EC413 – Computer Organization  
Fall 2018
M W 10:10am-11:55 in PHO 203

Staff Information  
Instructor:  
Tali Moreshet, PHO 528  
Email: talim@bu.edu (with EC413 in the subject line)  
Office hours: M 2-4pm, Th 1:30-2:30pm, and by appointment  

Teaching Assistants:  
Aditya Narayan (GTA), adityan@bu.edu  
Maha Ashour (TA), mash@bu.edu  
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TA lab hours, in PHO305: Tues-Thur. 6:30-8:30pm, Fri. 3-7pm.  

Discussion Sections: Monday 1:25-2:15pm, 4:40-5:30pm, or 6:30-7:20pm, in PHO307.  
The discussion sections are run by the TAs and serve two purposes: a pre-lab and/or an extension of the lectures. Attendance is not required, but is strongly recommended.  

Course Description  
EC413 is an introduction to the fundamentals and design of computer systems. The starting points are your basic knowledge of logic design and high-level language programming. The ending points will be your ability to create a working computer from logic gates, to program that computer in assembly language, and to be able to evaluate design options. Topics include computer instruction sets, assembly language programming, logic design of arithmetic operations, design of sequential logic with registers and buses, CPU design (data path, control, integrating datapath and control, pipelining), performance evaluation, and memory systems (including caching and virtual memory). In parallel there is a lab where the focus is on in-depth understanding of selected comp org topics including HDL design using Verilog and system design methods.  

The prerequisites are EC311, including familiarity with Verilog, and high-level language programming, preferably in EC327.  

Textbook  

Assignments, announcements, course material, readings, updated schedule, and other useful links will be posted on Blackboard (http://learn.bu.edu).  

Labs  
Our laboratory space is in PHO305/PHO307 (Linux machines), although you can also use the eng-grid.bu.edu for running Linux applications. If you have registered for this class sufficiently early, your BU ID should get you access to PHO305/PHO307; if not, please submit your request
through Zaius (http://www.bu.edu/dbin/eng/zaius/).

Grades
Final grades will be curved. Grade discussion/corrections should be done within one week after the graded exam or homework is distributed. No grade changes will be made after one week.

Evaluation
Exams: There will be two midterms, during class time (tentative October 17 and November 19), and a final. Exams will be closed book/notes, no calculators, with only one letter-size two-sided, hand-written sheet of notes allowed.

Homework: Homework assignments will be posted on the Blackboard website. Homeworks are due at the beginning of class, and must be turned in online on Blackboard in a single readable pdf document. Late homework will be penalized 20% for being up to one day late (starting from the beginning of the class when it is due) and will not be accepted thereafter. Doing the homework will prepare you for the exams!

Labs: The labs are assigned about a week before they are due and it is your responsibility to get them done on time, generally Friday afternoons. Please note that the amount of time any particular lab takes can vary by an order of magnitude (from a few hours to a few days).

Lab grading: A large part of each lab is the demo. Because there are many more students than TAs, you are urged to get the labs done early. For labs with demos, 5% bonus for finishing by Wednesday, 3% bonus for finishing by Thursday. On the other hand, there is a 10% penalty for being late one business day (usually the following Monday) and a severe penalty for being later than that.

Quizzes: There will be regular in-class short quizzes on Blackboard. Their purpose is to encourage attendance and participation. Quizzes are open book and notes. You may take the quizzes on Blackboard on your laptop, tablet, or Smartphone, by installing the Blackboard app. No makeup is available for quizzes, even with a legitimate excuse. To accommodate, the lowest quiz grade will be dropped.

Attendance: Attendance is essential in this class. Some of what we cover in this course will be found nowhere else. You are also strongly encouraged to actively participate.

Note: You are expected to do all the labs and homeworks in order to pass the course.

Collaboration and Copyright
We take cheating and plagiarism very seriously. Homeworks and labs are to be done individually. You are encouraged to work together to learn the material and to discuss approaches to solving homework problems. However, you must come up with and write up the solutions on your own. You may not collaborate in any way on exams or quizzes. Failure to meet any of the above conditions will be considered cheating in this class.

All class material is copyrighted, and may not be shared publicly online by any means.