



CSCI 540.01W Computer Architecture

COURSE SYLLABUS: SUMMER I 2020
WEB-BASED

INSTRUCTOR INFORMATION

Instructor: (Name & Title) Dr. Abdullah N. Arslan

University Email Address: Abdullah.Arslan@tamuc.edu

Preferred Form of Communication: e-mail
Communication Response Time: 24 hrs

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

Textbook Required

Computer Architecture, a Quantitative Approach, 5th edition, Hennessy and Patterson
Download free from: <http://uni-site.ir/khuelec/wp-content/uploads/Computer-Architecture-A-QuantitativeApproach.pdf>

The professor will make supplementary information for the course available in D2L Brightspace. These include class notes, assignments, PowerPoint slides, class announcements, the course syllabus, test dates, etc. The professor will notify class when tests and assignments become available in D2L. It is the student's responsibility to follow the announcements.

Software Required

Optional Texts and/or Materials

Course Description

Computer Architecture. Three semester hours. Introduction to current high level computing machines in both hardware and software design. Topics include the design decisions involved in the development of computer architectures, hardware organizations needed to implement various instructions sets, and future trends in computer architectures. Prerequisites: CSCI 516 (either by earning at least 'B', or by being waived or passing the screening test). Credit hours: 3.

Objectives: This course is for graduate students to study computer hardware architecture and to understand the hardware elements that help determine the overall performance of computer systems. Students who work hard will gain knowledge and develop skills in the aspects shown in the student learning outcomes below. This is not a detailed comprehensive study of computer architectures, but it does touch on critical hardware areas that mainly determine the performance for real computer systems by using a RISC machine model for illustration.

Student Learning Outcomes

- 1) Students shall be able to identify general purpose machines from different views, and classify computers and their instructions.
- 2) Students shall be able to identify cost and performance of a computer, evaluation metrics, Amdahl's law, principle of locality, and benchmarks.
- 3) Students shall be able to identify cache and memory organization, cache mapping and replacement strategies, and virtual memory.
- 4) Students shall be able to identify Pipelining techniques, and pipelining performance issues, hazards and solutions.
- 5) Students shall be able to use I/O system technology: hard drive, RAID technology, I/O performance and benchmarks.
- 6) Students shall be able to articulate a comprehensive view of architecture and performance for real-world computers.

The syllabus/schedule are subject to change.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Students must know using the learning management system. They need to know how to program in at least one programming language.

Students will be using D2L learning management system, Microsoft Word and PowerPoint, using presentation and graphics/organization programs.

Instructional Methods

The instructor will cover the topics in the recorded lectures. He will prepare a relevant programming assignment, and practice questions. Answers to quizzes and exams, and approaches to assignments will be discussed in recorded videos.

Student Responsibilities or Tips for Success in the Course

Students must regularly log into the course website, and participate in discussions in lectures. They need to deliver the assignments on time.

GRADING

Final grades in this course will be based on the following scale:

- A = 90%-100%
- B = 80%-89%
- C = 70%-79%
- D = 60%-69%
- F = 59% or Below

Final score will be out of 100, and the above percentages will be applied to student's total score to determine the letter grade.

Assessments

Midterm exam	25%
Written Assignment	20%
Quizzes	25%
Comprehensive final test	30%

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Quizzes, programming assignment, and tests will include questions on each of the student learning outcome listed earlier.

The professor reserves the rights to reward students for continuous hard work or for an exceptional novel scientific work (as judged by the instructor) relevant to the topics covered.

TECHNOLOGY REQUIREMENTS

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>

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ACCESS AND NAVIGATION

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.

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COMMUNICATION AND SUPPORT

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

Technical Support

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>

Interaction with Instructor Statement

The instructor will respond to your questions within 24 hrs unless there are exception situations such as sickness.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Quizzes: are to be solved independently during the allocated time. Makeup quizzes will not be given. However, the lowest quiz grade will be dropped.

Tests: Two tests will be given. Students will be informed of the test dates around a week in advance.

Makeup: Except extreme cases (as judged by the instructor), no individual makeup test will be permitted.

Written Assignment: One written assignment will be given. The turned in assignment must be students' own work.

All quizzes and tests are closed book.

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.

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:

<https://www.britannica.com/topic/netiquette>

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](#)

<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

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 162

Phone (903) 886-5150 or (903) 886-5835

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 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](#) 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.

COURSE OUTLINE / CALENDAR

TOPICS AND ACTIVITIES BY WEEKS

WEEK	TOPIC
1	Defining Computer Architecture and Trends from Chapter 1, and Appendix A: Instruction Set Principles
2	Memory Hierarchy (Appendix B and Chapter 2), Quiz 1, Exam 1
3	Pipelining and Instruction-Level Parallelism (Appendix C and Chapter 3), Quiz 2, Exam 2
4	I/O and RAID (Appendix D), Written Assignment is due, Quiz 3, Final Exam

There can be some modifications on the schedule based on agreements between the instructor and the students.

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