Course Syllabus

Jump to Today

Instructor: Dr. Lucas Layman (http://people.uncw.edu/laymanl)

- **Email:** laymanl@uncw.edu (mailto:laymanl@uncw.edu)
- **Office hours:** MW, 9:30–11:30am, CIS 2045

Where: CIS 2055 (https://www.google.com/maps/search/?api=1&query=cis+building+uncw+28409)
When:

- Section 001: TR, 9:30–10:50am
- Section 002: TR, 3:30– 4:50pm

Syllabus revision following Hurricane Florence

As you know, all UNCW classes were canceled on 9/10/18 starting at 12:00 pm and resumed on 10/8/18. This resulted in a loss of 600 instructional minutes for this course. UNC System Policy 400.1.6 requires 750 instructional minutes (or the equivalent) for each credit-hour of a course. For example, a 3-credit hour course requires 2250 minutes of instructional time. To make up for such a large and unprecedented amount of lost time, UNCW Academic Affairs developed a diverse and flexible plan. This plan contains adjustments to the academic calendar, changes to the daily schedule, and the opportunity to make-up time through outside of class and/or online assignments. In some cases faculty and students can also decide to hold make-up courses if necessary. This revised syllabus reflects how this plan impacts our course.

A summary of changes are listed here. Changes to the text within the syllabus are highlighted in blue.

- Class now ends 5 minutes later. The start times remains the same. Please review the **revised start and end times for all your classes** (https://uncw.edu/aa/ClassSchedulePlandInstructionalMinutes.pdf) .
- The final exams are moved to December 12th. Refer to the university's updated **Final Exam Schedule** (https://uncw.edu/reg/exams-fall18.html) .
- We will meet on October 11th, which was previously Fall Break.
- We will meet on December 6th, which was previously Reading Day.
- You will be given two out-of-class lectures in the form of videos and readings to make up for lost instructional time. You will have a 1-2 week window in which to complete these readings and take an associated take-home quiz. The content of these out-of-class lectures will

appear on subsequent exams.
- The schedule of Assignments and Exams has been posted to help you plan.
- Grade allocation among assignments and exams is changed. There will now be two midterm exams.
- Contact me if the hurricane will impact your attendance or ability to complete assignments on time. Obtaining concessions under false pretenses will result in a grade of F for the course and an Honor Code Violation report.

Course description

This course is an introduction to *how* computers think. We will cover:

Basic computation	What it means to be a "computer"
Binary code	How computers represent information
Logic circuits	How computers make decisions based on information
CPU	The complex circuits that make up the brain of the computer
Assembly language	The lowest level language by which programmers and programming languages communicate with the CPU

The first part of the course is dedicated to understanding binary code and logic circuits. In the second part of the course, students will use a simulation tool to create a CPU using complex logic circuits. In the third (final) part of the course, students will implement a program in assembly language that runs on the simulated computer.

What to expect: Each class will be a mix of lecture and in-class activities. Each homework assignment, quiz, and exam will compound on all previous work so that you will have ample opportunity to practice and become expert in the material.

Lecture notes will be posted after class with key information missing that was covered during lecture. You must come to class prepared with note-taking implements.

The material in this course will likely be different from other Computer Science courses you have taken. If you were studying to be a mechanic, this is the course where you learn about internal combustion engines and the physics behind them. If you were studying to be a doctor, this is the course where you learn about the heart and the chemical reactions that control it. We will be talking about math, circuits, logic, and what goes on "under the hood" in a CPU. The fundamentals of binary code and boolean logic will come back to you time-and-again in subsequent courses. The basics of how a CPU is organized (caches, registers, etc.) are concepts that are echoed in high-level programming languages albeit often under different names.

Prerequisites: CSC 131 (http://uncw.edu/csc/undergrad/courses/csc131.html), CSC 133 (http://uncw.edu/csc/undergrad/courses/csc133.html)

Student learning outcomes:

1. Students develop knowledge and understanding between hardware/middleware and frameworks for high level programming languages.
2. Students develop knowledge of combinational and sequential logic circuits.
3. Students learn how modern computers are constructed from basic logic gates and sequential elements.
4. Students learn the major components of a modern processor, ALU, Control Unit and Memory.
5. Students learn how to create and use processor specific assembly language.

Communication

There are no dumb questions. Please ask me if you are unsure about a topic, an assignment, or a course policy, or just need help. My goal is for you to learn the material and thus to be successful in this course.

