CSCI516 - FUND CONCEPTS COMPUTING/MACH ORG
Course Syllabus - (Fall 2022)

Instructor Information

Instructor: Song Huang, Ph.D.
Email: Song.Huang@tamuc.edu (always reachable via Email)
Office Location: Online, must log in myLeo Online
Office Hours: Meeting via Zoom at 3:00 - 4:00 PM every Monday
Preferred Form of Communication: Email
Communication Response Time: One business day

To communicate with the instructor about this course please use the email address: **Song.Huang@tamuc.edu**, make sure you use your **University Email** to send emails, otherwise, you won't get any response.

Please include the course number (CSCI 516) in the beginning of the subject field for every email message. You may generally expect a response to your emails within 1 business day. However, if you do not receive my reply in 2 business days, please email me again.

Course Description

In this course, concepts of assembly language programming and machine organization of a modern digital computer are presented. Students will have the opportunities to study machine addressing, stack operations, subroutines, programmed and interrupt driven I/O, machine organization and computer architecture at the register level. Students will utilize the instruction set and will perform programming exercises.

Supplementary information for the course is available at myLeo online (D2L Brightspace). Log on with your Access ID for class notes, lecture slides, class announcements, the course syllabus, and other information for the course. You will submit your assignments and project and check grades there too.

Expected Outcomes

After taking this course, students will:

- Understand the role of the different classes and components in a computer system and the interface between software and hardware in a computer system.

- Apply metrics to evaluate performance of a computer system using clock rate and clock cycles per instruction (CPI).

- Understand the different aspects of execution times reported when program complete their execution.

- Understand instruction set choices and write assembly language programs for simple C code and codes that include procedures.

- Perform integer and floating-point calculations using computer arithmetic algorithms.

- Describe the organization of a simple processor with data path and control path for simple instructions.

- Describe the requirement of memory hierarchy and evaluate the performance of different cache organizations.

Textbook and Computer Requirement

Computer Organization and Design: The Hardware Software Interface: ARM Edition (by Patterson and Hennessy, Morgan Kaufmann, ISBN-13: 978-0128017333)

You are required to use a **Windows** Operating System for this course, Mac OS or Linux is **NOT** compatible with the simulator we use for programming.

Prerequisite

Lvl G CSCI 515 Min Grade B or Lvl G CSCI 515 Min Grade B Concur or C515 075 or W515 0

Tentative Schedule

Week 1	Introduction and Background of Computer Organization; Instruction sets and Assembly Language Programming	Homework Assignment 1
Week 2		Homework Assignment 2
Week 3		Homework Assignment 3
Week 4		Programming Assignment 1
Week 5		Homework Assignment 4
Week 6		Paper Review
Week 7		Homework Assignment 5
Week 8	Computer Arithmetic	Homework Assignment 6
Week 9		Exam 1
Week 10		Homework Assignment 7
Week 11	Processor Design	Programming Assignment 3
Week 12		Paper Review
Week 13		Homework Assignment 8
Week 14	Memory Systems	Homework Assignment 9
Week 15		Paper Review
Week 16	Final	Exam 2

Tentative Breakdown of Course Grade

Tentative Breakdown of Course Grade	
Homework Assignments	30%
Programming Assignments	20%
Technical Paper Review	10%
Exams	40%

Letter grades will be determined using a standard percentage of points scale

Letter Grade	Cut-off Score
A	90% and above
B	80% and above
C	70% and above
D	60% and above
F	Below 60%

Reading Assignments, Lab, Homeworks and Exams

Homework Assignments

In each homework assignment, students will be asked to read some sections in the textbook and answer some questions. Students need to have a completed understanding of the concepts and give the correct answers.

Programming Assignments

In each reading assignment, students will be asked to read some sections in the textbook and answer some questions. Students need to have a completed understanding of the concepts and give the correct answers.

