# CSCIU 210 01 – Computer Organization

*Note: Some items are tentative. Updates will be posted on the course website.*

**Instructor:** AKM Jahangir Alam Majumder, Ph.D.
**Office:** Hodge 239
**Office Hours:** M 9:30am – 11:00am, W 9:30am – 11:00am and 1-2PM
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| Course Activity | Meeting Days & Times | Location | Instructor |
|---|---|---|---|
| Lecture | MWF 11:30am – 12:20pm | Hodge 254 | Dr. Jahangir |

**Textbook:** David A. Patterson, John L. Hennessy, Computer Organization and Design: The Hardware/Software Interfaces, 4th / RISC V-edition, ISBN: 978-0-12-812275-4 (**required**). See me if you have an older edition.

Textbook Companion Web-Site:
(https://textbooks.elsevier.com/web/product_details.aspx?isbn=9780128122754)

**Software:** SPIM Simulator whose download link is included in the textbook companion CD.

**Course Description:** CSCIU 210 covers the basic concepts of a computer system. Study of the design and interconnection of digital hardware to create computers. Includes principles of Von Neumann computer architecture, data representation, computer arithmetic, memory hierarchy, CPU structure and instruction sets, assembly language programming, performance considerations and alternative computer architectures. The course illustrate the theories and concepts of computer systems and design, as well as their applications to real-world problems.

**Course Objectives:** Upon finishing the course, students are expected to be able to:

Describe basic concepts of a computer system. Describe the organization and structuring the major hardware components of computers. Describe basic computer architecture. Describe the interrelationships between a computer's architecture and an assembly language executed on that computer. Describe the interrelationships between a machine-level language and higher-level languages. Describe the assembly process. Program effectively in an assembly language.

**Course Grade Determination**

| | |
|---|---|
| Homework | 15% |
| Quizzes | 20% |
| Exam 1 | 20% |
| Exam 2 | 20% |
| Final Exam/Project | 25% |

**Note:** If it's beneficial to your overall grade. Homework assignments will include some programming assignments. Individual homework might have different weights depending on the degree of difficulty.

**Attendance**

Attendance is extremely important to your success in the class. If you miss class, you are responsible for all announcements and material covered. You may contact your instructor for assistance, but it is your responsibility. **Attendance will be taken. If attendance records indicate that you missed more than 4 classes, the instructor may drop you from the class.** Unless agreed to in advance, an absence is unexcused unless you provide documentation of medical or family emergency.

Attending class is not enough to learn the material. You should also read the relevant parts of the textbook/handouts, preferably before the lecture. If you don't, you may find it difficult to follow the lecture and thus find the lecture less useful. When you read the textbook, be sure to read **actively**, including working through the derivations, example problems, practice problems, etc. It may be tempting to simply read the book, read the solutions to example problems, and watch the lectures, but when you sit down to do the homework, you may find yourself with no idea how to start. Active reading is much more effective. Ask questions if you don't understand something. You may be missing a key idea, or there may be an error in the textbook/handout/lecture.

**Late Work**

Late work must be sent by email or handed in directly to the instructor (not placed under a door or left in a mailbox). Unless otherwise stated, late work is accepted with 5% penalty if turned in later the same day. After that, a 10% penalty applies to the first late day and 20% for each additional late day after the first. For example, if the assignment is due Tuesday and you turn it in Friday (3 days late), you lose 10% + 20% + 20% = 50%.

**Quizzes/Homework**

Homework will be assigned regularly throughout the semester through the Blackboard to complement the lecture. Homework will be used to stress important concepts and also as a feedback to gauge your understanding of the material covered.

Discussing solution techniques with other students on their homework at the conceptual level is encouraged, but ALL WORK MUST BE DONE INDIVIDUALLY. If you are not sure where this boundary lies, you are welcomed to come and discuss it with me. Homework needs to be turned in by the beginning of class on the due date, unless otherwise stated. **Students are not allowed to work on his/her homework during the lecture. Bottom line: doing and understanding the homework is extremely important to your success in the course!**

**Exams**

Exams will include drill problems that are similar to homework problems, practice problems, and problems worked in lecture. Exams will also include problems that you haven't seen before but that can be solved if you understand the homework problems and the concepts, derivations, and problems covered in class. To do well, **you must learn the fundamental concepts** that can be applied to a variety of problems. It is not enough to memorize example problems. The job of an engineer is to solve problems that haven't been solved before. There are no shortcuts -- it takes hard work! Your instructor can assist you, but ultimately, you must work actively and get to the point where you can do it on your own. Attending the lectures and passively reading the textbook is not enough.

Exams will be closed everything, except possibly a formula sheet that will be provided. The formula sheet will be posted on the course website before the exam so that you know which formulas will be provided. It is your responsibility to check for any errors in the formulas and to know how to use them.

Unless otherwise stated, you must show your work on exams. Failure to show sufficient steps will result in a grade penalty and possibly zero points.

**Calculator Rules**
Calculators may be allowed for some exams/quizzes but possibly not others. **If your calculator has memory, you must clear all stored information and programs before the exam. Failure to do so may result may result in a zero for the exam/quiz and possibly additional consequences. Also, your calculator must have no wireless communications capability.** All other electronic devices must be turned off and put away during exams/quizzes, including cell phones, PDAs, music players, laptops, etc. Wear a basic watch if you want to keep track of time – you may not use other electronic devices to keep track of time. Failure to follow these rules is considered academic misconduct and is subject to penalties as described in the student handbook.

**Makeup Exams/Quizzes**
Unless agreed to in advance, no makeup exams/quizzes will be given, except in case of a medically documented incapacity or a documented family emergency.

**Regrades**
If you want an assignment to be re-graded, you must submit your request **in writing** no later than one week after the graded assignment is returned to the class. A regrade request must include the problem number(s), written justification(s) for the request, and the assignment itself. Examples of valid reasons for a score increase include incorrect addition of scores and incorrect assignment of scores.

**Academic Integrity**
You are expected to maintain high standards of academic integrity. For more information, please visit the university's website on academic integrity.

**Exam Dates**
TBA. Exams will be during class time.

**Notice**
As part of the department's ongoing assessment process, selected student work may be copied and shared with accreditation evaluators as appropriate. If you have any questions or concerns, please notify your instructor in writing by the end of the first week.