Course Thanks & Future Courses

CSE 333 Summer 2020

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Poll Everywhere

pollev.com/cse33320su

About how long did you spend on this course per week on average?

A. 0-5 Hours
B. 5-10 Hours
C. 10-15 Hours
D. 15-20 Hours
E. 20-25 Hours
F. 25+ Hours
G. I prefer not to say

Administrivia

- hw4 due Yesterday (8/20)
  - Submissions accepted until Sunday (8/23)
  - If you want to use late day(s), you **MUST** let staff know. Make a private post on ed or send an email to staff letting us know you want to use late day(s).
- HW3 Grades pushed to student repos
- Please check canvas grades and contact staff if something seems incorrect!!!

- Course evaluations due TONIGHT
  - Please fill these out! **<3**
- Please nominate great TAs for the Bandes award!
  - Both for CSE 333 and for other courses

Lecture Outline

- **Future Courses: Courses with CSE 333 as a Pre-req**
  - **"Systems Courses"**
  - Courses in C/C++
- Future Courses: Otherwise related courses

I recommend all these courses,
but I'll highlight the ones that
I especially recommend ☺

CSE 451 – Operating Systems

- Pre-reqs: CSE 332 & CSE 333
- The "Obvious" follow-up to CSE 333
- Learn all about the details that go into running the OS!
- Learn to manage resources (memory, processes, etc.)
  - Must do this while being efficient, portable, "fair", etc.
  - Handles concurrency between users/processes
- A lot of C programming ☺
  - Projects come with a LOT of code to build on top of
  - A lot goes into designing what you will do

- Often considered a "Must-take"
  - I highly recommend the course ☺

CSE 452 – Distributed Systems

- Pre-reqs: CSE 332 & 333; recommended: CSE 451
- How to make a set of computers work
  - Reliably, efficiently, to scale, with high availability
  - Fundamentally must deal with concurrency between nodes
- Things can go wrong:
  - Some computers can be malicious / crash / be un-reachable
  - Messages may be lost or take time to transmit
- Deals with some theory
  - How does computer A know that computer B knows that A knows that B knows that…
- "Probably the most thought per line of code for any course at UW"
  – Hal Perkins
- Very interesting, highly recommended ☺
  - Apparently helps stand out for recruiting?
- Course is in Java >:[

CSE 461 - Networks

- Pre-reqs: CSE 332 & CSE 333
- Remember how I showed you the 7 layer OSI model in 1 lecture?
  - CSE 461 goes through this entire model (& more) over 10 weeks
  - 1 lecture is not enough to deeply understand networks
- You learn about all the design decisions that goes into making a network that transmits data:
  - Reliably, to massive scale, securely and "Fairly"
- Networks are involved in almost everything now-a-days
  - Probably useful for you to know
- Another course I recommend ☺
- Course is in python + whatever language(s) you like!

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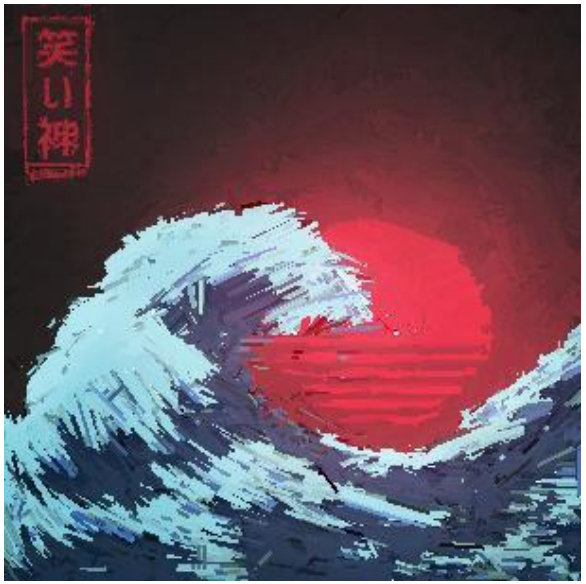
CSE 455 – Computer Vision

