

California Lutheran University

Bachelor's Degree for Professionals

CSC321 Computer Organization and Architecture

Term: Summer May 23– August 4, 2016

Location: Main Campus, HUM 106

Drop Dates: June 6 (without financial penalty), July 13

Instructor: Dr. Craig Reinhart

Email: reinhart@callutheran.edu

Phone: (805)493-3320

Office Hours: Tuesday 4pm – 6pm, after class, and by appointment

Office Location: D6

Course Description

The primary focus of this course is hardware...when we type in “java HelloWorld” what events occur that cause the program to print out “Hello World!” But, that’s not to say that we won’t be writing any programs. After all, without software, computer hardware is nothing but a big paper weight. We will be studying computer hardware but from a computer scientist’s (software developer’s) perspective.

Textbooks/Required Readings

Title: Computer System Architecture, 3rd Edition

Author: M. Morris Mano

Publisher: Prentice Hall (1993)

Language: English

ISBN: 0-13-175563-3

Course Outcomes

Information Literacy

By the end of this course, students will develop **information literacy** skills in assignments requiring conversion a functional specification (written in a natural language, e.g. English) into digital circuits that comprise a computer architecture.

- a) Separate “words” in the specification that are “important” from those that are “clutter”
- b) Perform circuit design steps required to implement the specification in digital circuitry as used in a computer architecture

- c) Convert between various number systems used in designing digital circuits and computer architectures

Creative and Critical Thinking

By the end of this course, students will develop **creative and critical thinking** skills in assignments requiring understanding of what it means to “design a computer architecture.”

- a) Boolean logic
- b) Combinational circuit optimization
- c) Sequential circuit design
- d) Integrated circuit design
- e) Fetch-Decode-Execute cycle that all common computers employ
- f) Assembly language programming

Class Format

This is a predominately traditionally delivered course with meetings lasting 3.5 hours per week, 11 weeks. Additional instruction will be provided through the use of pre-recorded videos to be viewed by the students outside of class meetings along with instructor moderated discussions of that video material.

Course Assignments/Requirements/Course Schedule

The following schedule is to be regarded as in initial plan. Adjustments may be made to meet the learning styles of the students. Video “sessions” will include a Blackboard discussion where students will share ideas with the instructor and one another.

Date	Week	Topics	Reading	Video	Assign.
5/24	1	Introduction to Course Number Systems	Chapter 3	See Course Blackboard	See Course Blackboard
5/31	2	Assembly Language Programming	Chapter 6 and Handout	See Course Blackboard	See Course Blackboard
6/7	3	Boolean Logic Combinational Circuits	Chapter 1	See Course Blackboard	See Course Blackboard
6/14	4	Sequential Circuits	Chapter 1	See Course Blackboard	See Course Blackboard
6/21	5	Digital Components	Chapter 2	See Course Blackboard	See Course Blackboard
6/28	6	Midterm	None	See Course Blackboard	See Course Blackboard
7/5	7	Microoperations	Chapter 4	See Course Blackboard	See Course Blackboard
7/12	8	Computer Organization introduction	Chapter 5	See Course Blackboard	See Course Blackboard

7/19	9	Computer Organization continued	Chapter 5	See Course Blackboard	See Course Blackboard
7/26	10	TBD Review		See Course Blackboard	See Course Blackboard
8/2	11	Final Exam	None		None

Student Workload/Carnegie Hours:

The expectation is that a 4-credit course will meet for 50 hours of instructional time and will have about 100 hours of out-of-class work (homework).

- As our 4-credit courses meet for about 36-37 hours in-person, the remaining 13-14 hours of instructional time need to be handled via online instructions (flipped classes, discussion boards, etc.).
- There should be approximately 9 hours of homework per week (of course this may vary depending on the week)

Carnegie Hours Chart**

Activity	Instructor-Led Hours		Homework Hours		Remarks
	Weekly	Course	Weekly	Course	
Readings of required text			1	11	Over 11 weeks, uneven distribution
Weekly Classes	3.33	36.63			Includes final exam
Video and Discussion	1	10			Average, varies by student
Discussion Board	0.5	5			Average, varies by student
Mid-term Prep				5	Average, varies by student
Homework			10	100	Average, varies by student
Final Exam Prep				5	Average, varies by student
Total		51.63		121	

** In this chart the Carnegie Instructional Hours have already been converted to traditional clock hours; these are based on a 60-minute clock hour.

Grading

Course grades will be assigned based on your performance on homework assignments, exams, and classroom participation. Homework assignments and exams can usually be assigned objective grades (you either answered the questions correctly or you didn't.) You will be given a rubric with each assignment.

For programming assignments:

- Fully working program will earn 100%
- Mostly working program will earn between 90% and 100%
- Correct general approach but not working will earn between 80% and 90%
- A legitimate attempt but incorrect approach will earn between 70% and 80%
- A weak attempt, or no attempt at all will earn very little, if anything
- Late programs will lose 10% per late class period

Programs are due at the beginning of the specified class period. Anytime after that is considered late. The above scores are dependent on you demonstrating the program for me in class (or turning in a screen-shot of the running program) along with turning in the source code and a brief write-up (to be specified at the time of assignment.) Details will be provided at the time the assignment is given. Come to class prepared.

Classroom participation is naturally somewhat subjective. I realize that some students are more “outgoing” than others and I will take this into consideration as I get to know you.

