

# Course Syllabus ~ Fall 2017

COURSE NUMBER: CSC 261-01

COURSE TITLE: Computer Organization and Assembly Language

CREDITS: 3.0

PREREQUISITES: Students must either have

- Grades of at least C (2.0) in CSC 230 and CSC 250, or
- special permission of instructor.

FOR WHOM INTENDED: This course is a required course for Computer Science majors. The choice of topics, and the depth and breadth of coverage, is intended to provide students with the foundations needed to successfully complete courses at the upper division level in the computer science undergraduate program.

INSTRUCTOR INFORMATION: Lance Everhart, lmeverh2@uncg.edu. Office hours: Monday and Wednesday 1pm - 3pm. Additional hours are available by appointment.

CATALOG DESCRIPTION: Introduction to the organization of the computer through use of Assembly Language programming. Data representation, parts of the computer system, Assembly Language fundamentals, instruction sets, memory, and floating-points operations. Computer organization and design of combinational and sequential circuits.

STUDENT LEARNING OUTCOMES: Upon successful completion of this course, a student should be able to:

- devise and use multiple levels of abstraction in computation, including the use of models and simulations (abstraction);
- analyze data representation through decimal base conversions, decimal and floating-point data storage and manipulation (data);
- create and evaluate Assembly Language programs to implement algorithms utilizing elementary data structures (programming);
- design an elementary RISC architecture utilizing both combinational and sequential circuits (design).

COURSE DELIVERY: This course will consist of 2 - 75 minute lectures per week. Class lectures will be interactive and students will be expected to participate in class discussions.

GRADING: The student's grade will be determined using the following scale:

9 Assignments: 40%

3 in-class exams: 60%

Final letter grades will be distributed as follows:

97 - 100 = A+	93-97 = A	90 - 92 = A-
87 - 89 = B+	83 - 86 = B	80 - 82 = B-
77 - 79 = C+	73 - 76 = C	70 - 72 = C-
67 - 69 = D+	63 - 66 = D	60 - 62 = D-
0 - 59 = F		

REQUIRED TEXT/REFERENCE:

Introduction to 80x86 Assembly Language and Computer Architecture, Richard C. Detmer, Jones and Bartlett, 2010.

Product numbers:

ISBN-10: 0763772232

ISBN-13: 9780763772239

**BRING YOUR TEXT TO CLASS EVERYDAY!**

Supplemental Text (Do not purchase. Handouts will be given.) Logic and Computer Design Fundamentals, M. Morris Mano and Charles R. Kime, Pearson Higher Education, 2008.

ACADEMIC INTEGRITY: Each student is required to sign the Academic Integrity Policy on all work submitted for the course. Refer to UNCG *Undergraduate Bulletin*. Work turned in for grading should be entirely your own.

- You may not view or copy other's work, nor may you share your work with others.
- You may not copy work from external sources and present it as your own.
- Any indication of copied work, either from classmates or other sources, or sharing of work with others, will result in, at a minimum, a zero for the assignment and, in some cases, will be referred to the honors council.

ATTENDANCE POLICY: The university allows for a limited number of excused absences for religious observances --- students who plan to take such an absence should notify the instructor at least two weeks in advance so that accommodations can be made (also see the missed/late work policy below). Absences for illness are only excused if proper medical documentation is delivered to the instructor the first day the student returns to class. It is the student's responsibility to obtain notes from another student if they miss class. The instructor will not give private instruction for missed lectures nor will provide lecture notes. The instructor reserves the right to drop any student who misses more than 3 class lectures without valid reasons.

CLASS PREPARATION: It is the student's responsibility to read the material in the text. The instructor will present topics during lectures, but it is not possible to cover all nuances of a particular topic. Some items are intentionally left for the student to read. A good method of preparation would be to read the material before class to become familiar with what will be covered, attend the lecture and take notes, then review the text material and notes afterward.

FINAL EXAMINATION: The last "regular" exam will be conducted during the normal final exam time specified on the University Registrar's Office Exam Schedule.

MISSED/LATE WORK POLICY:

- Assignments are due at the beginning of class on the scheduled date.
- Makeup tests are not given.
- Students with planned absences, whether for university events, religious observance, or other reason, are expected to make arrangements with the instructor to complete the assignment or take the exam before the scheduled due date.

ACCREDITATION: As part of our accreditation, samples of student work will be archived. Names are removed before copying.

CANVAS: Canvas is the method used for communication with the class. Make sure you either check it often or that you use the notification features of Canvas so that you are notified as necessary.

EMAIL: Your UNCG email is the method used to make personal contact with you. Personal email accounts are not used. It is your responsibility to check your UNCG email often. When emailing the instructor, or other members of the department, you should treat the email as a formal business communication. Use proper grammar and correct spelling and punctuation. Email received that is not clear due to poor grammar may not be answered. It is a good idea to also always include your student ID number in your communications.

