**Syllabus**

**Course Information**

**Name:** CSCI 240 / 640 – Computer Organization and Assembly Language

**Prerequisite:** CSCI 111 - Algorithmic Problem Solving I

The topics, as listed in the bulletin, are: Principles of computer design and implementation; instruction set

architecture and register-transfer level execution; storage formats; binary data encoding; assembly language programming.

The primary goal of the course is to understand the operation of the computer at its most basic level from

the programmer’s perspective. This allows one to study the computer from above, how software is

handled by the hardware, and below, how the hardware is implemented to support the basic functionality.

On the most practical level, this course is a preparation for CSCI 343.

**Instructor Information**

**Instructor:** Jackson Yeh

https://www.linkedin.com/in/jackson-yeh-0687721/

**E-mail:** jackson.yeh@qc.cuny.edu

**Office Hours:** Monday/Wednesday: 7:30 PM to 8:30 PM

Tuesday/Thursday:  9:45 PM to 10:15 PM

Or By Appointment

**Textbooks**

Robert L. Britton.: MIPS Assemby Language Programming, Prentice Hall, 2003.

**• ISBN-10:** 0131420445

**• ISBN-13:** 978-0131420441

David A. Patterson and John L. Hennessy: Computer Organization and Design MIPS Edition: The Hardware/Software Interface, Sixth Edition. Morgan Kaufman, 2020.

• **ISBN-10:** 0128201096  
**• ISBN-13:** 978-0128201091

**Course Policies**

**Attendance**

Although attendance is not graded, it is an essential component to the course. Key facts and concepts that are lightly addressed in the book are elucidated in the lectures. Lectures also give students to a chance to share their learning with other students.

No auditing of this class is allowed. You may only view lectures in this section of CSCI240 if you’re enrolled as a student in this section. If you withdraw from this class, you’re no longer a student in the class.

**Blackboard**

Class is facilitated via Blackboard. Make sure you can log into Blackboard. If you cannot, please contact the Help Desk at 718-997-4444.

All major class announcements will appear on Blackboard under ***Announcements***. Please check the class website on a regular basis for announcements, lecture notes, assignments and exam schedules.

**Online Etiquette**

Please set your microphone to MUTE unless you have a question. Be respectful of other students, especially in the class CHAT sessions.

**Lecture Recordings**

Lectures will be recorded. The recordings will be made available over the weekend via Blackboard. Students who participate in this class with their camera on or use a profile image are agreeing to have their video or image recorded solely for the purpose of creating a record for students enrolled in the class to refer to, including those enrolled students who are unable to attend live.

If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded.

**Exams**

Exams are administered online. You are required to have a webcam enabled for the duration of the exam to facilitate proctoring. If you are not able to provide a webcam, the alternative is an oral examination.

**Rescheduling Exams**

Makeup exams will be administered only in cases of severe circumstances and prior notification or official documentation.

**Special Accommodations**

If you have a letter or statement from the Office of Special Services that you are allowed some special allowance or accommodation for exams, please provide me such or notify me of such allowance ***before*** the midterm.

**Academic Honesty**

You are expected to adhere to the University policy on academic honesty. I expect each student to complete work independently (unless specified otherwise) and to reflect your own work.

**If you cheat on an exam, you will receive an F in the course and any subsequent exams you take in this class will not be graded.**

**Grading**

Quizzes 10%

Midterm 25%

Project 25%

Final 40%

**Course Structure**

We will cover the following topics – in variable depths:

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| --- | --- |
| **Data Representation** | |
| Number Bases Signed Binary Binary Arithmetic Floating Points Binary Coded Decimals Character Encoding, Unicode Data Storage Formats |  |
| **Digital Logic** | |
| Boolean Algebra  Digital Logic Gates  Functions Adders, Multipliers Multiplexors, Encoders and Decoders  Comparators Arithmetic Logic Units Karnaugh Maps |  |
| **Assembly Language** | |
| MIPS Architecture MIPS Instruction Set Programming in MIPS  System Calls Control Structures Data Structures Functions  Memory Management |  |