CS 3443: Computer Systems
Term Fall 2023
Meetings: Tues: 4.30-7.10 pm, NCB 261

Contact Information
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Office Hours:

General Course Information
Pre-requisites, Co-requisites: CS 2113 (Computer Science 1)

Course Description:
Functional and register level description of computer systems, computer structures, addressing techniques, macros, linkage, input-output operations. Introduction to file processing operations and auxiliary storage devices. Programming assignments are implemented in Assembly Language.

Required Text:
ISBN: 9780124077263

Suggested Text:
### Assignments & Academic Calendar

<table>
<thead>
<tr>
<th>Week #</th>
<th>Day/ Date</th>
<th>Material to be Covered</th>
<th>Reading/ Homework</th>
</tr>
</thead>
</table>
| 1      | Aug 22    | Introduction, Computer Abstractions and Technology  
               - A simplified view of hardware and software as hierarchical layers  
               - From a High-Level Language to the Language of Hardware  
               - Performance  | Chap 1:  
               1.3, 1.6, 1.10 |
| 2      | Aug 29    | Instructions: Language of the Computer (MIPS)  
Appendix A: Assemblers, Linkers, and the SPIM Simulator  | Chap 2:  
2.2 – 2.8, 2.10, 2.12  
Appendix A |
| 3      | Sept 5    | Instructions: Language of the Computer (MIPS)  | Chap 2 |
| 4      | Sept 12   | Instructions: Language of the Computer (MIPS)  | Chap 2 |
| 5      | Sept 19   | Instructions: Language of the Computer  | Chap 2 |
| 6      | Sept 26   | Instructions: Language of the Computer (MIPS), **Exam 1**  | Chap 2 |
| 7      | Oct 3     | Arithmetic for Computers  
- Binary Addition and Subtraction  
- Multiplication  
- Division  
- Floating Point  | Chap 3:  
3.2-3.5 |
| 8      | Oct 10    | Arithmetic for Computers,  | Chap 3 |
| 9      | Oct 17    | Arithmetic for Computers  | Chap 3 |
| 10     | Oct 24    | The Processor:  
- An Overview of Pipelining  
- Data Hazards: Forwarding versus Stalling  
- Control Hazards  | Chap 4:  
4.5, 4.7 - 4.8 |
| 11     | Oct 31    | The Processor, **Exam 2**  | Chap 4 |
| 12     | Nov 7     | The Processor  | Chap 4 |
| 13     | Nov 14    | The Memory System: Cache  | Chap 5:  
5.1, 5.3-5.4 |
| 14     | Nov 21    | Fall Break, 20-22  
University Holiday, 23-24  | Chap 5:  
5.1, 5.3-5.4 |
| 15     | Nov 28    | The Memory System: Cache  | Chap 5 |
| 16     | Dec 5     | The Memory System  | Chap 5 |

**Final Exam Dec 12**

### Exams

There will be two Exams, as well as a Final Exam. You will be allowed to use the MIPS Reference Card that is provided with the text book.

- **Exam 1:** Sept 26, 2023
- **Exam 2:** Oct 31, 2023
- **Final Exam:** Dec 12, 2023
Grading (credit) Criteria

The grade will be determined as described below. No bonus work, make-up work, dropped scores, or other means of raising your grade should be expected.

<table>
<thead>
<tr>
<th>Grading Criteria</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Assignment[8]</td>
<td>35%</td>
</tr>
<tr>
<td>Attendance</td>
<td>5%</td>
</tr>
</tbody>
</table>

Grades are assigned according to the following scale:

- [>=90%] A
- [80-89%] B
- [70-79%] C
- [60-69%] D
- [0-59% ] F

Make-up Exams

Make-up exams are only given to those students who coordinate the missing of an exam prior to the originally scheduled exam date and time.

Extra Credit

Late Work

Assignments are due in class/online on the dates given. If a student submits an assignment after the due date without having made arrangements with the instructor, a minimum of 15 points (based on an assignment grading scale of 100 points) or 15 percent of the total points will be deducted for each day, or part thereof, that the assignment is late.

Class Attendance

Class attendance will be documented

OSU Academic Integrity Policy:

OSU is committed to maintaining the highest standards of integrity and ethical conduct. This level of ethical behavior and integrity will be maintained in this course. Participating in a behavior that violates academic integrity (e.g., unauthorized collaboration, plagiarism, multiple submissions, cheating on examinations, fabricating information, helping another person cheat, unauthorized advance access to examinations, altering or destroying the work of others, and altering academic records) will result in an official academic sanction. Violations may subject you to disciplinary action including the following: receiving a failing grade on an assignment, examination or course, receiving a notation of a violation of academic integrity on your transcript, and being suspended from the University. You have the right to appeal the charge. Go to [http://academicintegrity.okstate.edu/](http://academicintegrity.okstate.edu/) for a video on OSU’s academic integrity policy and additional information.