CLASS HANDOUTS: Any handouts used in class will be available through Canvas.

ANNOUNCEMENTS: If the need should arise, any announcements to the class will be made through Canvas, so check it often.

EMERGENCY PREPAREDNESS: Closure of university facilities and classrooms in response to some emergency does not mean that this class is halted. Students should check Canvas for announcements about how the class will proceed in the event of such an emergency.

ADA STATEMENT: UNCG seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with The Office of Accessibility Resources and Services (OARS) located in 215 Elliott University Center: (336) 334-5440.

LAPTOPS, CELL PHONES, AND OTHER ELECTRONIC DEVICES: No electronic devices are permitted in this class. All electronic devices should be turned off and put away before class begins. There should be no devices on your desk during class. If this happens, you will be required to surrender your device to the instructor for the remainder of the class, or you must leave the class and be marked absent. If you feel that an exception should be made for you, please contact the instructor.

DISRUPTIVE BEHAVIOR: Disruptive behavior is unacceptable in any classroom. Please do not engage in non-class-related conversation. You may be asked to leave the room and considered absent; persistent behavior of this type may result in you being dropped from the course (see UNCG's Disruptive Behavior Policy).

<b>Date</b>	<b>Topics Covered</b>	<b>Sections Covered</b>	<b>Assignment Due</b>
Tuesday, August 15, 2017	Introductions/ Binary and Hexadecimal Numbers, Base Conversions, Character Codes	1.1, 1.2	
Thursday, August 17, 2017	Unsigned and Signed Integers, Integer Addition and Subtraction, Other Systems	1.3, 1.4, 1.5	
Tuesday, August 22, 2017	PC Hardware: Memory, The CPU	2.1, 2.2	1
Thursday, August 24, 2017	Input/Output, PC Software, Assembly Language Statements, 32-bit example	2.3, 2.4, 3.1, 3.2	
Tuesday, August 29, 2017	Program Classwork, Data Declarations, Instruction Operands	3.3, 3.4	2
Thursday, August 31, 2017	Windows Program Example, I/O, Data Conversion Macros	3.5, 3.6	
Tuesday, September 5, 2017	Copying Data. Opcodes, Object Codes	4.1	
Thursday, September 7, 2017	Finish Material/Review		3
Tuesday, September 12, 2017	Exam 1	Chapters 1-4.1	
Thursday, September 14, 2017	Addition and Subtraction Instructions, Multiplication and Division Instructions	4.2, 4.3, 4.4	
Tuesday, September 19, 2017	Unconditional Jumps, Conditional Jumps, Compare Instructions, and if Structures, Implementing Loop Structures, Arrays	5.1, 5.2, 5.3, 5.4, 5.5	4
Thursday, September 21, 2017	The 80x86 Stack, 32-bit Procedures with Value Parameters	6.1, 6.2	
Tuesday, September 26, 2017	Additional 32-bit Procedure Options, Macro Definition and Expansion	6.3, 6.5	5
Thursday, September 28, 2017	Logical Operations, Shift and Rotate Instruction, Converting ASCII to Integers	7.1, 7.2, 7.3	
Tuesday, October 3, 2017	Using String Instructions, Repeat Prefixes and More String Instructions, Character Translation, Converting Integers to ASCII	8.1, 8.2, 8.3, 8.4	6
Thursday, October 5, 2017	Finish Material/Review		
Tuesday, October 10, 2017	Fall Break - NO CLASS		

Thursday, October 12, 2017	Exam 2	4.2 - 8.4	7
Tuesday, October 17, 2017	Floating Point Formats, 80x86 Floating Point Architecture, Converting Floating Point to and from ASCII, Single-Instruction Multiple Data Instructions	9.1, 9.2, 9.3, 9.4	
Thursday, October 19, 2017	Boolean Algebra and Logic Gates	Handouts	
Tuesday, October 24, 2017	Combinational Circuits	Handouts	
Thursday, October 26, 2017	Combinational Design	Handouts	8
Tuesday, October 31, 2017	Sequential Circuits	Handouts	
Thursday, November 2, 2017	Sequential Design	Handouts	
Tuesday, November 7, 2017	PLD's and Error Detection	Handouts	
Thursday, November 9, 2017	The RISC Architecture	Handouts	9
Tuesday, November 14, 2017	Datapath/Controls	Handouts	
Thursday, November 16, 2017	Classwork		
Tuesday, November 21, 2017	Finish Material/Review		
Thursday, November 23, 2017	Thanksgiving break - NO CLASS		
Thursday, November 28, 2017			
TBA	Exam 3 (section 1)	Regular assigned final exam time	