Week 1: Introductions

csci_128

Joke of the Day:

Which way did the computer scientist go?

Week 1: Introductions

csci_128

Joke of the Day:

Which way did the computer scientist go?

A: Data way!

Who am I?

James Shima

B.S. Computer Engineering Mines (`23)

M.S. CS Mines (Graduate This Semester)

Cyber Engineer @ ICR

“I **first learned how to code** in this class!!!

(maybe you’ll teach this class one day too!)”

“If you work hard in this class

you can do great things and solve many problems!”

Breaking Bad
cosplay

My dog
Thompson

Course TAs

- Here Everyday in class, YAY!

- Can answer your questions **at any point** during class
- (**Just raise your hand** **Although I may call on you)

EVEN DURING MY LECTURE!

They will grade your work so be nice to them!

What is CSCI128 and why?

Computer Science for STEM

Majors that use CS in there Career Field:
All of them!

Especially you:

CS, EE, ME, Geo, Physics, Petro, Mining, ChemE, Econ …

Did I miss any?

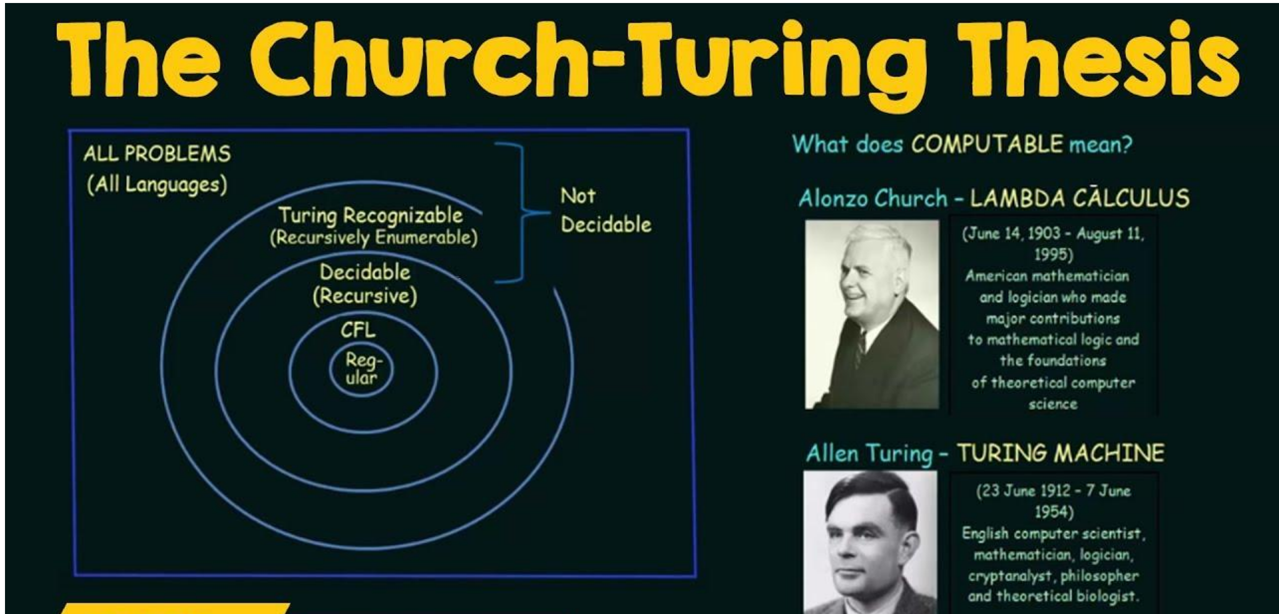
What is CSCI128 and why?

Computer Science - Study of Computation

What is Computation?

“Any type of arithmetic or non-arithmetic calculation that is well-defined.”

- Math calculations
- Solving equations
- Solving **any** problem (*Almost)
    - The Halting Problem!



The Church-Turing Thesis

What does COMPUTABLE mean?

Alonzo Church - LAMBDA CALCULUS

(June 14, 1903 - August 11, 1995)
American mathematician and logician who made major contributions to mathematical logic and the foundations of theoretical computer science

Allen Turing - TURING MACHINE

(23 June 1912 - 7 June 1954)
English computer scientist, mathematician, logician, cryptanalyst, philosopher and theoretical biologist.

What is CSCI128 and why?

Computer Science - Study of Computation

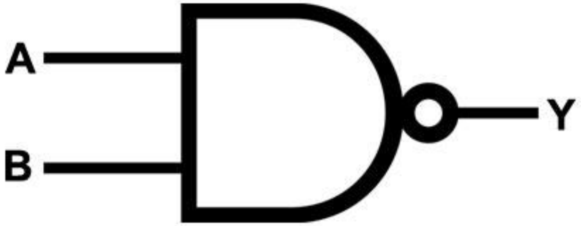
What's a computer?

