CS 3443: Computer Systems
Term: Fall 2019
Meetings: Tues: 4:30-7.10 pm, NCB 248

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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 20    | 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 27    | 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 3    | Instructions: Language of the Computer (MIPS)                                           | Chap 2 |
| 4      | Sept 10   | Instructions: Language of the Computer (MIPS), Quiz 1                                 | Chap 2 |
| 5      | Sept 17   | Instructions: Language of the Computer (MIPS)                                           | Chap 2 |
| 6      | Sept 24   | Test 1                                                                                 |                 |
| 7      | Oct 1     | Arithmetic for Computers  
- Binary Addition and Subtraction  
- Multiplication  
- Division  
- Floating Point | Chap 3:  
3.2-3.5 |
| 8      | Oct 8     | Arithmetic for Computers                                                                | Chap 3 |
| 9      | Oct 15    | Arithmetic for Computers, Quiz 2                                                        | Chap 3 |
| 10     | Oct 22    | The Processor:  
- An Overview of Pipelining  
- Data Hazards: Forwarding versus Stalling  
- Control Hazards               | Chap 4:  
4.5, 4.7 - 4.8 |
| 11     | Oct 29    | The Processor                                                                          | Chap 4 |
| 12     | Nov 5     | Test 2                                                                                 | Chap 4 |
| 13     | Nov 12    | The Processor                                                                          | Chap 4 |
| 14     | Nov 19    | The Memory System:  
- Cache                                                                 | Chap 5:  
5.1, 5.3-5.4 |
| 15     | Nov 26    | The Memory System                                                                       | Chap 5 |
| 16     | Dec 3     | The Memory System                                                                       | Chap 5 |

**Final Exam Dec 10**

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

- **Quiz 1:** Sept 10, 2019
- **Quiz 2:** Oct 15, 2019
- **Test 1:** Sept 24, 2019
- **Test 2:** Nov 5, 2019
- **Final:** Dec 10, 2019
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 (credit) Criteria</th>
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<tbody>
<tr>
<td>Quizzes: 10%</td>
</tr>
<tr>
<td>Test #1: 15%</td>
</tr>
<tr>
<td>Test #2: 20%</td>
</tr>
<tr>
<td>Final Exam: 15%</td>
</tr>
<tr>
<td>Assignments 35%</td>
</tr>
<tr>
<td>Attendance: 5%</td>
</tr>
</tbody>
</table>

There will be 8 assignments.
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
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/ for a video on OSU’s academic integrity policy and additional information.