

University of Oklahoma
College of Engineering
School of Electrical and Computer Engineering
ECE/CS 4613: Computer Architecture
Spring 2022

Instructor: Dr. Cliff Fitzmorris
Office: Devon Hall, Room 335
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Office Hours: WF 2:30 – 3:30, other times by appointment
Learning Management System: canvas.ou.edu

Course Meeting Time and Location:

Time: MWF 8:30am – 9:30am

Location: Gallogly Hall, Room 127

Course Prerequisite:

ECE3223 or CS2614 or CS2613

Course Delivery: Traditional

Course Goals:

The objective of this course is to provide the student with the opportunity to learn the fundamental principles of computer architecture including instruction sets, fixed and floating point arithmetic, datapath design, pipelining, and memory structures.

Learning Outcomes:

Upon completion of this course, students will be able to:

- Analyze instruction sets and predict the outcome of a sequence of instructions.
- Design and analyze a processor datapath including pipelining.
- Design circuits to perform fixed and floating point arithmetic.
- Analyze and design memory structures commonly found in processors.

Learning Materials:

ECE4613: Computer Architecture, Spring 2022 Edition, Zybooks

Teaching Philosophy:

In this course, we will use a variety of methods to learn computer architecture. The first exposure to each topic should be from your reading before we cover the topic in the lecture. During the lecture, held three times per week, I'll go into more detail and expound upon the material in the book.

Expectations:

You can expect the following things from me:

- A well-organized and predictable course structure.
- Transparent grading guidelines.
- Work will be graded within two weeks and posted on D2L.
- A response to your emails within two days, usually within one day.

I expect the following things from you:

- You will have read the book sections before the date listed on the course schedule
- You will attend every lecture session with rare exceptions (one or two per semester).
- You will do every homework problem, ensuring that you fundamentally understand the concept behind the problem.
- You will work on the homework problems over a period of time and not attempt to do them too close to the exam. Some students attempt to “cram” for the exam and it just doesn’t work, this course is more of a marathon than a sprint.

Learning Activities and Assessment

- Exams (50%): We have four 50-minute exams. The exam problems are modified versions of homework problems. Please read the dropped exam policy in the “Course Policy” section.
- Homework (20%): The homework grade is the completion rate of the assigned exercises in the textbook including the challenge exercises and the exercises at the end of each chapter.
- Final Exam (30%): The final exam is comprehensive and weighted heavier than any other exam. Final exam questions are modified homework problems.

Final Grade:

- A – Score of 90 or greater
- B – Score of 80 to 89
- C – Score of 70 to 79
- D – Score of 60 to 69
- F – Score of 59 or below

I round to the nearest integer, so a 79.8 would round to an 80.

The grading for this course is transparent and predictable. There will not be any opportunities for extra credit, there will not be any final curve, and I do not cut special deals with individual students. Occasionally an exam will have an adjusted score (some people call it “curving the exam”), and it will be adjusted before I post the scores and everyone will receive the same adjustment.

Course Policies

Missed Examinations:

There are four examinations scheduled for the semester, one of which will be dropped. The primary purpose of dropping the exam is not to improve your grade although I understand that it often will. The dropped exam is intended to replace an examination missed for any reason including hospitalizations, illnesses, medical emergencies, job interviews, car accidents, and university-sponsored trips. I do not plan to administer any make-up examinations.

Homework:

Homework consists of three parts: the Participation Exercises (Orange Problems) from the Zybook, the Challenge Exercises (Blue Problems) from the Zybook, and the exercises at the end of the chapter.

Due dates for each assignment will be posted as part of each assignment on Canvas.

Materials Allowed on Exams

You may use one 8x11 sheet with notes on the front side only. The note sheet may not include material from the homework problems, prior exams, or the solutions to prior homework or exams.

Grade Disputes

You have two weeks after exams are handed back or homework grades are posted to correct any grading errors. Erroneous exam grades or homework grades should be brought to me. After two weeks, the grade becomes permanent.

University Policies

Academic Integrity

Cheating is strictly prohibited at the University of Oklahoma, because it devalues the degree you are working hard to get. As a member of the OU community it is your responsibility to protect your educational investment by knowing and following the rules. For specific definitions on what constitutes cheating, review the Student's Guide to Academic Integrity at http://integrity.ou.edu/students_guide.html.

You are free to collaborate on homework assignments although your final work must be your own.

All work on exams must be yours and yours alone. You may not receive or provide outside help on the exams. Be aware that it is my professional obligation to report academic misconduct, which I will not hesitate to do. Sanctions for academic misconduct can include expulsion from the University and an F in this course, so don't cheat. It's simply not worth it.

Regarding projects, never share your electronics files with another person. The academic misconduct process does not attempt to distinguish between the person who copied and the person whose work was copied. If you share your work with another person, they may turn that work in as their own without your knowledge or permission, resulting in a charge of academic misconduct against you both.

Chegg and Other Online Tutoring Sources:

There are a wide variety of tutoring resources available through paid websites. Many of these sites have students upload assignments and solutions and surreptitiously provide these documents to other students. What appears to be a session with a tutor may be, behind the scenes, the tutor doing a search of their company database of solutions to share. By using these sites you risk being charged with academic misconduct, either by supplying other students with

answers they did not author or by receiving someone else's answer that you did not author. Since these companies are not open with students about their practices, you cannot know whether a tutor is providing meaningful support (for example, identifying misunderstandings of content and explaining them) or simply feeding you someone else's solution a bit at a time. The tutor's actions can result in different students submitting answers that are identical, which may be flagged as academic misconduct during grading. There is no way to use these sites without risking being charged academic misconduct at this time. These sites cooperate with the OU Office of Academic Integrity to identify students who are using their services to commit academic misconduct.

Copyright Syllabus Statement for In-Person or Online Courses:

Sessions of this course may be recorded or live-streamed. These recordings are the intellectual property of the individual faculty member and may not be shared or reproduced without the explicit, written consent of the faculty member. In addition, privacy rights of others such as students, guest lecturers, and providers of copyrighted material displayed in the recording may be of concern. Students may not share any course recordings with individuals not enrolled in the class, or upload them to any other online environment.

Religious Observance

It is the policy of the University to excuse the absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays, without penalty.

[\[See Faculty Handbook 3.15.2\]](#)

Reasonable Accommodation Policy

Students requiring academic accommodation should contact the Disability Resource Center for assistance at (405) 325-3852 or TDD: (405) 325-4173. For more information please see the Disability Resource Center website <http://www.ou.edu/drc/home.html> Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

Title IX Resources and Reporting Requirement

For any concerns regarding gender-based discrimination, sexual harassment, sexual assault, dating/domestic violence, or stalking, the University offers a variety of resources. To learn more or to report an incident, please contact the Sexual Misconduct Office at 405/325-2215 (8 to 5, M-F) or smo@ou.edu. Incidents can also be reported confidentially to OU Advocates at 405/615-0013 (phones are answered 24 hours a day, 7 days a week). Also, please be advised that a professor/GA/TA is required to report instances of sexual harassment, sexual assault, or discrimination to the Sexual Misconduct Office. Inquiries regarding non-discrimination policies may be directed to: Bobby J. Mason, University Equal Opportunity Officer and Title IX Coordinator at 405/325-3546 or bjm@ou.edu. For more information, visit <http://www.ou.edu/eoo.html>.

Adjustments for Pregnancy/Childbirth Related Issues

Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact your professor or the Disability Resource Center at 405/325-3852 as soon as possible. Also, see <http://www.ou.edu/eoo/faqs/pregnancy-faqs.html> for answers to commonly asked questions.

Fitzmorris – 1/18/2022