- A machine that **computes!**
- **Doesn't have to be digital**

All you need is to make a switch:

- Redstone (Minecraft)
- Water
- Electricity

to make this →



Take CSCI 410 if you want to make your own Computer!

Computer made out of tinker toys

What is CSCI128 and why?

Computer Science - Study of Computation

What’s a Language?

- Set of instructions for a computer **to compute! (1+1 = 2)**

- 0101010111010101 **is an instruction (but that’s hard to read!)**

- Use a **Translator** that takes **English** → **01001101010101**

- We will use a translator for our class called **Python**
  - **Actually it's called a “Interpreter” as it translates for a separate translator and not directly to binary. Other languages use a “Compiler” = English → Binary**

What will we do?

Write instructions for our computer in **Python** to solve problems!

They are called **Programs!**

- Learn **computational thinking! It's tricky!**

Frame our programs in context

- Assignments are programming problems from all majors

Problem solving skills

Fun fact: Python was named after Monty Python

Sure, but **what will we *really* learn?**

Course content is grouped into 14 weeks:

Python:

- 1: Programming Basics
- 2: Types
- 3: Branching
- 4: Logic
- 5: While Loops
- 6: For Loops
- 7: Functions
- 8: Complex Logic
- 9: Review (for midterm)
- 10: File I/O
- 11: Data Science
- 12: Recursion
- 13: Classes and Objects
- 14: Dictionaries and Comprehensions

128 Assignments

- Readings
- In-class Worksheets
- In-class Quizzes
- Studio problems
- Programming Assessments (homework)
- Code reviews
- Exams
- Final Project
    - Looks like a lot but very manageable with good time commitment!
    - Most things can be done in-class so take advantage of the work time! And Us!

    *3-8 hrs per week of work

Typical 128 Schedule

- **Monday**: Reading Day
  - Readings due the night before
  - Lecture and in-class worksheets
- **Wednesday**: Writing Day
  - In-class quiz
  - Supplemental lecture
  - Studio and assessment discussed
- **Friday**: Assessment Day
  - Class discussion
  - In-class help
  - Code reviews
- Studios and assessment due after the weekend

A "Flipped" Class

A flipped class is one where you read and watch lecture at home, and do the homework in class.

Why do this?

This class is partly flipped

- Most course material introduced through the **textbook**
- Lecture is for review and active work

A "Flipped" Class

This only works if we agree to it

You need to prepare before class so we can get to practice sooner

You need to figure out the best way you learn new material

- **The readings are required**
- The video lectures are optional
- The whole rest of the internet is open to you

Grades

- Readings **5%**
- Class Participation **10%**
- Studio Problems **10%**
- Assessments **25%**
- Exams **40%**
- Final Project **10%**

Read the syllabus for more info!

Course Textbook

- We're using **Runestone** for our textbook - **it's completely free!**
- *If you use the **readings links on Canvas***, progress through the readings is tracked automatically
    - **Be sure you are using the link each time you do a new reading!**
- See the first reading assignment on Canvas for a link to the textbook.

Course Website Demo

https://jamesshima.com/csci128.html

^
Course Website to make life easier
Made by me so feel free to tell me any issues

Bookmark it if you're cool!

This class assumes you have a computer!