- Pre-reqs:CSE332 & 333; recommended:Math308 STAT391
- Not a "systems" course
- Requires 333 since it is mostly in C (with a little python)
  - C is really really really fast
- Deals with:
  - Colors
  - image representation,
  - object recognition
  - (and some ML applied to computer vision)
- "Awesome" – Tarkan

CSE 457 – Computer Graphics

- Pre-reqs: CSE 332 & 333; recommends:CSE312 & Math308
- Cool, but a hard course
  - You make some really cool things ->
- Includes:
  - Lots of C/C++ coding
    - If you want to do graphics, it is almost always C++
  - some (simplified) linear algebra
  - A little light physics



- Skeleton code provided is not the best documented, and is a little “spaghetti”
  - But it is still really cool ☺

Lecture Outline

- Future Courses: Courses with CSE 333 as a Pre-req
- **Future Courses: Otherwise related courses**
  - **Low-level/Hardware Courses**
  - Other

ECE/CSE 474 Intro to Embedded Systems

- Pre-reqs: CSE 143 // I am still amazed by this >:[
- Course is entirely in C (May have to do a little circuitry)

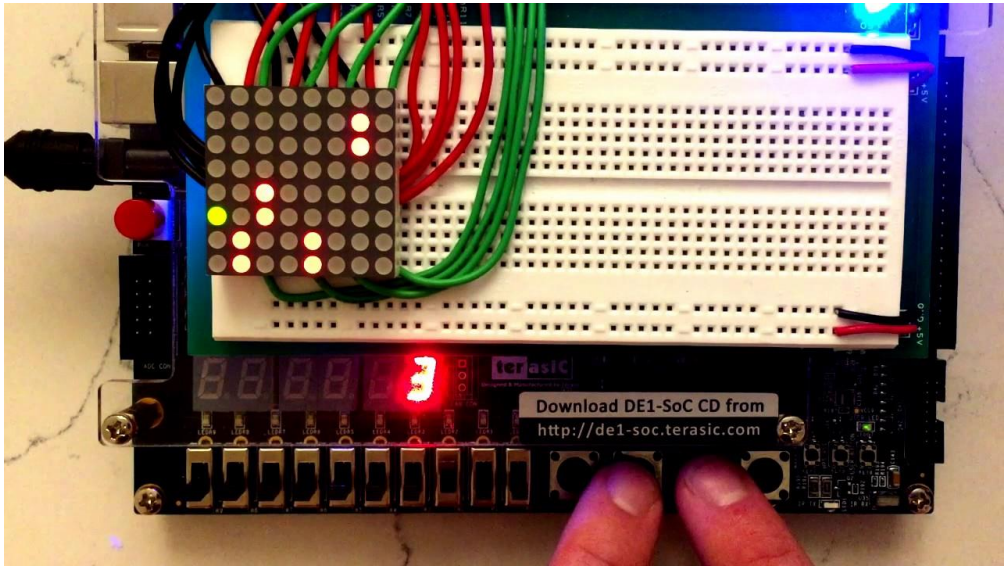
- You learn how to interact with a computer with limited ram, and other resources
- Learn How this computer acts different due to "Real Time" requirements.

- Can be a lot of work

CSE 369 / ECE 271 Digital Design

- Pre-req: CSE 311
- Learn some of how computers work
  - Internal Clocks inside computers, pipelines, etc
- Learn about bytes & bit manipulations
- Deals with some Boolean algebra
- "Hardware applications of some of 311"

- It is all in Verilog!
  - No circuit building involved
- Frogger --->



ECE/CSE 371 Adv. Digital Design

- If you liked Verilog from previous course (271/369)
- Pretty much, you do more Verilog and a little C

ECE/CSE 469 & 470 Computer Architecture

- Pre-reqs: CSE 143 and ECE 271 / CSE 369
- If you want to know even lower level details into what makes your computer work.
- Goes into some processor design, instruction set details, pipelining etc. (Cool stuff)
- Varies from professor to professor
- Likely involves some: Assembly, Verilog & C programming

