

**CPSC 440 Computer System Architecture**  
**Fall 2017**  
**Department of Computer Science**  
**California State University, Fullerton**  
**Dr. N. Chen**

**Prerequisites:** Checked by the department

**Catalog Description:** Computer performance, price/performance, instruction set design and examples. Processor design, pipelining, memory, hierarchy design, and input/output subsystems.

**Instructor:**

Ning Chen, Ph.D., Professor

Room CS546

Office Hours: Tuesday 11:30 am to 12:30 pm, Thursday 11:30 am to 1:30pm or by appointments

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**Text:**

“Computer Organization & Design – the hardware/software interface,” by D. A. Patterson and J. L. Hennessy. Fifth Edition, Morgan Kaufmann Publishers, Inc.

**Tentative Schedule**

Week 1: Chapter 1- Computer Abstractions and Technology

Week 2: Chapter 2- Instructions: Language of the Computer

Week 3: Chapter 3- Arithmetic for Computers

Week 4: Chapter 3- Arithmetic for Computers

Week 5: Chapter 3 – Arithmetic for Computers

Week 6: Chapter 4- The Processor

Week 7: Chapter 4- The Processor (continue)

Week 8: Chapter 4- The Processor (continue)

**Week 9: Midterm: Tuesday, October 17, 2017 in class,**

Week 10: Chapter 4- The Processor (continue)

Week 11: IoT (Internet of Things), embedded systems

Week 12: Chapter 5- Large and Fast: Exploiting Memory Hierarchy

Week 13: Chapter 5- Large and Fast: Exploiting Memory Hierarchy

**Week 14: Fall Recess**

Week 15: Chapter 6- Parallel Processors from Client to Cloud (introduction only)

Week 16: Special Topics and Review

**Week 17: Final Examination**

**Grading Policy:**

Homework assignments: 10%

Midterm: 35%

Group Project: 10% (Group project for graduate students will be more in-depth)

**Attendance penalty: (if you miss more than 5 lectures without approved reasons, you will lose 30% of your grade)**

Final: 45%

Grades will be assigned as follows:

Range A (A- to A+):  $\geq 90\%$

Range B (B- to B+):  $< 90\%$  and  $\geq 80\%$

Range C (C- to C+):  $< 80\%$  and  $\geq 70\%$

D:  $< 70\%$  and  $\geq 60\%$

F:  $< 60\%$

(The GPA distribution and average will follow department's recommendation. + and – assignments may be adjusted by “**curving**”. For example, if lots of students are in the range of 8.85 to 8.99, the cutoff line for B+ will be, say, 8.85, instead of 8.67.)

**There are no make-ups for missed exams. No extra credit will be given.**

(Please consult me in advance if you have problems attending tests.)

### **Homework Policy:**

Weekly homework assignments will be posted on Titanium. The assignment typically is due a week later. All submissions need to be done via Titanium. (A short course on using Titanium will be given in class.) A review session will be given in class and the solution is available on Titanium. In general, no late homework submissions will be accepted.

### **Attendance**

Attending class is mandatory. Missing class is not allowed unless it is excused by the instructor. Missing class as part of a documented accommodation is guaranteed to be excused. The ADA accommodated student must make a reasonable effort to coordinate any absences with the instructor.

### **Make Up Policy**

Exams or quizzes cannot be taken after they have been given in class. Due to an act of nature, personal medical emergency, a family crisis, an act of terrorism, severe civil unrest, etc. students have 10 calendar days to petition the instructor to retake any exam/quiz or submit an assignment without late penalty.

Exceptions will be made on a case by case basis, provided there is time to evaluate the merits of such an application.

## Academic Dishonesty Policy (for your reference)

Academic dishonesty includes but is not limited to cheating on examinations or assignments, unauthorized collaboration, plagiarism, falsification/fabrication of university documents, any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor), assisting or allowing any of these acts, or the attempt to commit such acts.

Cheating is defined as the act of obtaining or attempting to obtain credit for work by the use of any dishonest, deceptive, fraudulent, or unauthorized means. Examples of cheating include, but are not limited to, the following: using notes or aides or the help of other students on tests and examinations in ways other than those expressly permitted by the instructor, plagiarism as defined below, tampering with the grading procedures, and collaborating with others on any assignment where such collaboration is expressly forbidden by an instructor. Violation of this prohibition of collaboration shall be deemed an offense for the person or persons collaborating on the work, in addition to the person submitting the work. Documentary falsification includes forgery, altering of campus documents or records, tampering with grading procedures (including submitting altered work for re-grading), fabricating lab assignments, or altering or falsifying medical excuses or letters of recommendation.

Plagiarism is defined as the act of taking the work (words, ideas, concepts, data, graphs, artistic creation) of another whether that work is paraphrased or copied in verbatim or near verbatim form and offering it as one's own without giving credit to that source. When sources are used in a paper, acknowledgment of the original author or source must be made through appropriate citation/attribution and, if directly quoted, quotation marks or indentations must be used. Improper acknowledgment of sources in essays, papers, or presentations is prohibited.

The initial responsibility for detecting and dealing with academic dishonesty lies with the instructor concerned. An instructor, who believes that an act of academic dishonesty has occurred, is obligated to discuss the matter with the student (s) involved. The instructor should possess reasonable evidence with respect thereto, such as documents or personal observation. In this meeting, and throughout the process, every effort should be made to preserve the integrity of the educational relationship between instructor and student. The student should be given the opportunity to respond to the complaint. If the violation is discovered during the offering or grading of the final exam, the instructor may assign a mark of "RP" until the instructor has an opportunity for such a meeting. Also because the student may challenge the allegation, he or she must be allowed to attend all classes and complete all assignments until the appellate process is complete. When necessary, such discussion may be conducted by telephone or electronic mail.