Bring a laptop or tablet to class each day

- Every class will have some participation component

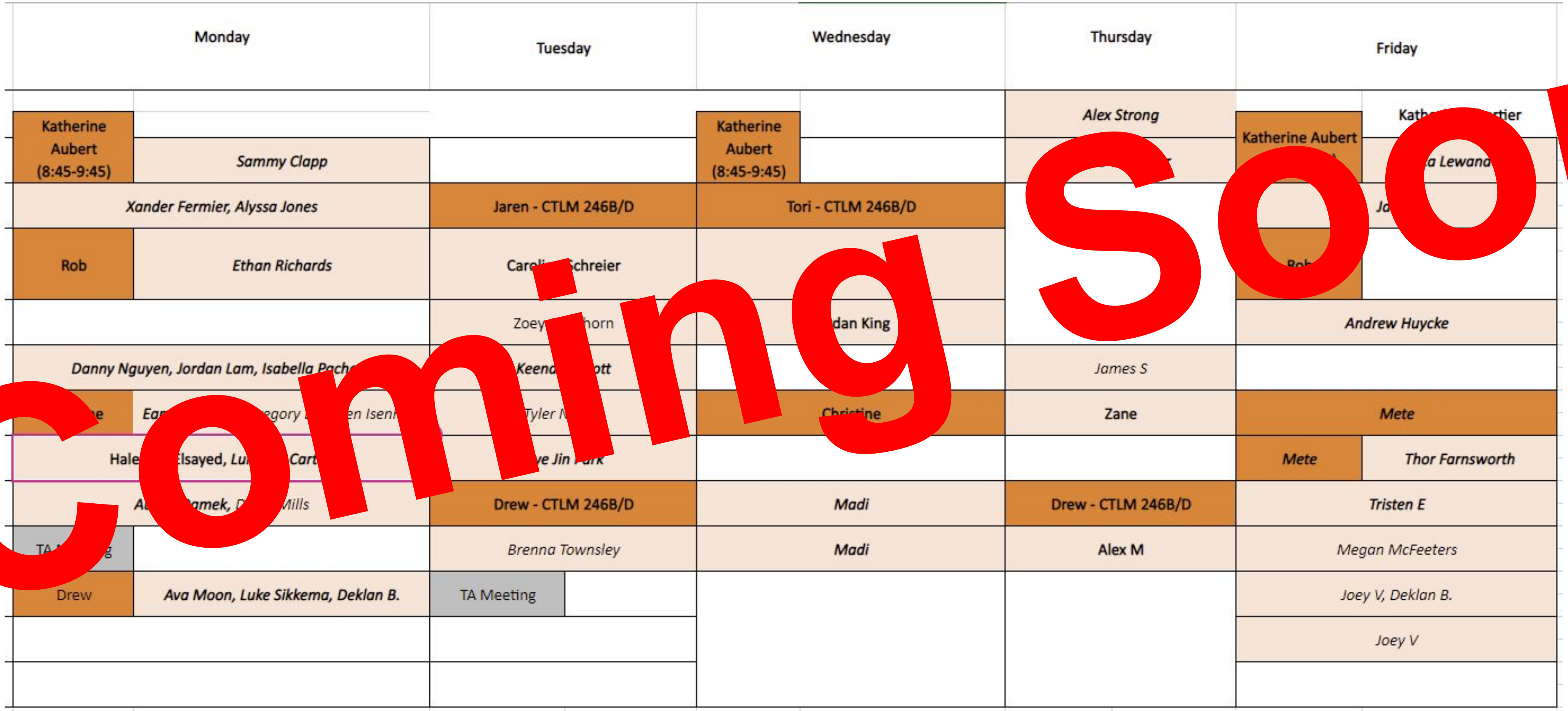
If you cannot supply your own computer

- Some sections are held in computer labs
- Laptops can be lent from the CS front desk
- Talk to me

How to succeed in 128?

- Do the readings (& optionally watch the videos) *before* class
- Participate in class activities
- Complete studios (do extra ones if you want)
- Get to know your mentors/TAs + instructor
- Ask questions on Ed Discussion
- Attend office hours
- Stay up-to-date with assignments

Office Hours Schedule



Monday		Tuesday		Wednesday		Thursday	Friday	
Katherine Aubert (8:45-9:45)				Katherine Aubert (8:45-9:45)		Alex Strong	Katherine Aubert	Kath rtier
	Sammy Clapp					r		a Lewand
Xander Fermier, Alyssa Jones		Jaren - CTLM 246B/D		Tori - CTLM 246B/D				Ja
Rob	Ethan Richards	Caroli Schreier					Rob	
		Zoey horn		dan King			Andrew Huycke	
Danny Nguyen, Jordan Lam, Isabella Pach		Keena ott				James S		
e	Ea egory en Isen	Tyler N		Christine		Zane	Mete	
Hale Elsayed, Lu Cart		e Jin Park					Mete	Thor Farnsworth
A amek, D Mills		Drew - CTLM 246B/D		Madi		Drew - CTLM 246B/D	Tristen E	
TA g		Brenna Townsley		Madi		Alex M	Megan McFeeters	
Drew	Ava Moon, Luke Sikkema, Deklan B.	TA Meeting					Joey V, Deklan B.	
							Joey V	

Coming Soon

How to succeed in programming?

Have a **GROWTH MINDSET**! Not a "computer person"? Nobody starts that way – you can learn! :)

Persevere! Everyone gets stuck. You aren't defined by getting something wrong, but by what happens after that. Reflect, use your resources, and ask for help.

Take time to understand things; all of programming builds on the foundations and "spirals" back to earlier concepts.

Your first assignment: read the syllabus

There is a “Syllabus Quiz” **due by the end of this week** that can be taken any time on Canvas

Course Setup

- Extensive written and video guides on Canvas for how to get your tech set up in this class
- We will spend more time on this on Wednesday
- But you can start right now if you want!
  - Course staff will be here to assist you

TODO for **Wednesday**

- **Read** through Canvas & the syllabus
- **Sign into** Ed discussion
- **Sign into** Runestone and view the textbook

If you want to get ahead:

- **Read** Chapters 1 and 2 in Runestone (~60 minutes)
  - Write down questions you have, bring them to the next class

These slides future resources posted on my website

FIN.