Course Outline Highlights

Computer Science Department
CS2208b: Introduction to Computer Organization and Architecture
Winter 2020-2021
Instructor: Mahmoud R. El-Sakka
Office: MC-419
Email: elsakka@csd.uwo.ca
Phone: 519-661-2111 x86996

Instructor and Teaching Assistance

Instructor

- Professor *Mahmoud El-Sakka*
  ~~Middlesex College, Room 419~~
  ~~Phone: 519-661-2111 x86996~~
  Email: *elsakka@csd.uwo.ca*
- ***Office hours***
  (*via Zoom at Western*): Tuesday from 12:30 pm to 2:30 pm (tentative)
  Thursday from 12:30 pm to 1:30 pm (tentative)

Graduate Teaching Assistance (TA)

- TBA

Course Schedule

- ***Lectures Time & place:***
  - 3 hours of asynchronous online lectures per week
- ***Tutorials Time & place:***
  - 1 hour of asynchronous online tutorial per week
- ***Labs Time & place:***
  - 1 hour of asynchronous online lab per week

Labs start from the week of Monday, February 22, 2021

Weekly course material will be posted once a week, likely on each Sunday.

Course Website

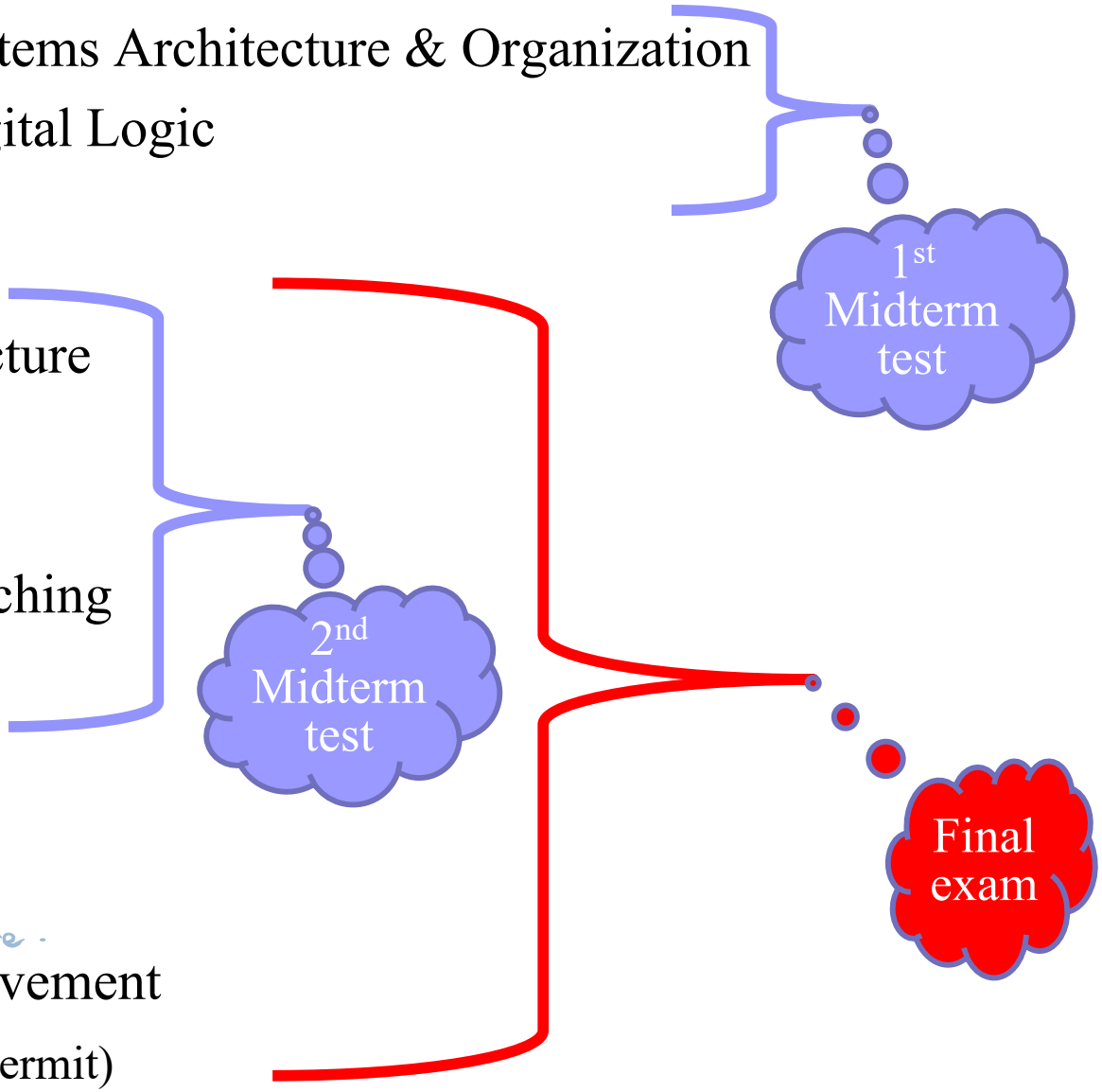
- Course material and class information will be posted on the Online Western's Learning (***OWL***) system (***https://owl.uwo.ca***)
- You are responsible for reading this information frequently
- For ***OWL*** related assistance, please read the course outline *Section H*