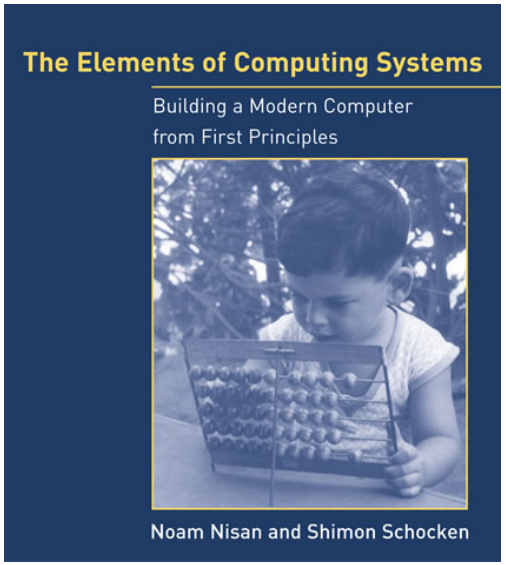
I prefer to talk with you in person. I encourage you to attend my office hours. Office hour information is listed at the beginning of the syllabus. Individual appointments outside office hours can be arranged.

You may also **email me** (mailto:laymanl@uncw.edu). Please note that I do not respond to electronic communication after 6pm, on weekends, or during holidays.

Textbooks

The Elements of Computing Systems is required. The **free, online edition of the first few chapters** (http://nand2tetris.org/course.php) is sufficient to complete the course. A printed text version is available from retailers if you desire.

Code: The Hidden Language of Computer Hardware and Software is recommended reading. This book describes many course concepts at a high level intended for a general audience, whereas in class we will go much deeper into each subject. This book offers a different perspective that may help you if you are struggling with the course material. It is available at the Campus Bookstore and from online retailers.



(http://www.nand2tetris.org/)

Required

The Elements of Computing Systems: Building a Modern Computer from First Principles

Noam Nisan and Shimon Schocken

ISBN-13: 978-0262640688

Note: Chapters will be posted to Canvas. But if you want to buy a hard copy, here are links:

Amazon **(http://a.co/gDVhbTt)**

Barnes & Noble **(https://www.barnesandnoble.com/w/elements-of-computing-systems-noam-nisan/1100660146?ean=9780262640688)**

Recommended

Code: The Hidden Language of Computer Hardware and Software
Charles Petzold
ISBN: 0-7356-1131-9
Amazon (http://a.co/gnZQ2dz)
Barnes & Noble (https://www.barnesandnoble.com/w/code-charles-petzold/1100324884?ean=9780735611313)

Course Policies

Seahawk Respect Compact

We adhere to the **Seahawk Respect Compact** (http://uncw.edu/diversity/src.html). All individuals in this class will be treated with inclusiveness, mutual respect, acceptance, and open-mindedness by all persons.

Student Academic Honor Code

All members of UNCW's community are expected to follow the academic Honor Code. Please read the UNCW **Student Academic Honor Code** (http://uncw.edu/odos/honorcode/) carefully. Academic dishonesty in any form will not be tolerated in this class.

Be familiar with UNCW's position on plagiarism as outlined in the UNCW **Student Academic Honor Code** (http://uncw.edu/odos/honorcode/). Plagiarism is a form of academic dishonesty in which you take someone else's ideas and represent them as your own. Here are some examples of plagiarism:

1. You write about someone else's work in an assignment and do not give them credit for it by referencing them.
2. You give a presentation and use someone else's ideas and do not state that the ideas are the other person's.
3. You get facts from your textbook or some other reference material and do not reference that material.

Collaboration, cheating, and personal proficiency

Collaboration: You may discuss course content with your peers. You may seek out additional resources (i.e., the Internet) to help you *understand* the course content.

All coursework is to be completed *individually* except when explicitly indicated by the instructor. If collaboration is permitted, the collaborative coursework must bear the names of all collaborators on the team and all collaborators must contribute equally. Grading on collaborative assignments may be weighted by individual contribution and peer evaluation.

Cheating: Obtaining answers to assignments, quizzes, exams, or projects from any source other than your own brain is cheating. Any person completing work on your behalf is cheating. All coursework is to be completed individually unless explicitly stated otherwise (i.e., "collaborative"). Incidents of cheating will be addressed according to the policies in the **Student Academic Honor Code (http://uncw.edu/odos/honorcode/)** .

Personal proficiency: You are expected to become proficient in the course content. A substantial portion of your course grade is based on individual, in-class assessment (i.e., quizzes and exams). Over-reliance on peer discussion or Internet sources will lead to poor grades on these individual assessments.

