

Wichita State will follow federal, state, and county public health recommendations and mandates related to university operations. The COVID-19 pandemic is a complex, challenging, and fluid situation, which continues to evolve rapidly. Students consistently should review <https://www.wichita.edu/about/COVID-19/index.php> for the Wichita State COVID-19 Response for information throughout the semester.

(HPC Systems for Data Science)

Instructor: Abu Asaduzzaman (DRZ)

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Preferred Method of Contact: Via email or zoom/phone during office hours

Student/Office Hours: Tue/Thu 3:15-4:00 PM and 5:30-6:30 PM

Classroom, Day/Time: 261JB, Tuesday and Thursday 2:00-3:15 PM

Prerequisites: ECE 394 or instructor's consent

Teaching Assistant (TA): To be determined (TBD)

TA Contacts: tbd@shochers.wichita.edu

Students at Wichita State University are expected to uphold high academic standards. WSU will not tolerate a lack of academic integrity. Students are responsible for knowing and following the Student Code of Conduct (see

(SO: EAC 6) an ability to develop appropriate experimentation, analyze data, and use engineering judgment to make useful decisions

(SO: EAC 7) an ability to acquire and apply new computer knowledge as needed, using appropriate learning strategies

Textbook: "COMPUTER ARCHITECTURE: A Quantitative Approach," John L. Hennessy and David A. Patterson, Morgan Kaufmann, 6th edition, 2017.

Reference Book: "Structured Computer Organization," Andrew S. Tanenbaum and Todd Austin, Pearson, sixth edition, 2016.

Class notes and handouts will be made available via WSU Blackboard.

Students will be provided accounts to the BeoShock H0.004 T004 Tc -0.002 [0 (e)]J0 Tc(i)6 (a)20

You contact me for tech support.

Any technical problems involving your computer, or issues regarding file uploading or sharing, should go through the OneStop. You can contact them at 316-978-3909. You can also fill out a request for help form at their website:

https://wichita.edusupportcenter.com/sims/helpcenter/common/layout/SelfHelpHome.seam?inst_name=wichita

As soon as possible within 24 hours. If you do not receive reply to your email within 24 hours, please re-send me the email, probably the email did not arrive to my Inbox.

As soon as possible after the due date including the late submission date/time. Answer key will be discussed in lecture sessions and/or shared via Blackboard.

WSU uses a +/- grading scale for final grades and to calculate grade point averages. In this class, usually grades are assigned according to the following chart. However, the grading scale may change as/if needed. (Other classes might assign grades differently: Be sure to understand the different grading scales in all of your classes.)

93 and up	A	4.00	A range denotes excellent performance
90 – less than 93	A-	3.70	
87 – less than 90	B+	3.30	
83 – less than 87	B	3.00	B range denotes good performance
80 – less than 83	B-	2.70	
77 – less than 80	C+	2.30	
73 – less than 76	C	2.00	C range denotes satisfactory performance

70 – less than 73	C-	1.70	
67 – less than 70	D+	1.30	
63 – less than 67	D	1.00	D range denotes unsatisfactory performance
60 – less than 63	D-	0.70	
0 – less than 60	F	0.00	

List of grading assignments/components and values toward final grades are shown below. For exams and projects, different grading scales will be used for undergraduate and graduate students. Graduate students will have additional activities in the project assignments that have higher weightage. Homework assignments and their due dates will be announced in class and/or made available via Blackboard. Similarly, the due dates for Quiz, Exam, and Project will be announced in class / Blackboard.

<u>Grading Assignments/Components</u>	<u>Undergraduate</u>	<u>Graduate</u>
Class Performance (random check)	3%	3%
Homework (five of six, take home)	15%	15%
Quiz (two of three, 30-minute, class-time)	10%	10%
Exam-1 (~ Week 5, 65-minute, class-time)	16%	14%
Exam-2 (~ Week 10, 65-minute, class-time)	18%	16%
Exam-3 (cumulative, 65-minute, class-time)	20%	18%
Project (Proposal, Presentation, and Report)	18% (2+8+8)	24% (4+10+10)

On time submission is highly encouraged. Exceptions (to on time submission) include documented emergency situations and/or prior consents. For homework assignments, late submissions will not be accepted after five days from the original due date/time. Up to 50% points may be subtracted for each late submission.

No late submission for quiz, exam, and project reports.

Makeup for missed (quiz and exam) tests will be given only when there is a genuine reason, with clear proof. It is students' responsibility to provide the proof; if the reason for missing a test is illness, a doctor's note will be required. Students

Week	Note	Important topics/readings, assignments, due dates, and reminders are listed here so that you can organize your time and academic work.
1 01/17		ECE 694: High Performance Computer Systems; Syllabus; K-probe; Project: Components, Grading ; HW-1 discussion;
2 01/24	HW-1	Introduction and Motivation (includes Chap. 1 of textbook) HW-1 (due Thu); Project: Groups, Topics, Proposal Week-6 ;
3 01/31	HW-2	High Performance Computer (HPC) Systems; HW-2 (due Thu); Quiz-1 discussion;
4 02/07	Quiz-1	HPC Parallelism: ILP, PLP, TLP, SMT; Quiz-1 (Thu, 30-min, 30-pts, closed book); Exam-1 discussion;
5 02/14	Exam-1	Parallel Architectures: SMT Capable Multicore with GPU Exam-1 (65 minutes, 65 points, closed book);
6 02/21	Update	Project: Technical reading, writing, and presentation ; Project: Teamwork, Propos Td5.9 (t)2.1 (i)5.9 (ng)10 (,)2 (and pr)7 (es)11c 0.0

Week	Note	Important topics/readings, assignments, due dates, and reminders are listed here so that you can organize your time and academic work.
03/21		Quiz-2 (Thu, 30-min, 30-pts, closed book); Exam-2 discussion;
11 03/28	Exam-2	Instruction-Level Parallelism (includes Chap. 3 of textbook) Exam-2 (Thu, 65 minutes, 65 points, closed book);
12 04/04	Update	Data-Level Parallelism (includes Chap. 4 of textbook) Team-Project: Presentation, Report;
13 04/11	HW-5	Thread-Level Parallelism (includes Chap. 5 of textbook) HW-5 (due Thu); Shared-Memory Arch, Multicore Processors;
14 04/18	HW-6 Quiz-3	Team-Project: Presentation, Report; Selected Topics; HW-6 (due Thu) & Quiz-3 (Thu, 30-min, 30-pts, closed book);
15 04/25	Project	Project Presentation: One per group, Teamwork, PPT slides; Project Report: One per group via Blackboard on Study day;
16 05/02	Exam-3	Selected Topics (e.g., Td(nc)4 (u(es)1ed[pt)12 (6[04/ p)9.7 (aTd(mw)7 (e.7 (c