Course Description

- This course will let you understand the basics and fundamentals of computer ***organization*** and ***architecture***, i.e., ***how a computer works*** and ***what a computer does***
- The course covers
  - the internal representation of various data types, e.g., characters, integers, and floating-points.
  - the addition and subtraction operations and how they are internally performed.
  - the architectural components of digital computers, how these components are interconnected, and the nature of the information flow between them.
- ARM assembly language is used to reinforce these issues.

Course Topics

- Will address as many of the following topics:
  - Introduction to Computer Systems Architecture & Organization
  - Computer Arithmetic and Digital Logic
  - Floating Point Numbers
  - ARM Instruction Set Architecture
  - ARM Assembly Language
  - ARM Data Processing
  - ARM Flow Control and Branching
  - ARM Addressing Modes
  - Subroutine Call and Return
  - Data Storage and the Stack
  - Data Processing and Data Movement
  - Computer Performance (if time permit)



Prerequisites

- Computer Science 1027a/b, 1037a/b, or 2101a/b
  - with a grade of at least 65%

or

- Integrated Science 1001X
  - with at least 60%

- *Students are responsible for ensuring that they have the stated prerequisites for this course*

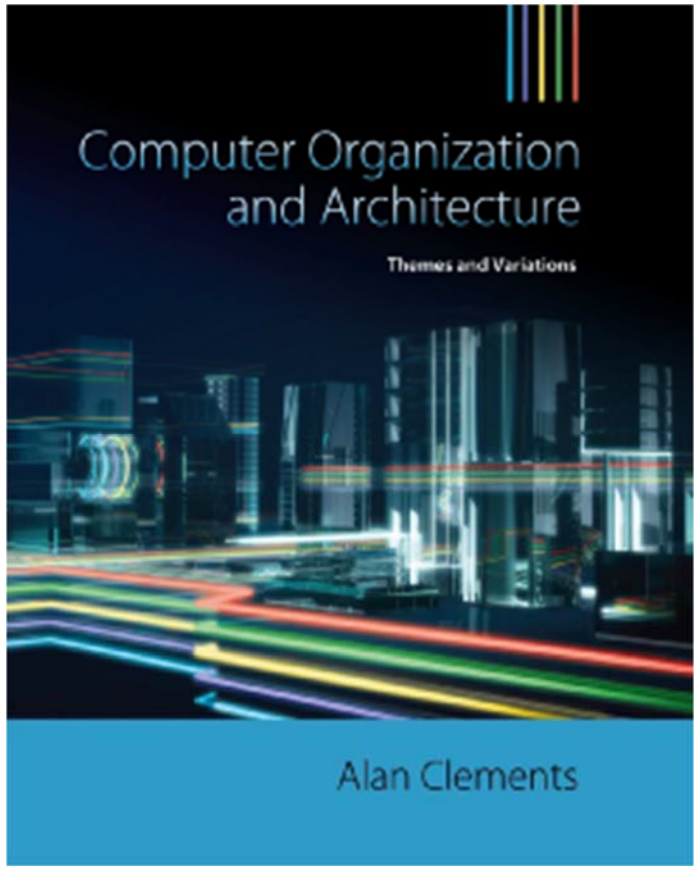
- *Students are assumed to be familiar with a high-level programming language and with data structures such as stacks and queues.*

Textbook

- Alan Clements,
  - *Computer Organization & Architecture: Themes and Variations*
    Cengage Learning, ISBN: 978-1-111-98704-6, © 2014
    https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2020B&courses%5B0%5D=001_UW/CSC2208B

- The book is required

- For more information about bookstore, please read the course outline *Section G*



Technical Requirements and Online Etiquette

- CS2208 is an online course.
- It is the student's responsibility to secure access to
  - a computer with a working microphone and webcam, and
  - a stable internet connection.
- Students also need to be able to install a Windows-based simulator software.
  - MAC users will need first to install Fusion VMware software; for more information, see course outline *Section J*
- Besides, students need to honour the online etiquette rules; for more information, see course outline *Section K*

How much will I learn from this course?