Technical Paper Review

Students will be given some research papers from technical conferences and Journals, and required to review the paper and write down what they learn from the technical paper. The reviews should include sections like:

- background of the research topic

- related work and the novelty of the work

- methodologies/technical design

- experiment, results and findings

- conclusion of the work

Exams

There are 2 exams in the semester, Exam 1 covers the information given in the first half of the semester, and Exam 2 covers the the lectures in the second half of the semester.

Collaboration Policy

Students are encouraged to talk to each other, to the instructor, or to anyone else about any of the assignments. Any assistance, though, must be limited to discussion of the problem and sketching general approaches to a solution. **Each student must write out his or her own solutions to the homework**. Consulting another student's or group's solution is prohibited, and submitted solutions may not be copied from any source. These and any other form of collaboration on assignments constitute cheating. If you have any question about whether some activity would constitute cheating, please feel free to ask.

Academic Integrity

Your commitment as a student to learning is evidenced by your enrollment at Texas A &M University-Commerce. All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See Student's Guide Handbook, Policies and Procedure, Conduct). All phones, pagers, and other communication devices are to be turned off or place on silent mode during class. Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. **Anyone cheating will receive a zero on the work they are doing, and subsequent cheating will result in a failing grade.**

Students with Disability

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library, Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamuc.edu

TECHNOLOGY REQUIREMENTS

Browsersupport

D2L is committed to performing key application testing when new browser versions are released. New and updated functionality is also tested against the latest version of supported browsers. However, due to the frequency of some browser releases, D2L cannot guarantee that each browser version will perform as expected. If you encounter any issues with any of the browser versions listed in the tables below, contact D2L Support, who will determine the best course of action for resolution. Reported issues are prioritized by supported browsers and then maintenance browsers.

Supported browsers are the latest or most recent browser versions that are tested against new versions of D2L products. Customers can report problems and receive support for issues. For an optimal experience, D2L recommends using supported browsers with D2L products.

Maintenance browsers are older browser versions that are not tested extensively against new versions of D2L products. Customers can still report problems and receive support for critical issues; however, D2L does not guarantee all issues will be addressed. A maintenance browser becomes officially unsupported after one year.

Note the following:

- Ensure that your browser has JavaScript and Cookies enabled.
- For desktop systems, you must have Adobe Flash Player 10.1 or greater.
- The Brightspace Support features are now optimized for production environments when using the Google Chrome browser, Apple Safari browser, Microsoft Edge browser, Microsoft Internet Explorer browser, and Mozilla Firefox browsers.

Desktop Support

Browser	SupportedBrowserVersion(s)	MaintenanceBrowserVersion(s)
Microsoft® Edge	Latest	N/A
Microsoft® Internet Explorer®	N/A	11
Mozilla® Firefox®	Latest, ESR	N/A
Google® Chrome™	Latest	N/A
Apple® Safari®	Latest	N/A

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Tablet and Mobile Support

Device	Operating System	Browser	SupportedBrowser Version(s)
Android™	Android 4.4+	Chrome	Latest
Apple	iOS®	Safari, Chrome	The current major version of iOS (the latest minor or **point** release of that major version) and the previous major version of iOS (the latest minor or **point** release of that major version). For example, as of June 7, 2017, D2Lsupports iOS 10.3.2 and iOS 9.3.5, but not iOS 10.2.1, 9.0.2, or any other version. Chrome: Latest version for the iOS browser.
Windows	Windows 10	Edge, Chrome, Firefox	Latest of all browsers, and Firefox ESR.

- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:
    - o 512 MB of RAM, 1 GB or more preferred
    - o Broadband connection required courses are heavily video intensive
    - o Video display capable of high-color 16-bit display 1024 x 768 or higher resolution

- You must have a:
    - o Sound card, which is usually integrated into your desktop or laptop computer
    - o Speakers or headphones.
    - o *For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.

- Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. At a minimum Java 7, update 51, is required to support the learning management system. The most current version of Java can be downloaded at: JAVA web site http://www.java.com/en/download/manual.jsp

- Current anti-virus software must be installed and kept up to date.

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Running the browser check will ensure your internet browser is supported.
    Pop-ups are allowed.
    JavaScript is enabled.
    Cookies are enabled.

