EC413 – Computer Organization  Spring 2021

M W 10:10am-11:55 in EPC 208 and via Zoom

Instructor: Tali Moreshet, PHO 528  Email: talim@bu.edu (with EC413 in the subject line)
Office hours: Sign up for an appointment: https://calendly.com/talim/advising-office-hours

Teaching Assistants: Zihao Yuan (GTA), yuan1z@bu.edu, Anthony Faller, amfaller@bu.edu,
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TA lab hours, in PHO305/307 and via Zoom: 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 PHO305 and via Zoom.
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 end 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.


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, or Citrix for running Linux applications. Request card access to PHO305/PHO307 through Zaius (http://www.bu.edu/dbin/eng/zaius/).

Evaluation
Grading:  Exams/Quizzes: 50%
         Homework: 5%
         Labs: 40%
         Participation: 5%

Exams/Quizzes: Uniquely this semester, due to the online nature of the class, there will be no
exams. In place of exams, there will be weekly short online quizzes. The
quizzes are open book, open notes, but no other resources should be used, and
no collaboration is allowed. The lowest quiz grade will be dropped.

Homework: Homework assignments will be posted on the Blackboard website. Homeworks
are to be submitted on Blackboard, as a single pdf file before the specified
deadline (typically, in one week by 8pm).
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.

Attendance: Attendance is essential in this class, preferably in real-time. Some of what we cover in this course will be found nowhere else. You are also strongly encouraged to actively participate, if not during lecture then during office hours.

Grades: Exam/Home/Lab Grade discussion: Grade discussion/corrections should be done within one week after the graded exam or assignment is distributed. No grade changes will be made after one week. Let us know in advance if you require an extension on an assignment due to unforeseen circumstances. No make ups are available for quizzes.

Academic integrity and Copyright:
- Homework and labs are to be done individually. You are encouraged to work together to learn the material and to discuss approaches to solving problems. However, you must come up with and write up the solutions on your own. Copying an answer from another student or source is considered cheating. **You may not submit ANY code not written by you. You may not collaborate in any way on quizzes.**
- Clearly reference any sources you used in your work: Books, Internet, and collaborators!
  - *Boston University’s academic code of conduct* will be strictly applied.
- **All class material is copyrighted, and may not be shared publicly online by any means.** This includes your own solutions.

Expectations Regarding Safety: Masks are required and face coverings must be worn over the mouth and nose at all times when in public spaces on campus, including classrooms. Students should be prepared to show proof that they are compliant with health attestations and testing in order to attend class. See official BU COVID policies: [http://www.bu.edu/dos/policies/lifebook/covid-19-policies-for-students/](http://www.bu.edu/dos/policies/lifebook/covid-19-policies-for-students/)

Inclusion: I consider this classroom to be a place where you will be treated with respect, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, ability – and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class.

Accommodations for Students with Documented Disabilities: If you believe you might have a disability that requires accommodations, requests for accommodations must be made in a timely fashion to Disability & Access Services, 25 Buick St, Suite 300, Boston, MA 02215; 617-353-3658 (Voice/TTY). See established policies and procedures: [http://www.bu.edu/disability/accommodations/](http://www.bu.edu/disability/accommodations/)