# CSCI 240: Computer Organization and Assembly Language
# CUNY - Queens College

**Credits:** 3 credits
**Program:** undergraduate
**Prerequisite(s):** CSCI 111

## Course Description

This course covers principles of computer design and implementation. Instruction set architecture and register-transfer level execution; storage formats; binary data encoding; bus structures; assembly language programming.

## Course Outline

- **Introduction**
  - Computer architecture / Computer organization
  - MIPS architecture
  - Computer history
  - Hardware vs. Software
  - From High-level language to Binary language

- **Basic Computer Hardware Components**
  - Von Neuman Architecture
  - Main Computer Components

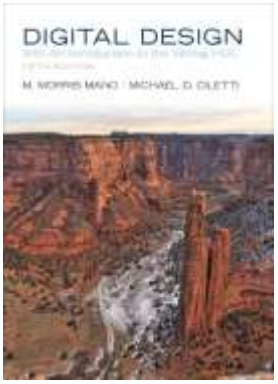
- **Data Representation and Conversion**
  - Fixed Point
  - Floating Point

- **Boolean Algebra**
  - Truth Tables
  - Functions Simplification; k-Maps

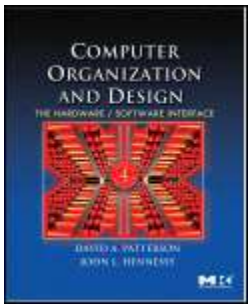
- **Combinational Logic**
  - Logic Gates
  - Small Integrated Circuits (multiplexers, encoders, decoders)
  - Medium and Large Integrated circuits (PLA, ROMs)
  - Adders
  - 1 bit – ALU / 32-bit MIPS ALU

- **Basic MIPS Assembly Language Programming**
  - MIPS – Instruction Format
  - Macro Instructions / Assembler directives
    - Input and Output
      - Reading and Printing Integers
      - Reading and Printing Strings
  - Instructions for Decision Making
  - Logical Operations
  - Iteration
  - Subroutine Call and Return Mechanisms
  - Using the stack
  - Recursive Functions

## Recommended Textbook(s)




**Digital Design (any Edition, this is the 5th Edition)**
M. Morris R. Mano, Michael D. Ciletti




**Computer Organization and Design**: The Hardware / Software Interface (Fourth Edition or newer)
Authors: David A. Patterson and John L. Hennessy
Publisher: Morgan Kaufmann

## ACADEMIC INTEGRITY

**PLEASE READ THE POSTED THE ACADEMIC INTEGRITY FILE/LINK.**

Receiving and/or giving answers from/to other students enrolled in this or a previous semester is academic dishonesty subject to standard University policies.
**Copying** or **(enabling copying)** of homework, exams, projects or "teamwork" on an assignment and or examination is not permitted. Using Internet or other sources while taking an exam / quiz is not permitted.

From the College Bulletin on Academic Dishonesty:
*"Students found guilty of any form of academic dishonesty, such as plagiarism or cheating on an examination are subject to discipline, including suspension or dismissal from the College."*

If I only suspect that you have cheated or plagiarized, a PEN grade will be assigned. The grade is used to facilitate the implementation of the procedures for imposition of sanctions related to academic integrity.

If I judge that your performance on an examination (including projects) does not seem consistent with your previous work or there is some aspect of your work that is suspect, I may require you to meet with me or I will ask you to solve/write some similar questions/code to ones on the exam/project.

Your performance in that session will determine your examination grade. This is a necessary process to maintain the integrity of the course grades. If it seems that you may have given or received unfair aid on the exam, I may assign a grade of 0 (and report the matter to the Queens College Office of Student Conduct - Judicial Affairs) or contact you for an immediate explanation.

**TAKING OR MISSING EXAMINATIONS**

All examinations must be taken in-person. There will be no make-up examinations **(with the exception of special circumstances). Such situations must be brought to my attention before the exam day if possible, and must be documented. Before making any decision in granting or not granting an in-person makeup, these cases will be discussed with your adviser and the chairman. The default exam day for these makeups will be either during the final exam day or during the final exam week of the next semester (depending on the semester and exam type)**

Course grades are assigned based upon performance and not on any other issues including, but not limited to, financial aid, visa status, and personal issues. Your grade is based only upon the knowledge and understanding of the class material that you demonstrate.
**There is** no extra credit for individuals**. I usually don't give curves, however if a curve is applied to an examination, it will be granted to all students in the class.**

**GRADING POLICY**

| | |
|---|---|
| **Homework:** | **10%** |
| **Quizzes (announced or not):** | **15%** |
| **Exams:** | **75% (min 35%, max 40%)** |

---

| | |
|---|---|
| **In Class Work or Lectures (EC)** | |
| **In Class Participation (EC)** | **up to 3%** |

**The exams are not cumulative.**
**In order to avoid an F in the course, you must pass both halves of the course (>F, >60).**

**Grade equivalencies recommended by the college**

| | | |
|---|---|---|
| 93 | A | |
| 90 – 92 | A- | |
| 87 – 89 | B+ | |
| 83 – 86 | B | |
| 80 – 82 | B- | (in this class it starts at 79) |
| 77 – 79 | C+ | (in this class the range is 73 – 78) |
| 73 – 76 | C | (in this class the range is 70 – 72) |
| 70 – 72 | C- | (in this class the range is 67 - 69) |
| 67 - 69 | D+ | |
| 60 – 66 | D | |
| <60 | F | |