- You will need some additional free software (plug-ins) for enhanced web browsing. Ensure that you download the free versions of the following software:
    o [Adobe Reader](https://get.adobe.com/reader/) https://get.adobe.com/reader/
    o [Adobe Flash Player](https://get.adobe.com/flashplayer/) *(version 17 or later)* https://get.adobe.com/flashplayer/
    o [Adobe Shockwave Player](https://get.adobe.com/shockwave/)   https://get.adobe.com/shockwave/
    o [Apple Quick Time](http://www.apple.com/quicktime/download/)   http://www.apple.com/quicktime/download/

- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

ACCESS AND NAVIGATION

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You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

Brightspace Support
Need Help?
StudentSupport

If you have any questions or are having difficulties with the course material, please contact your Instructor.

TechnicalSupport

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport
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System Maintenance

D2L runs monthly updates during the last week of the month, usually on Wednesday. The system should remain up during this time unless otherwise specified in an announcement. You may experience minimal impacts to performance and/or look and feel of the environment.

Interaction with Instructor Statement

Interaction with Instructor Statement: For general questions and assistance with the course, the instructor will keep a schedule of 6 regular office hours per week. If a student cannot meet during the designated schedule, arrangements can be made to meet at a more convenient time. An email should be sent to the instructor at least 24 hours prior to

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the time the student plans on meeting. Generally, I will reply to your e-mail messages in a timely manner. A reply can be expected within 24 hours.

My responsibilities:
1) Make sure to accommodate all your learning needs
2) Try my best to answer your questions and resolve other related issues
3) Give feedback and your grade on assignments within one week of the due date.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Class Decorum Civility in the classroom or online course and respect for the opinions of other is very important in an academic environment. It is likely you may not agree with everything that is said or discussed in the classroom/online course. Courteous behavior and responses are expected. To create and preserve a learning environment that optimizes teaching and learning, all participants share a responsibility in creating a civil and non-disruptive forum. Students are expected to conduct themselves at all times in a manner that does not disrupt teaching or learning. Faculty have the authority to request students who exhibit inappropriate behavior to leave the class/online course and may refer serious offenses to the University Police Department and/or the Dean of Students for disciplinary action. (See Student Guidebook)

Academic Honesty

It is the policy of the University, the History Department, and the instructor that no form of plagiarism or cheating will be tolerated. Plagiarism is defined as the deliberate use of another's work and claiming it as one's own. This means ideas as well as text, whether paraphrased or presented verbatim (word-for-word). Cheating is defined as obtaining unauthorized assistance on any assignment. Collusion is defined as selling or purchasing academic products with the intention that they be submitted to fulfill an academic or course requirement. Proper citation of sources must always be utilized thoroughly and accurately. Cheating/plagiarism/collusion will result in a grade of "0" for the assignment, and may also result in failure of the course and/or disciplinary action by the University. Any student found guilty of violating academic integrity policy will fail the assignment in question, will automatically fail the course and will be subject to disciplinary action by the university (see Texas A&M University-Commerce Code of Student Conduct 5.b. [1,2,3]). Further information on the history department's plagiarism policy can be found on the department webpage. If you are unclear about what constitutes academic dishonesty, ask.

Writing Center

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Students are encouraged to take advantage of the Writing Center's resources for assistance with drafting their written assignments. Although the center will not write your paper for you, it may help you to improve your writing skills. If you use the Writing Center, plan in advance because it can only help you if there is adequate time to incorporate their suggestions into your paper. Additionally, I am willing to read rough drafts (and even multiple drafts) of your written work so long as the drafts are submitted at least one week prior to the due date.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette
http://www.albion.com/netiquette/corerules.html

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

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http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

Students with Disabilities-- ADA Statement

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Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu

Website: Office of Student Disability Resources and Services

http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed

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handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf) document and/or consult your event organizer.

Web url: http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

HAVE A HAPPY AND SUCCESSFUL SEMESTER

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