However, if circumstances prevent consultation with student(s), the instructor may take whatever action (subject to student appeal) he/she deems appropriate. An instructor who is convinced by the evidence that a student is guilty of academic dishonesty, shall:

1. Assign an appropriate academic penalty, including, but not limited to: oral reprimand; "F" or "O" on the assignment; grade reduction on assignment or course; or "F" in the course. Factors to take into consideration in assigning a grade sanction include: normative sanctions for comparable acts, severity of the offense (academic gain or potential academic gain if the action had gone undetected), harm or potential harm to other students in the class, premeditation of the act.
2. Report to the student(s) involved, to the department chair, and to the Dean of Students Office, Judicial Affairs, the alleged incident of academic dishonesty, including relevant documentation, actions taken by the instructor including grade sanction, and recommendations for additional action that he/she deems appropriate. The written report should be distributed as soon as possible, preferably within 15 calendar days from discovery, but not later than 30 calendar days after the first day of classes of the regular semester (fall or spring) following the grade assignment.

The Dean of Students Office, Judicial Affairs, shall maintain a disciplinary file for each case of academic dishonesty with the appropriate documentation. Students shall be informed that a disciplinary file has been established and that they have an opportunity to appeal the actions of the instructor under the Academic Appeals Policy. Dean of Students Office, Judicial Affairs may initiate disciplinary proceedings under Title 5, Section 41301 and Executive Order 970. Sanctions which may be assessed include but are not limited to: warning, probation, educational sanctions, removal from academic program, suspension, expulsion, denial of admission or enrollment in university classes including Extended Education.

When two or more incidents involving the same student occur, the Dean of Students Office, Judicial Affairs shall initiate disciplinary proceedings. A student may appeal any sanction assessed for a charge of academic dishonesty under UPS 300.030, "Academic Appeals." If the Academic Appeals Board accepts the student's appeal then the disciplinary file will be purged. If a student does not appeal the instructor's action or if the Academic Appeal Boards rejects the student's appeal the disciplinary file will be maintained in a confidential file in the Dean of Students Office, Judicial Affairs for a minimum of seven years. Disciplinary probation and suspension are noted on the student's academic record during the term of the probation or suspension. A permanent notation will be made on a student's academic record if he or she is expelled from the university. A second academic integrity violation usually results in suspension from the university for a period of time.

In order to facilitate due process and to insure that a student knows that academic dishonesty is subject to action, this policy shall be published in the Catalog and Student Handbook. Copies of this policy shall also be available in every department office, the Dean of Students Office, and in the Office of the Vice President for Student Affairs.

**Disabled Student Services: (from: <http://www.fullerton.edu/DSS/handbook/DSSGenInfo.htm>)**

In compliance with CSU policy, students with disabilities may be found eligible for one or more of the following services from DSS:

- ●Diagnostic assessment, including both individual and group assessment not otherwise provided by the institution, to determine educational functioning or to verify specific disabilities;
- Disability-related counseling and advising, including specialized academic, vocational, personal and peer counseling that is developed specifically for students with disabilities and is not duplicated by regular counseling and advisement services available to all students;
- Interpreter services, including manual, steno and oral interpreting for hearing-impaired students;
- Reader services to coordinate and provide access to information required for equitable academic participation, if this access is not available in other suitable modes;
- Test-taking facilitation, including adapting tests for and proctoring tests taken by students with disabilities;
- Transcription services, such as providing Braille and large print materials not available through other sources;
- Notetaker services for writing, note-taking, and manual manipulation for classroom and related academic activities;
- Access to, and arrangements for, adaptive educational equipment and technology, materials and supplies;
- Liaisons with campus and community agencies, including referral and follow-up services with these agencies on behalf of students with disabilities;
- On-campus and off-campus registration assistance, including priority registration, assistance with applications for financial aid and related college services;
- Disabled Person (DP) parking, including on-campus parking registration, temporary parking permit arrangements, and application assistance for students who do not have state disabled person placards or license plates;
- Access to the Computer Access Lab with specially designed hardware and software to accommodate various disabilities;
- Activities to coordinate and administer specialized services, including consultation with faculty for students with special academic needs associated with their disabilities;
- Activities to assess the planning, implementation and effectiveness of these services and programs;
- Activities to increase general campus awareness of students with disabilities.

Each semester, DSS provides students with an Accommodation Letter for each class requested. In order for students to receive the appropriate accommodations in their classes, students must present a current Accommodation Letter to each of their professors at the beginning of the semester, or at such time as the disability is verified.

Upon presentation by the student of a current Accommodation Letter professors are obliged to comply with the prescribed academic adjustments stated therein.

**Computer Access Lab**

This facility provides computer support services for CSUF students, faculty and staff with disabilities who need access to computers to become more independent and productive in their work. CAL offers one-to-one training on IBM-compatible computers, technical support and consulting, and public-access workstations. Alternative computer access systems include voice recognition, speech synthesis, screen

readers, screen magnification and large displays, computer-based Braille translation and embossing, computer-based reading machines, closed circuit television magnification systems, and a variety of devices to accommodate special seating and positioning needs.

The Computer Access Lab is located within Disabled Student Services, UH-101. A separate entrance is provided through the double doors in the northeast corner of the building. Further information is available at (657) 278-5397 (657) 278-5397

## **Emergency Procedures**

For your own safety and the safety of others, each student is expected to read and understand the guidelines published at [«http://prepare.fullerton.edu/campuspreparedness/»](http://prepare.fullerton.edu/campuspreparedness/). Should an emergency occur, follow the instructions given to you by faculty, staff, and public safety officials. An emergency information recording is available by calling the Campus Operation and Emergency Closure line at 657-278-4444.