

Name: CSCI 240 – Computer Organization and Assembly Language
Prerequisite: CSCI 111 - Algorithmic Problem Solving I
Time: Tuesday and Thursday 8:30 – 9:45 PM

Instructor Information

Instructor: Jackson Yeh
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Office Hours: SB A201— by appointment

This is a shared office with no direct phone line or voicemail.

All calls/off hour visits should be directed to the CS Department—SB A202; (718) 997-3500

Textbooks

David A. Patterson and John L. Hennessy: *Computer Organization and Design: The Hardware/Software Interface, Revised Printing, Fourth Edition*. Morgan Kaufman, 2008.

- **ISBN-10:** 0123744938
- **ISBN-13:** 978-0123744937

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

- **ISBN-10:** 0131420445
- **ISBN-13:** 978-0131420441

Course Overview

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; bus structures; 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.

Course Policies

Attendance

Although attendance is not required, 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.

Electronic Devices

Cell phones are restricted during class. Cell phones must be turned off during the lecture. If your cell phone rings during class, you may be asked to leave.

Rescheduling Tests

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

Cheating

Cheating on an exam will result in a failing grade for the exam and possibly for the course. Talking during an exam or looking at the work of fellow students results in immediate termination of the exam.

Grading

- Exam 1 - 25%
- Exam 2 - 25%
- Project - 25%
- Final - 25%

Topics

Basic concepts

Base conversions

Signed binary numbers

Character codes

Binary addition/subtraction

Binary multiplication/division

Data Storage Formats

Floating point numbers

Digital logic

Boolean algebra

Multiplexors; encoders; decoders

Binary adders

Arithmetic logic unit

MIPS architecture

MIPS instruction set

Assembly language

Data transfers and addressing modes

Control structures

Stack operation and procedures

Data structures;