- Depends on how much effort you will put.
  - No pain ➔ no gain
- You need to allocate *on average* ***10 hours per week*** for studying the CS2208 material
- As an anchor, start at the "*WEEK BY WEEK*" Section

Methods of Evaluation

- The overall course grade will be calculated as listed below:
  - 12.0%: Assignments (*the average of the best 4 assignments out of 5*)
  - 9.0%: Weekly quizzes (*the average of the best 9 quizzes out of 10*)
  - 7.5%: Labs (*the average of the best 5 labs out of 6*)
  - 15.5%: First midterm test
  - 20.0%: Second midterm test
  - 36.0%: Final exam

To be eligible to receive a passing grade in the course

- your total marks on the two midterm tests and the final exams must be at least 50% (*i.e., at least 35.75*)

To be eligible to receive a grade of 60% or higher (i.e., to be eligible for Honors Programs) in the course

- your total marks on the two midterm tests and the final exams must be at least 60% (*i.e., at least 42.9*)

Assignment/Lab/Quiz Conduct

- There will be
  - 5 equally weighted online assignments
  - 10 equally weighted online quizzes
  - 6 equally weighted online labs

- For tentative assignment/quiz/lab schedule, please read the course outline *Section M*, *Section N*, and *Section O*

- Assignments/labs/quizzes are due at 23:55 of the due date
- All submission will be submitted *electronically*
- Late submissions are ***strongly discouraged***
  - *10% will be deducted from a late submission (up to 24 hours after the due date/time)*
  - After 24 hours from the due date/time, late submission will receive a ***zero*** grade

Assignment/Lab/Quiz Conduct

- Assignments/labs/quizzes will be marked either automatically or by the Teaching Assistant(s), who follow marking schemes provided by the instructor.
- Every effort will be made to have assignments/labs/quizzes marked within 3 weeks of the hand-in date, preferably sooner
- When marking an assignment/lab/quiz is completed, you will be informed via the course website and/or email

Assignment/Lab/Quiz Conduct

- A request for a mark adjustment must be made within 2 weeks following the first handed-back day
  - For assignments/labs/quizzes that are automatically marked, you can send your related questions directly to the instructor.
  - For assignments/labs/quizzes that are marked by the Teaching Assistant(s), you should direct any questions about marking in the first instance to your Teaching Assistant.
  - If your discussion with the Teaching Assistant is not satisfactory, you may want to further discuss the issue with the course instructor.
- *All assignments/labs/quizzes marks are considered final after 2 weeks*

Assignment/Lab/Quiz Conduct

- Assignments/labs/quizzes are to be done individually
  - ***Never*** let others look at your work
  - ***Do not*** ask to look at others' work
  - We use automated tools to screen for cheating
- You should read the definition and penalties of scholastic offences at:
  www.csd.uwo.ca/undergraduate/current/policies/scholastic_offenses.html
- Students are expected to adhere to the Rules of Ethical Conduct to use the computing facilities of the Department:
  www.csd.uwo.ca/undergraduate/current/policies/ethical_conduct.html

Midterm tests and Final exam

- *Tests and examinations in this course will be conducted using the **remote proctoring service, Proctortrack**.*
- *By taking this course, you are **consenting** to the **use of this software** and **acknowledge that you will be required to provide personal information (including some biometric data)**, and the **session will be recorded**.*
- *More information about this remote proctoring service is available in the Online Proctoring Guidelines at the following link:*
  www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf.

Midterm tests and Final exam

- ***Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service*.**

- *Information about the technical requirements is available at the following link:* www.proctortrack.com/tech-requirements/.

Accommodations and Support Services

- Please read the course outline for more information about:
  - ***Accommodation Policies*** (*Section S*)
  - ***Academic Accommodation for Student Absence*** (*Section T*)
  - ***Religious Accommodation*** (*Section U*)
  - ***Support Services*** (*Section W*)