Instructor: Chance Eary
Office Number: Engineering Research Building, Room 647
Email Address: chance.eary@uta.edu
Office Hours: Monday / Wednesday; 9:00am to 10:00am via Microsoft Teams

Section Information:

CSE 2312-002: Monday / Wednesday; 1:00pm to 2:50pm

TA: Sami Arshad
TA Office Number: Microsoft Teams
TA Email: mohammadsamiul.arshad@mavs.uta.edu
TA Office Hours: Thursday; 11:00am to 1:00pm

Description of Course Content:

This course is designed to provide the student with knowledge of fundamental concepts in computer organization. Individual topics include memory hierarchy, instruction set architectures, memory addressing, input-output, integer and floating-point representation, arithmetic and logic operations, etc. The relationship of higher-level programming languages to the operating system and underlying instruction set architecture will be explored, as well as assembly language programming.

Student Learning Outcomes:

Upon successful completion of this course, students will have knowledge of:
- Range, and size of, integer and Boolean variable types
- Basis for 2’s compliment encoding of signed integers, ALU signed/unsigned agnostic design
- ALU operating including flag operation
- ALU register interface in the CPU
- Arithmetic, logical and shift operations in the ALU
- Load/store interface between registers and memory
- Memory addressing modes (direct, indirect, indirect indexed, ...)
- Flow control instructions and loops in the ALU
- AAPCS register and calling conventions
- Writing mixed C / assembly programs
- Using the GNU compiler, assembler, linker, and debugger
- Detailed knowledge of ARM arithmetic, logical, load/store, and program flow instructions
- Effects of packing on performance and memory size
- Full decrementing stack design and the stack pointer
- IEEE-754 floating point number range, dynamic range issues, and memory storage
- Pipelined vs non-pipelined designs
- Memory virtualization and paging (heap fragmentation, security implications)

Prerequisite: CSE 1320 – Intermediate Programming

Required Materials:
- Raspberry Pi Model 3 B+
• HDMI Monitor, Keyboard, Mouse
• Equipment to facilitate the use of Respondus LockDown Browser and Respondus Monitor.
  o Computer with Compatible Operating System
    ▪ Windows 7, 8, or 10
    ▪ MacOS 10.12 or higher
  o Compatible webcam

Recommended Materials:

• Ethernet patch cable
• USB to Ethernet Adapter

Attendance:

Pre-recorded lectures will be posted via Canvas. Students are responsible for all course material whether or not they choose to view the entirety of all provided lectures.

Communication:

• Course updates will be published via Canvas.
• Students should use their University-provided e-mail to communicate with the instructor outside office hours.
• The instructor will make a best-effort to provide a same-day response to e-mails received before 4:00pm on a weekday.
• The instructor will not respond to e-mails received after 4:00pm on Friday until the following Monday.

Programming Lab Policies:

• Labs that fail to compile, or terminate in a segmentation fault, will receive a zero.
• Labs that fail to compile, or terminate in a segmentation fault, may not be resubmitted for a grade.
• **Students must make a credible attempt to pass all programming labs to receive a passing grade in the course.**

Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Lab 1</td>
<td>05%</td>
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<tr>
<td>Lab 2 and 3</td>
<td>24% (12% each)</td>
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<tr>
<td>Quizzes</td>
<td>28% (07% each)</td>
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<tr>
<td>Midterm</td>
<td>21%</td>
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<tr>
<td>Final</td>
<td>22%</td>
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90-100 A
80-90 B
70-80 C
60-70 D
<60 F

Make-up Exams:
• No makeup exams will be provided.
• The final exam will be held according to the University’s schedule. The day / time will not be adjusted to accommodate students for any reason.

Grade Grievances:

If a student believes an error has been made in the grading of an assignment, the student has **one week after a grade is returned** to resubmit an assignment for re-grading if they believe there is an error.

Late Policy

For every 24 hour period an assignment is late, 10-points will be deducted from the graded result.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the **Americans with Disabilities Act (ADA)**. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

**Title IX:** The University of Texas at Arlington is committed to upholding U.S. Federal Law “Title IX” such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

**Academic Integrity:** Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

> I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

> I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System **Regents’ Rule 50101, §2.2**, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be
disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

**Any student found responsible for an Honor Code violation will receive an F in the course and be referred to the Office of Student Conduct.**

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at [http://www.uta.edu/oit/cs/email/mavmail.php](http://www.uta.edu/oit/cs/email/mavmail.php).

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit [http://www.uta.edu/sfs](http://www.uta.edu/sfs).

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the exits, which are located on the east, west, and south sides of the building. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. 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, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at [www.uta.edu/resources](http://www.uta.edu/resources).

**Writing Center:** The Writing Center, 411 Central Library, offers individual 40 minute sessions to review assignments, *Quick Hits* (5-10 minute quick answers to questions), and workshops on grammar and specific writing projects. Visit [https://uta.mywconline.com/](https://uta.mywconline.com/) to register and make appointments. For hours, information about the writing workshops we offer, scheduling a classroom visit, and descriptions of the services we offer undergraduates, graduate students, and faculty members, please visit our website at [www.uta.edu/owl](http://www.uta.edu/owl/).

**Course Schedule – The following course schedule is tentative and is likely to change**

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<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Topic</th>
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<tbody>
<tr>
<td>08-Jun</td>
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<td>10-Jun</td>
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<td>Date</td>
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<tr>
<td>15-Jun</td>
<td>Monday</td>
<td>Quiz 1</td>
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<td>17-Jun</td>
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<td>22-Jun</td>
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<td>24-Jun</td>
<td>Wednesday</td>
<td>Quiz 2</td>
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<td>29-Jun</td>
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<td>01-Jul</td>
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<tr>
<td>06-Jul</td>
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<tr>
<td>08-Jul</td>
<td>Wednesday</td>
<td>Midterm Review</td>
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<td>13-Jul</td>
<td>Monday</td>
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<td>15-Jul</td>
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<td>20-Jul</td>
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<td>22-Jul</td>
<td>Wednesday</td>
<td>Quiz 3</td>
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<td>27-Jul</td>
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<td>29-Jul</td>
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<td>03-Aug</td>
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<td>Quiz 4</td>
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<td>05-Aug</td>
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<td>10-Aug</td>
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<tr>
<td>12-Aug</td>
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**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.