Lecture Outline

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  - Low-level/Hardware Courses
  - **Other**

CSE 444

- Pre-reqs: CSE 332 & 344 Recommended: CSE 331
- How to build a data base management system
  - How to design to handle (big) data reliably & efficiently
  - How to parallelize the data base
- Heavy Java programming
- Not directly related to CSE 333, but is another "systems course"

CSE 401

- Pre-reqs: CSE 332 & 351 Recommended: CSE 331
- "Awesome" – Travis
- Learn about what goes into making the compiler work!
- Project that has you:
  - Scan a java program into tokens
  - Parse the tokens into a "program tree"
  - Generate symbol table
  - Check semantics
  - Outputs runnable assembly
    - Not as hard as it seems

```
1         .data
2 DisplayOverloading2$$$$:        .quad 0
3         .quad DisplayOverloading2$disp$
4         .quad DisplayOverloading2$disp$
5
6 Overloading$$$$:        .quad 0
7         .quad Overloading$run$0$$$
8
9 DisplayOverloading3$$$$:        .quad D
10        .quad DisplayOverloading2$disp$
11        .quad DisplayOverloading2$disp$
12        .quad DisplayOverloading3$disp$
13        .quad DisplayOverloading3$disp$
14
15        .text
16 DisplayOverloading2$disp$0$$:
17        pushq   %rbp
```

- Course is super cool, incorporates aspects of CSE 331, CSE 311, and CSE 351
- In Java, but still a great course!

CSE 332

- Pre-req: CSE 311
- If you like concurrency, then you'll like the last part of this class!
- The rest of it is also very useful!
  - Especially for interviews
- Required to take it anyways
- Cool course ☺
- In java ☹

CSE 484

- Pre-reqs: CSE 332 & 351
- Cool course, but not just systems
- You learn about security generally
- This includes understanding some system security flaws (in C/C++, buffer overflow attacks).
- First lab in the course is in C
- Considered light workload, but still cool ☺

CSE 331

- Pre-req: CSE 143
- In this class we discussed some good coding practices CSE 331 is dedicated to good practices, design, modularity, and more!
- A lot of the "core" knowledge for being a good software developer
- Is in java, but some of the design practices apply to C++
- Has an inheritance topic: really easy if you understood inheritance in this course.

- Would recommend ☺

CSE 154 / INFO 340 / CSE 442

- In case building a website like 333gle is cool/interesting for you, and you want more…

- CSE 154 – Web Programming
  - JavaScript, HTML, CSS, (Python maybe?)
  - More hands on and helpful like 142
  - Not as harsh as 14x
- CSE 442
  - JavaScript, D3, Tableau
  - More focused on learning to make data viz
- INFO 340
  - I've been told it is good by other CS majors

TA-ing

- You are all well enough equipped to TA CSE333, CSE351, CSE374 and others.
- You do NOT have to 4.0 a class to TA it (I didn't 4.0 this class)
- You do NOT have to be a super social person
- TA-ing will reinforce your understanding of any material
- If you think you would be interested, I would highly recommend reaching out and giving it a try.

- If interested, but scared
  - We have TA training for this
  - Feel free to talk to me or another Professor/Instructor/TA about it. We are happy to chat :)

Thanks for a great quarter!

- Special thanks to the course content creators!!!


Steve Gribble


Hal Perkins


John Zahorjan


Justin Hsia


Hannah Tang

- Huge thanks to your awesome TAs!


Allen


Kyrie


Ramya


Ian


Jeter


Sylvia

And thanks to…

You

It has been a tough quarter – there has been an ongoing pandemic, remote classes, and other events, which have affected all of us.

You should be proud of your resilience and what you've done. Please take care of yourself, stay active, help yourself, your friends, your community.

There are a lot of problems that need work, and we all need to be part of the solution.

Ask Me Anything

Congratulations and best wishes!

You've learned a *lot* – go out and build great things!

Come by and say hello in the future – I'd love to know what you've been up to after CSE 333!

Time to take a break!
take care of yourself!