## CS 271 Computer Architecture and Assembly Language

Course Calendar*  Winter 2017

*Weeks are shown Sunday-Sunday, Assignments are due the 2nd Sunday 11:59pm unless otherwise specified. Schedule subject to change based on material pace.

New Assignments are in BLACK. Due Assignments are in RED.

<table>
<thead>
<tr>
<th>Unit / Week</th>
<th>Topics</th>
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| #1: 01/08 – 01/15 | • Introductions  
  • Programming languages  
  • Virtual machines  
  • Computer architectures, processor types, metrics  
  • Machine instructions, instruction execution cycle  
  • CISC, x86 architectures, Intel IA-32 architecture  
  • Introduction to MASM assembly language.  
  Read Irvine Chapter 1  
  Chapter 2.1, 2.2, 2.3  
  Chapter 3.1, 3.2, 3.3 (pg 71 only), 3.4, 3.5 |
| #2: 01/15 – 01/22 | • MASM assembly language:  
  o Constants, variables  
  o Libraries, assembling, linking, loading  
  o Addressing modes  
  o Arithmetic operations  
  o Conditions, decisions, repetition  
  Re-read Irvine Chapter 1.3, 1.4  
  Read Irvine Chapter 4.1, 4.2, 4.5 (and 6.3) |
| #3: 01/22 – 01/29 | • MASM assembly language:  
  o Modular development  
  o Data validation  
  o Debugging  
  • Internal/external data representation  
  Read Irvine Chapter 5.1, 5.2, 5.3, 5.4, 5.6, 5.7 |
| #4: 01/29 – 02/05 | • Binary arithmetic  
  • Floating-point representation  
  • Parity, error detection/correction, Hamming codes  
  Read Irvine Chapter 6.1, 6.2, 6.3,  
  Chapter 7.3  
  Chapter 12.1 |
| #5: 02/05 – 02/12 | • MASM procedures:  
  o Calls/returns  
  o Functional decomposition, parameters  
  o Documentation  
  • Introduction to the system stack  
  Read Irvine Chapter 4.4  
  Read Irvine Chapter 8.1, 8.2 |
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| #6: 02/12 – 02/19 | **Program #4**  
|-------------------|---------------------------------------------------------------|
|  | • MASM assembly language:  
|  |   o More system stack  
|  |   o Parameter passing  
|  | • Review for Midterm Exam  

**Midterm Exam**  
*(Available Thursday – Sunday only)*

| #7: 02/19 – 02/26 | **Week 7 Summary Exercises**  
|-------------------|---------------------------------------------------------------|
|  | **Program #5**  
|  | **Week 7 Summary Exercises**  
|  | • MASM assembly language:  
|  |   o More parameter passing  
|  |   o Random numbers  
|  |   o Arrays, array parameters  

Read Irvine Chapter 9.5

| #8: 02/26 – 03/05 | **Week 8 Summary Exercises**  
|-------------------|---------------------------------------------------------------|
|  | **Program #6**  
|  | **Quiz #3**  
|  | **Week 8 Summary Exercises**  
|  | **Program #5**  
|  | **Quiz #3**  
|  | • MASM assembly language:  
|  |   o Data-related operators  
|  |   o Low-level I/O  
|  | • RPN  
|  | • IA-32 floating-point unit (FPU)  

Read Irvine Chapter 9.1, 9.2, 9.4, 9.5  
Re-read Irvine Chapter 12.1

| #9: 03/05 – 03/12 | **Week 9 Summary Exercises**  
|-------------------|---------------------------------------------------------------|
|  | **Week 9 Summary Exercises**  
|  | • Recursion  
|  | • MASM assembly language:  
|  |   o Macros  
|  |   o String processing  
|  | • Digital logic level:  
|  |   o Gates, circuits, integrated circuits

| #10: 03/12 – 03/19 | **Week 10 Summary Exercises**  
|-------------------|---------------------------------------------------------------|
|  | **Quiz #4**  
|  | **Week 10 Summary Exercises**  
|  | **Program #6 is due**  
|  | **Quiz #4**  
|  | • Parallelism  
|  | • Advanced architectures  
|  | • Review for final exam

| #11: 03/19 – 03/22 | **Final Exam**  
|-------------------|---------------------------------------------------------------|
|  | **Finals Week**  
|  | (Available Sunday – Wednesday only)