➥ Course Information

Instructor:	Zhi Wang
	zwang@cs.fsu.edu (preferred means of communication)
	(850)645-0476
	172 Love Building
Class meeting:	Monday, Wednesday, Friday 10:10 am - 11:00 am
	CAR 101
Recitations:	Th 11:00AM - 12:15PM; Th 6:45PM - 8:00PM ; Fr 11:15AM - 12:05PM
	LOV 301
Office hour:	Monday 1:30pm - 3:00pm, or by appointments
Course homepage:	http://www.cs.fsu.edu/~zwang
Required textbook:	D. Patterson and J. Hennessy. Computer Organization and Design: The Hardware/Software Interface. Fifth Edition. (NOT the ARM edition)
Prerequisites:	CDA3100 (Computer Organization I)
	COP3330 (Object-Oriented Programming)
	MAD2104 (Discrete Math I)

➥ Overview

CDA3101 is a core course intended for CS and CE majors with a background in C/C++ programming. This course introduces concepts that include processor datapath and control, pipelining, memory hierarchy, virtual memory, and input/output.

➥ Objective

A student who has completed this course with a passing grade should be able to:

1. Calculate various simple measures of associated with a computer.

2. Translate simple assembly instructions into corresponding machine code instructions.

3. Decode simple machine code instructions and simulate their execution.

4. Enhance the datapath and control for a simple single cycle, multicycle, and pipelined processors to provide additional functionality.

5. Determine when instructions go through the various stages of a simple pipeline.

6. Determine the results of simple branch predictors and how to update the state of these predictors.

7. Determine when cache accesses hit or miss and how their state is updated.

8. Determine how virtual addresses are translated to physical addresses through the use of a page table and translation-lookaside buffer.

➥ Tentative Lectures

Lecture	Title
Lecture 1	Introduction
Lecture 2	Assembly
Lecture 3	Translation
Lecture 4	Logic Design
Lecture 5	Single-Cycle Datapath and Control
Lecture 6	Multi-Cycle Datapath and Control
Lecture 7	Pipelining
Lecture 8	Pipelining: Datapath and Control
Lecture 9	Pipeline Hazards
Lecture 10	Pipelining: Advanced ILP
Lecture 11	Memory Hierarchy
Lecture 12	Virtual Memory

➥ Your Responsibilities

- Understand the lecture slides and reading assignments

- Attend the lectures

- Attend office hours for extra help, as needed

- Uphold academic honesty in completing your assignments, projects, and exams

- Turn in your assignments on time

- Check the course homepage, blackboard, and your university email account regularly

➥ Grading

The course will be graded according to the following proportions,

Projects/homework	30%
Midterm	30%
Final	30%
Quizzes	10%

and the letter grade will be assigned as:

	A: $[100, 92]$	A^-: $(92, 90]$
B^+: $(90, 88]$	B: $(88, 82]$	B^-: $(82, 80]$
C^+: $(80, 78]$	C: $(78, 72]$	C^-: $(72, 70]$
D^+: $(70, 68]$	D: $(68, 62]$	D^-: $(62, 60]$
	F: $(60, 0]$	

Project and Homework: projects are an important part of this course. The projects and homework are individual efforts. No collaboration is allowed unless specified by the instructor in the assignment.

Grading:

- To ease the burden of grading inscrutable handwritten papers and reduce errors in grading, *homework and projects MUST be typed.* NO hand-written submission will be accepted.

- Late submission to the homework or projects will be accepted up to *three days after the deadline* with a penalty of *10%* of the assignment *each day*. Students with legitimate excuses should contact the instructor before the deadline, if possible, and submit appropriate document afterwards to be exempted from this rule (however, you must still submit the assignment).

  Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse.

- Students are encouraged to discuss assignments in general and to help one another understand the assignment by answering simple questions. Copying anotherâĂŹs solution or working together on a solution is cheating. For the programming assignments, you should keep listings to provide evidence of creative development.

- Disputes to any grading must be resolved with the TA or the instructor within two weeks after the score is released to the students.

Exams: there will be one midterm and one final. The final is comprehensive. Both exams are close-booked. No make-up exam will be arranged in the middle of the semester for missed midterms. A single comprehensive make-up exam will be arranged for missed midterm or final exam according to the official FSU calendar (as such, you can make up at most one missed exam.)

Quizzes: the university requires attendance in all classes. Although no attendance will be taken (except the first class), quizzes will be given regularly at the beginning of the classes as an incentive to encourage attendance and participation. There will be *no make-up for the quizzes*. Students will legitimate documented reasons can be excused with documented reasons. Documents must be submitted within two weeks of the missed quiz.

➥ Course Policies

Academic Honor Policy:

Academic integrity is the key to the fairness and equality of all courses. Students are required to strictly follow the rules and guidelines laid out in the Florida State University Academic Honor Policy. It is important for the students to use their best possible judgment in everyday academic activities, and live up to their pledge to "be honest and truthful and will strive for personal and institutional integrity at Florida State University." Particularly, students are prohibited from collaborating on assignments unless explicitly allowed, or seeking answers or helps off the Internet. Anything submitted as the homework or a project must be his or her own original work.

Americans with Disabilities ACT:

Students with disabilities needing academic accommodation should:

- register with and provide documentation to the Student Disability Resource Center; and

- bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class.

This syllabus and other class materials are available in alternative format upon request. For more information about services available to FSU students with disabilities, contact the:

Student Disability Resource Center
108 Student Services Building
874 Traditions Way
Tallahassee, FL 32306-4167
(850) 644-9566 (voice) (850) 644-8504 (TDD)
sdrc@admin.fsu.edu
http://www.disabilitycenter.fsu.edu

Syllabus Change Policy:

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.

➥ Acknowledgment

This course contains materials from Caitlin Carnahan (FSU) and David Whalley (FSU).