Attendance

Contact me personally, preferably via email, if the impacts of Hurricane Florence change your ability to attend class on time and remain for the duration. Allowances will be made provided adequate justification and evidence.

From the UNCW **Faculty Handbook** **(http://www.uncw.edu/facsen/documents/Faculty_Handbook.pdf)** (V.A.1.b, pp 120):

> Students are expected to be present at all regular class meetings and examinations for the courses in which they are registered. It is the responsibility of the students to learn and comply with the policies set for each class in which they are registered.

You will need to attend class to succeed in the course. You are expected to attend every class, be present at the start time, and stay for the duration.

I will be much less likely to make allowances (e.g., make up quizzes, accepting late homework, scheduling extra office hours) for students with more than two unexcused absences. The following is a partial list of *unexcused* reasons for absence, tardiness, or early departure:

- I have a court date.
- My boyfriend/roommate/girlfriend and I are having problems.

- I have an appointment.
- I am going on vacation.
- I have to work.
- I have an admissions interview for another college.
- I got locked out of my apartment.
- I overslept.
- I couldn't find my car keys.
- My dog/cat/bird etc. got out.
- I couldn't get a parking spot.
- I was hungover/I was out late the night before.
- My alarm/roomate/friend did not wake me up.
- Traffic was bad.
- I was having one of those days so I went back to bed.

Personal electronics and computer use

Phones, tablets, or other personal electronic devices may not be used during class except for programming exercises as directed by the instructor. You will turn off your cell phone and place it either face down on the desk in front of you or stow it in your bag for the duration of class. These devices are a distraction to other students and yourself. It is physiologically impossible to concentrate on classwork and a personal device at the same time.

Laptop and desktop computers may only be used for reading lecture material, taking lecture notes, or performing assigned programming tasks.

Failure to abide by this policy will result in dismissal from the classroom and letter grade deductions.

Grading

You are graded cumulatively on each of the items below. These cumulative grades are then weighted.

- 35% – Homework assignments/project

- 20% – Midterm 1
- 20% – Midterm 2
- 25% – Final exam

For example, suppose you receive a 10/15 on Assignment 1 and 18/20 on Assignment 2. Your cumulative assignment score would be 28/35. This score would be multiplied by 40% and added to the weighted scores for the quizzes, midterm, and final. Your course letter grade will be determined by the sum of these weighted scores according to the scale below.

A	[94.0,∞]
A-	[90.0,94.0)
B+	[87.0,90.0)
B	[84.0,87.0)
B-	[80.0,84.0)
C+	[77.0,80.0)
C	[74.0,77.0)
C-	[70.0,74.0)
D+	[67.0,70.0)
D	[64.0,67.0)
D-	[60.0,64.0)
F	[0.0,60.0)

Contact me personally, preferably via email, if the impacts of Hurricane Florence change your ability to complete assignments on time. Allowances will be made provided adequate justification and evidence.

Homework assignments are due at the time and date indicated. Late submissions will receive a grade of zero. You are encouraged to submit your assignments early.

There are no make-ups for assignments or quizzes that are late or incomplete for unexcused reasons (see the Attendance policy). Make-ups for *excused* absences will be addressed on a case-by-case basis.

Exams: Students who miss an exam will receive **a Course Grade of *F***. No makeup examination will be given except for reasons of illness or other verified emergency.

Regrading policy: Requests to regrade must be made in person or via email no later than the next class day after the graded item is returned. For example, if class meets MWF and an exam is returned on Monday, the request to regrade must be made no later than Wednesday.

University Learning Center

You are encouraged to visit the University Learning Center (ULC) if you need extra support in mathematics, writing, or managing your schedule. The ULC's mission is to help students become successful, independent learners. Tutoring at the ULC is NOT remediation: the ULC offers a different type of learning opportunity for those students who want to increase the quality of their education. ULC services are free to all UNCW students and include the following:

- **Learning Services** (http://uncw.edu/ulc/learning/)
- **Math Services** (http://www.uncw.edu/ulc/math/index.html)
- **Supplemental Instruction** (http://www.uncw.edu/ulc/si/index.html)
- **Writing Services** (http://www.uncw.edu/ulc/writing/index.html)

Students with disabilities

Students with diagnosed disabilities should contact the Office of Disability Services (910-962-7555). Please submit to me a copy of the letter you receive from Office of Disability Services detailing class accommodations you need. If you require accommodation for test-taking, make sure I have the referral letter no fewer than three days before the test.

