DEPARTMENT *of* COMPUTING
College of Business & Technology
EAST TENNESSEE STATE UNIVERSITY

CSCI-3160-001: Computer Systems (4 Credit Hours)
Spring 2023 Course Syllabus

Course Information

Class meetings: TR, 9:30–10:50 AM Eastern, 125 Brinkley Center, and
F, 9:30–11:30 AM Eastern, 230 Brinkley Center

Prerequisites: CSCI-1260 ('B-' or better) and CSCI-2150 ('C-' or better).

Text: Bryant, R. E., & O'Hallaron, D. R. (2016). *Computer systems: A programmer's perspective* (3rd ed.). Pearson. ISBN 9780134092669.

Catalog description: Introduces students to the fundamental abstractions of computer systems. This course uses hands-on exercises to investigate modern computer architectural features and the system software that supports them.

Instructor Information

Matthew S. Harrison
Lecturer

Office: 157 Brinkley Center
Email: harrisonms1@etsu.edu
Zoom: etsu.zoom.us/my/harrisonms1
- By appointment only
- Zoom password: spring2023

Office Hours:
- TRF: 2:00–4:00 PM Eastern

Major Topics

Data and instruction representation; assembly language; procedures and stacks; processor data path, pipelining, and instruction-level parallelism; compilation and linking; code transformations; the memory hierarchy and caching; dynamic memory allocation; exceptional control flow; system-level I/O; network programming; concurrent programming; thread-level parallelism

Learning Outcomes

At the end of this course, students who earn a passing grade shall be able to:

1. Understand how computer systems represent information and programs at the machine level.
2. Describe the roles hardware and systems software play in program compilation and execution.
3. Evaluate the effect of hardware features and software tools on program performance.
4. Discuss the methods for organizing and managing programs in memory.
5. Demonstrate techniques for enabling interaction and communication between programs.
6. Write systems-level programs in unmanaged programming languages.

Course Activities

I assign exercises ahead of class meetings: students should expect to spend class time discussing and presenting solutions to assigned exercises. I assign labs during the semester: students complete those labs during Friday lab meetings and outside of class. I assign a multi-part project: students will work in small teams and present their work to the class.

Earning a Grade

Students will self-evaluate their progress towards meeting learning outcomes based on their work in the course, and at the end of the semester advocate for a Final Course Grade (FCG). Students who demonstrate honest effort on **all** assigned course work **and** meet the course learning outcomes should advocate for a grade of 'C'. Students who desire a higher FCG will meet the 'C' standard **and** submit additional evidence, e.g., work that exceeds course learning outcomes.

Students will submit an essay advocating for an FCG, citing their portfolio of work as supporting evidence. Students whose self-assessed FCG aligns with my own assessment will earn that FCG. Students whose self-assessed FCG significantly differs from my assessed FCG will meet with me during finals week to negotiate a mutually-agreeable FCG.

I am the arbiter of course grades: I reserve the right to assign my assessed grade, regardless of student self-assessment.

Academic integrity and misconduct: https://www.etsu.edu/policies/student/aca.integrity.misconduct.php.

Disability Services

It is the policy of ETSU to accommodate students with disabilities, pursuant to federal law, state law and the University's commitment to equal educational opportunities. Any student with a disability who needs accommodations, e.g., note taking assistance, exam time adjustment, or seating placement, should meet with Disability Services. Faculty accommodation forms are provided to eligible students and should be shared with the instructor as early in the semester as possible. Disability Services can be reached via telephone at (423) 439-8346 or web at https://www.etsu.edu/students/ds/.