CSE 4323: QUANTITATIVE COMPUTER ARCHITECTURE
Spring 2020

Instructor Information

Instructor(s):
Mohammad Atiqul Islam, Teaching Assistant: Pranjol Gupta

Office Number:
ERB 651

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Faculty Profile:
http://www.uta.edu/profiles/mohammad-islam

Office Hours:
Monday- 3:00 pm – 3:50 pm, Thursday 2:00 pm – 2:50 pm (Or, by appointment)

Course Information

Section Information:
2202-CSE-4323-001-QUANTITATIVE COMPUTER ARCH

Time and Place of Class Meetings:
WH 308, MoWe 4:00 pm – 5:20 pm

Description of Course Content:
Pipelined processors, parallel processors including shared and distributed memory, multicore, Very Long Instruction Word (VLIW) and graphics processors, memory and cache design, computer peripherals, and computer clusters. Prerequisite: Admitted into an Engineering Professional Program. C or better in CSE 3320.

Student Learning Outcomes:
By the end of the course, you will have demonstrated an ability to do the following.

1. Apply knowledge of basic mathematical, computer science and computer engineering principles to computer system analysis and design.
2. Understand tradeoffs in performance, cost, and energy usage in computer system design.
3. Understand the basic concepts of qualitative and quantitative computer architecture.
4. Understand the different forms of parallel computing and their applications

Required Textbooks and Other Course Materials:

Clicker: Students need to get iClickers to participate in active learning in the class. You can get your clickers from UTA bookstore. ISBN-10: 1429280476 (i>clicker2).

Descriptions of major assignments and examinations:
Exams 75% and homework assignments and class performance 25% of final grade. There will be three exams – two midterms with 15% and 30%, and the comprehensive final 30%. Your midterm with lower score will have 15% and higher score will have 30% weight. Assignments will be given throughout the semester.

Grading Information

Grading:
A: 100-90, B: 89-80, C: 79-70, D: 69-60, F: 59-0 with points computed as follows.
Exams: best-midterm*30% + other-midterm*15% + final-exam*30%+
homework_class_performance*25%

Make-up Exams:
There will be no make-up exams

Expectations for Out-of-Class Study:
Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

Grade Grievances:
Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog.

Course Schedule

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –Mohammad A. Islam.

<table>
<thead>
<tr>
<th>Week #</th>
<th>Date</th>
<th>Topic</th>
<th>Exams (tentative)</th>
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<tbody>
<tr>
<td>1–3</td>
<td>01/21/20~02/09/20</td>
<td>Fundamentals of Quantitative Design and Analysis and Instruction Set Principles</td>
<td>Midterm 1</td>
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<tr>
<td>4–6</td>
<td>02/10/20~03/01/20</td>
<td>Memory Hierarchy</td>
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<td>7–9</td>
<td>03/02/20~03/29/20</td>
<td>Pipelining and Instruction-Level Parallelism</td>
<td>Midterm 2</td>
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<td>10–11</td>
<td>03/30/20~04/12/20</td>
<td>Data-Level Parallelism</td>
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<td>11–12</td>
<td>04/13/20~04/26/20</td>
<td>Thread-Level Parallelism</td>
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<td>13–14</td>
<td>04/27/20~05/08/20</td>
<td>Warehouse-scale Computers</td>
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<td></td>
<td>05/15/20</td>
<td>Comprehensive Final Exam</td>
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Institution Information

UTA students are encouraged to review the below institutional policies and informational sections and reach out to the specific office with any questions. To view this institutional information, please visit the Institutional Information page (http://www.uta.edu/provost/administrative-forms/course-syllabus/index.php) which includes the following policies among others:

- Drop Policy
- Disability Accommodations
- Title IX Policy
- Academic Integrity
- Student Feedback Survey
- Final Exam Schedule

Additional Information

Attendance:
At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator of student success. Each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I will take attendance sporadically. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report must the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Canvas. This date is reported to the Department of Education for federal financial aid recipients.

Lab Safety Training:
Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities. Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., Fall through Summer II) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned.

Emergency Exit Procedures:
Should we experience an emergency event that requires evacuation of the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, do not take an elevator but use the stairwells instead. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.
Student Support Services:
UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring by appointment, drop-in tutoring, mentoring (time management, study skills, etc.), major-based learning centers, counseling, and federally funded programs. For individualized referrals, students may call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at Resource Hotline (http://www.uta.edu/studentsuccess/success-programs/programs/resource-hotline.php).

IDEAS Center:
The IDEAS Center (https://www.uta.edu/ideas/) (2nd Floor of Central Library) offers FREE tutoring and mentoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. Students can drop in or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

The English Writing Center (411LIBR):
The Writing Center offers FREE tutoring in 15-, 30-, 45-, and 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Register and make appointments online at the Writing Center (https://uta.mywconline.com). Classroom visits, workshops, and specialized services for graduate students and faculty are also available. Please see Writing Center: OWL for detailed information on all our programs and services.
The Library’s 2nd floor Academic Plaza (http://library.uta.edu/academic-plaza) offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library’s hours of operation.

Librarian to Contact:
Each academic unit has access to Librarians by Academic Subject that can assist students with research projects, tutorials on plagiarism and citation references as well as support with databases and course reserves.

Emergency Phone Numbers

In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911. Non-emergency number 817-272-3381