder into a “.zip” file and submit it through Blackboard.

Tentative Grading Policy

Pop quiz and group work	20%
Homework	30%
Mid-term exam	20%
Final exam	30%

Tentative Schedules (number of lectures in parenthesis)

- Course Introduction (1)
- Instruction set architecture (2)
- Instruction: Language of Computers (5)
- Arithmetic for Computers (3)
- The Processor (3)
- I/O (4)
- Multi-core, multi-processor, and clusters (3)
- Memory Hierarchy (4)

Academic Integrity: Students are expected to be familiar with and abide by the UNCG Academic Integrity Policy, which is online at <http://academicintegrity.uncg.edu/> Assignments in this class are for individual work, unless explicitly stated otherwise. General concepts and material covered in the class may be discussed with other students or in study groups, but specific assignments should not be discussed and any submitted work should be entirely your own. It is expected that the class textbook will be used as a reference, but if any other reference materials are used in preparing homework solutions they should be clearly cited. Any incidents of academic dishonesty will be handled strictly, resulting in either a zero on the assignment or an F in the class, depending on the severity of the incident, and all incidents will be reported to the appropriate UNCG offices. By submitting your homework or exam answer sheet, you have implicitly signed the Academic Integrity Pledge of “I have abided by the UNCG Academic Integrity Policy on this assignment or submission.”

Attendance Policy: Attendance of class discussions is mandatory unless you have legitimate reasons of not coming. Prior notification through email is required if you can't make it to a lecture. Pop quiz and group discussions will be given to check your attendance and participation in class. The university allows for a limited number of excused absences for religious observances --- students who plan to take such an absence should notify the instructor at least two weeks in advance so that accommodations can be made (also see the late work policy).

Note Sharing: Selling class notes for commercial gain or purchasing such class notes in this or any other course at UNCG is a violation of the University's Copyright Policy and of the Student Code of Conduct. Sharing notes for studying purposes, or borrowing notes to make up for absences, without commercial gain, are not violations.

Laptop/Cellphone Policy: Laptops can be both a benefit and a distraction in a classroom. While many students benefit from taking notes using a laptop, or having access to outside class-related resources during lecture times, other students cannot resist the temptation of checking e-mail, chatting, or even playing games during class time. This class has a strict "no non-class related use" rule for laptops — if you are found violating this policy, then your in-class laptop privileges will be taken away. Cell phones are a distraction for everyone, and should be turned off or muted during class. Texting during class is strongly discouraged.

Late Policy and Makeup Exams: Late submissions of homework are strongly discouraged, unless advanced permission is granted. 20% late submission penalty will be charged for each day (including partial day) of late submission. Students with planned absences, whether for university events, religious observance, or other reasons, are expected to make arrangements with the instructor to turn in assignments or take exams before the scheduled date of the assignment or test. If a homework assignment is deemed too difficult or have time conflict with other of your academic activities, you are encouraged to speak out in Blackboard forum or in class to request a class-wide extension. Exams may be made up *only* if it was missed due to an extreme emergency and arrangements are made *before* the exam date. Exams may not be taken early or late due to personal travel plans.

On-line Lectures: Closure of university facilities and classrooms in response to flu outbreak or other emergency does not mean that this class is halted, and students should check blackboard for announcements about how the class will proceed in the event of such an emergency. We may proceed with on-line chat or voice recording lectures in combination with slides.

ADA Statement: UNCG seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Office of Disability Services located in 215 Elliott University Center: (336) 334-5440.