

Assignment 0 - Getting Started

CS 234

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1 Some Questions

1. **What do you hope to get out of this course?**

I hope to gain knowledge in mathematics that is fundamental to computer science so I can better understand when I read academic papers related to computer science.

2. **What might worry you about this course?**

The last time I took a college mathematics course was in Fall 2023 when I took Calculus II, so it has been a while since I actually dealt with mathematics. Also, I was mostly taught in Korean for high school and college mathematics so I am worried that I might have a tough time dealing with mathematical terminologies and expressions in English.

3. **What do you think the relationship is between math and machines, if any?**

The foundation of machines is that they are based on logic and run by logic, and I think that mathematics has the power to structure and describe this logic.

4. **Is there anything else you would like me to know?**

I have heard from a lot of students who took this course in the past that it will be one of the toughest courses for CS majors, but I am really looking forward to learning and strengthening my basis in discrete mathematics for a deeper understanding of computer science!

2 The Syllabus

1. **When are the professor's office hours?**

Monday 11am - 12:30pm, Wednesday 1:30pm - 2:30pm, Thursday 9:30am - 11am.

2. **When are prep works due?**

Every week on Monday before class. There is no prep work during spring break and the last day of class.

3. **How many assignments are dropped?**
There will be a total of 11 assignments, from Assignment 0 to Assignment 10.
4. **How late can prep work be turned in past due and still receive any points?**
Prep work will not be accepted late except due to unplanned absences.
5. **How late can an assignment be turned in past due and still receive any points?**
Late assignments will only be accepted up to two days late, but will be penalized.
6. **If you work on an assignment with a friend, what must you do?**
I must follow the Attribution Policy and the Whiteboard Policy. During the collaboration, we must work out answers together on a whiteboard (or similar) but not yet formally write up your submissions. Then fully erase that whiteboard and go off to write our solutions alone, with no recorded notes of the whiteboard contents. For the submission of the assignment, I must include some short citation text with my assignment that lists who/what I worked with, what parts of the assignment each person/resource helped with, and a sentence for each person/resource describing the nature of the collaboration.
7. **What penalty may be sought for academic integrity violations?**
If a violation is found to have occurred, a grade lower than 0%, usually negative fifty percent (-50%) will be assigned. This grade may be applied to the entire assessment, regardless of how little was confirmed to be in violation of academic integrity, and this grade cannot be dropped by any drop policies for this course.
8. **How will attendance be taken?**
On 20 random days, once or twice a week, the attendance will be taken by filling out an electronic survey in class on some question relevant to the course.
9. **What are the requirements for a "cheat sheet" that you can bring to an exam?**
A "cheat sheet" must be handwritten or digitized handwritten by myself and fit onto a single side of a standard 8.5x11 inch or A4 piece of paper. The other side of the paper must be blank. The cheat sheet must have my name clearly legible.
10. **Do you have any planned absences on the midterm exam days listed in the syllabus? (You can also let me know later as well. This question is just to get the information early if possible.)**
No. Currently, I don't have any planned absences on the midterm exam days listed in the syllabus.

3 Software Disasters

1. **What was the cost of the software problem? For example: How much money was lost? How many people died?**

On July 19, 2024, CrowdStrike's Falcon sensor program crash caused Fortune 500 companies to lose as much as \$5.4 billion in revenues and profit. The healthcare and banking sectors were the most impacted businesses, with estimated losses of \$1.94 billion and \$1.15 billion, respectively.

2. **What was the nature of the software problem? For example: Was there an identifiable bug? Was the software being used outside of its specifications?**

The cause of this incident initially happened because of the component of CrowdStrike's cloud-based testing system that runs validation checks on new updates before the release. The specific component in the system eventually published the new update despite it containing problematic content data, which was a logic flaw in Falcon sensor version 7.11 and above.

3. **Is it known why the problem was not caught? For example: Was the software tested or verified? Were users properly informed about how to use the software and of any known issues?**

CrowdStrike's own post-incident investigation identified the reason why this issue was not caught: their cloud-based testing system only ran default scenarios with no exceptional or error conditions for unit tests, and compatibility with the outdated data format was not conducted. Additionally, the manual tests only tested valid data.

References

<https://sps.columbia.edu/news/crowdstrike-crisis-anatomy-digital-catastrophe>

<https://www.cnn.com/2024/07/24/tech/crowdstrike-outage-cost-cause/index.html>

<https://www.techtarget.com/whatis/feature/Explaining-the-largest-IT-outage-in-history-and-w>

https://en.wikipedia.org/wiki/2024_CrowdStrike-related_IT_outages