The university allows for the assignment of +/- grades thus the following scale will be used for homework and exams:

A	100-95	B	86-83	C	76-73	D	66-63
A-	94-90	B-	82-80	C-	72-70	D-	62-60
B+	89-87	C+	79-77	D+	69-67	F	59-0

Your course grade will be determined as follows:

Programming Projects/Homework	40%
Midterm(s) and quizzes	30%
Final Exam	20%
Class participation	10%

Attendance Policy

The subject matter of this course, computer programming, is extremely detailed. That is, computers do only what people tell them to do. Furthermore, they are very particular about how people tell them what to do. Subtle changes in vocabulary used (programming language statements) can cause dramatic changes in the results. While one could learn programming by watching videos, reading books, and engaging in online lectures, those methods do not [typically] address the subtleties. Thus, it is important that students attend every class meeting.

Cal Lutheran Online or Blended Course Technology Requirements

Course documentation will be provided through Blackboard. Hard copies will, for the most part, not be provided. Also, this class requires viewing online videos from various sources (YouTube,

Khan Academy, Lynda.com, etc.) You must have access to a computer outside of the classroom to engage in these activities. Computers are available at various open computer labs on campus. Contact ITS at helpdesk@callutheran.edu for information on locations and hours of availability.

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Course Evaluations Statement

All course evaluations are conducted online. Your feedback is important to us. You will receive an email message reminding you when the website is open for your feedback. The link is: <http://courseval.callutheran.edu>

Disability Statement

California Lutheran University is committed to providing reasonable accommodations in compliance with ADA of 1990 and Section 504 of the Rehabilitation Act of 1973 to students with documented disabilities. If you are a student requesting accommodations for this course, please contact your professor at the beginning of the semester and register with the Disability Support Services Coordinator, Wendy Jimenez, for the facilitation and verification of need. The Disability Support Services Coordinator is located in the Center for Student Success Office at 3259 Pioneer Street, and can be contacted by calling 805.493.3878 or emailing wjimene@callutheran.edu

Statement on Academic Honesty

The educational programs of California Lutheran University are designed and dedicated to achieve academic excellence, honesty and integrity at every level of student life. Part of Cal Lutheran's dedication to academic excellence is our commitment to academic honesty. Students, faculty, staff and administration share the responsibility for maintaining high levels of scholarship on campus. Any behavior or act which might be defined as "deceitful" or "dishonest" will meet with appropriate disciplinary sanctions, including dismissal from the University, suspension, grade F in a course or various forms of academic probation. Policies and procedures regarding academic honesty are contained in the faculty and student handbooks.

Plagiarism, cheating, unethical computer use and facilitation of academic dishonesty are examples of behavior which will result in disciplinary sanctions. Plagiarism includes, but is not limited to:

- word for word copying without using quotation marks or presenting the work as yours
- using the ideas or work of others without acknowledgement
- not citing quoted material. Students must cite sources for any information that is not either the result of original research or common knowledge.

Standards of Student Conduct Statements:

- [Student Life Handbook](#)
- [Academic Honesty Statement](#)

University Harassment Policy

Be civil to each other, both on- and offline. For information on the University's **student harassment policy and rights**, please go to the following link:

[Student Life Handbook](#)

Sexual Misconduct

California Lutheran University does not tolerate any degree of sexual misconduct on or off-campus. We encourage you to report if you know of, or have been the victim of, sexual harassment, misconduct, and/or assault. If you report this to a faculty member, she or he must notify Cal Lutheran's Title IX Coordinator about the basic facts of the incident. More information about your options for reporting can be found at: <http://www.callutheran.edu/title-ix/>

Pearson Library

Pearson Library provides access to scholarly books, journals, ebooks, and databases of full text articles from scholarly journals. To begin using these materials, visit the library web page <http://www.callutheran.edu/library>

There are many ways to contact Pearson Library for research assistance, no matter where you are!

- Email Yvonne Wilber (Professionals liaison) at ywilber@callutheran.edu
- General Library email: CLUlibrary@callutheran.edu
- Library main phone: 805.493.3250
- Text us your question: 805.493.3867
- Get more help at: <http://www.callutheran.edu/library/help/>

Cal Lutheran Writing Center

The Writing Center provides 1:1 writing consultations, in-person and online, with trained undergraduate and graduate writing consultants. We welcome all writing-related projects at any stage of the writing process across the diverse disciplines of study at Cal Lutheran. The Writing Center also hosts writing workshops, provides in-class visits, facilitates writing groups, and offers a writer's studio option for longer, sustained projects. Services suit writers of all levels, including traditional undergraduates, graduate students from all fields, all English language learners, and accomplished scholars alike. All members of the Cal Lutheran community with an @callutheran.edu email address are welcome to make use of our services. For more information, please visit at www.callutheran.edu/writing_center or call 805.493.3257. Please schedule appointments online through MyCLU Blackboard with the yellow "The Writing Center" icon in "Tools," or stop by The Writing Center itself, located in the Darling Collaboration Suite of Pearson Library.

Veterans Resources

If you are a veteran, military member, or a family member of a veteran or military member, please refer to Cal Lutheran's Veterans Resources webpage for important information: <http://www.callutheran.edu/veterans/>. Also, if you are a veteran receiving benefits and you are struggling in a class, you most likely qualify for free tutoring. Please contact the Veterans Coordinator, Jenn Zimmerman, veterans@callutheran.edu or 805.493.3648, for more information.

Help Desk

Students may contact the Help Desk about telephone, network, wireless network, software questions password problems, hardware problems, and general consultation (i.e. you cannot log into your MyCLU portal, or you are having problems with Blackboard). Please email specific details about your problems to helpdesk@callutheran.edu, click on the following link for more information http://www.callutheran.edu/iss/technology_services/helpdesk.php or call: 805.493.3698

Final Note

This syllabus is subject to change. Every effort will be made to alert students to changes that occur in a timely manner.

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