Violence and harassment

UNCW practices a zero tolerance policy for any kind of violent or harassing behavior. If you are experiencing an emergency of this type contact the police at 911 or UNCW CARE at 962-2273. Resources for individuals concerned with a violent or harassing situation can be located at **the UNCW Title IX website** (http://uncw.edu/titleix/) .

Course Summary:

Date	Details	
Thu Aug 23, 2018	First day of class (CSC-242-001) (https://uncw.instructure.com/calendar?event_id=2488&include_contexts=course_9318)	9:30am
	First day of class (CSC-242-002) (https://uncw.instructure.com/calendar?event_id=2489&include_contexts=course_9318)	3:30pm to 4:45pm
Tue Aug 28, 2018	CSC 242 Survey (https://uncw.instructure.com/courses/9318/assignments/21890)	due by 11:59pm
Wed Aug 29, 2018	Last day to add/drop (https://uncw.instructure.com/calendar?event_id=2490&include_contexts=course_9318)	12am
Fri Oct 12, 2018	Assignment 1 - Combinational Circuits (https://uncw.instructure.com/courses/9318/assignments/29897)	due by 11:59pm
Thu Oct 18, 2018	Midterm Exam 1 (https://uncw.instructure.com/courses/9318/assignments/32839) (CSC-242-001)	due by 9:30am
	Midterm Exam 1 (https://uncw.instructure.com/courses/9318/assignments/32839) (CSC-242-002)	due by 3:30pm
Mon Oct 22, 2018	Last day to withdraw (https://uncw.instructure.com/calendar?event_id=2492&include_contexts=course_9318)	12am
Wed Oct 24, 2018	Project 1 - Implementing Logic Circuits (https://uncw.instructure.com/courses/9318/assignments/32843)	due by 11:59pm

Date	Details	
Thu Nov 1, 2018	Assignment 2 - Number Systems (https://uncw.instructure.com/courses/9318/assignments/32842) (CSC-242-001)	due by 9:30am
	Take-Home Quiz 1 - Integer number system videos (https://uncw.instructure.com/courses/9318/assignments/37070) (CSC-242-001)	due by 9:30am
	Assignment 2 - Number Systems (https://uncw.instructure.com/courses/9318/assignments/32842) (CSC-242-002)	due by 3:30pm
	Take-Home Quiz 1 - Integer number system videos (https://uncw.instructure.com/courses/9318/assignments/37070) (CSC-242-002)	due by 3:30pm
Sun Nov 11, 2018	Project 2 - Arithmetic Chips and the ALU (https://uncw.instructure.com/courses/9318/assignments/32844)	due by 11:59pm
Thu Nov 15, 2018	Midterm Exam 2 (https://uncw.instructure.com/courses/9318/assignments/32840) (CSC-242-001)	due by 9:30am
	Midterm Exam 2 (https://uncw.instructure.com/courses/9318/assignments/32840) (CSC-242-002)	due by 3:30pm
Thu Nov 22, 2018	No class (Thanksgiving Break) (https://uncw.instructure.com/calendar?event_id=2493&include_contexts=course_9318)	12am
Thu Nov 29, 2018	Extra Credit Assignment - Sequential Chips and Memory (https://uncw.instructure.com/courses/9318/assignments/32845)	due by 11:59pm
Fri Nov 30, 2018	Project 3, Part 1 - Machine Code and CPU Execution (https://uncw.instructure.com/courses/9318/assignments/32846)	due by 11:59pm

Date	Details	
Thu Dec 6, 2018	Last day of class (CSC-242-001) (https://uncw.instructure.com/calendar?event_id=5796&include_contexts=course_9318)	9:30am to 10:50am
	Last day of class (CSC-242-002) (https://uncw.instructure.com/calendar?event_id=5797&include_contexts=course_9318)	3:30pm to 4:50pm
	Project 3, Part 2 - Assembly Language (https://uncw.instructure.com/courses/9318/assignments/32847)	due by 11:59pm
Tue Dec 11, 2018	Take-Home Quiz 2 - Representing other types of data (https://uncw.instructure.com/courses/9318/assignments/43098)	due by 11:59pm
	Take-Home Quiz 3 - Multiprocessors, Multicores, and Buses (https://uncw.instructure.com/courses/9318/assignments/48108)	due by 11:59pm
Wed Dec 12, 2018	Final Exam (https://uncw.instructure.com/courses/9318/assignments/32841) (CSC-242-001)	due by 8am
	Final Exam (https://uncw.instructure.com/courses/9318/assignments/32841) (CSC-242-002)	due by 3pm
	Course Grade (https://uncw.instructure.com/courses/9318/assignments/53040)	