

CS 5001: Zoom etiquette

- **MUTE your mic** when you are not speaking
- Please turn your **video on**, if you can
- To ask a question, use Zoom's “**raise hand**” feature (find it in the participants window)
 - Lower your hand after you have asked your question

Introduction to CS 5001

Abi Evans

Northeastern University, Fall 2020

Today

- Welcome & introductions
- Course overview
- Intro to CS
- Lab: environment setup

Course staff

Instructor

- Abi Evans
ab.evans@northeastern.edu

Lab Instructor

- Drew Jelani
a.dickens@northeastern.edu

TAs

- Linni Cai
cai.linn@northeastern.edu
- Dan English
english.dan@northeastern.edu
- Sean Hellman
hellman.s@husky.neu.edu
- Kristen Hyman
hyman.k@northeastern.edu
- Avery Zheng
zheng.huit@northeastern.edu

Introduce yourselves

On Piazza, Introductions thread

- Your name
- Your background
- What brought you to the ALIGN program/CS

Course overview

Where to find stuff

Canvas

<https://northeastern.instructure.com/>

Most things: Syllabus, schedule, slides, links to lab and homework assignments, extra videos, additional resources

Piazza

piazza.com/northeastern/fall2020/cs5001seattleeveningsection

Course announcements, discussion, office hours schedule—get help from classmates and course staff

Where to find stuff

codePost <https://codepost.io/>

Assignment submission

GitHub organization

<https://github.ccs.neu.edu/cs5001-f20-sea-pm>

Your repos, sample code, lab/homework sample solutions

Course structure

Lecture (with Abi): Tuesdays, 6-9pm

- New stuff!
- Small practice problems/exercises
- Homework assigned – apply lecture content, due at start of next lecture

Lab (with Drew): Wednesdays, 6:30-9:30pm

- Reinforcement of lecture topics
- Larger programming exercises
- Q&A

Course materials

▼ Week of 9/14: Variables, data types, arithmetic operations, basic input

Lecture (Tues)



Watch before class: Align Online module 2



Related reading - lecture 1

Lab (Wed)



Lab 1

Sep 18 | 2 pts





Assigned



HW1

Sep 22 | 100 pts





Course materials

▼ Week of 9/14: Variables, data types, arithmetic operations, basic input	
Lecture (Tues)	
 Watch before class: Align Online module 2	<h2>Pre-recorded</h2> <ul style="list-style-type: none">• Not required• "Check your understanding"• Videos don't count towards your grade
 Related reading - lecture 1	
Lab (Wed)	
 Lab 1 Sep 18 2 pts	
Assigned	
 HW1 Sep 22 100 pts	

Pre-recorded video lectures

- Not required, highly recommended
- "Check your understanding" quizzes
- Videos don't work in Firefox





Course materials

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Lab (Wed)	
	Lab 1 Sep 18 2 pts
Assigned	
	HW1 Sep 22 100 pts

Textbook reading





- Not required, highly recommended
- Two choices:
 - ZyBooks (paid)
 - Free online book
- (pick one, you won't need both)

Course materials





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My slides will be posted here

Course materials

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	Related reading - lecture 1
Lab (Wed)	
<div> Lab 1 Sep 18 2 pts</div>	<h1>Lab assignment</h1> <ul style="list-style-type: none">Typically posted close to the
Assigned	
 HW1 Sep 22 100 pts	

Course materials

▼ Week of 9/14: Variables, data types, arithmetic operations, basic input	
Lecture (Tues)	
	Watch before class: Align Online module 2
	Related reading - lecture 1
Lab (Wed)	
	Lab 1 Sep 18 2 pts
Assigned	Homework assignment
	HW1 Sep 22 100 pts

- Typically posted close to the start of class
- Due at the start of next class

Grading

- Homework assignments: 30%
- Final project: 15%
- Labs: 5%
- Quizzes: 20%
- Exams: 25%
- Professional skills: 5%

Planning your time

- Expect ~20 hours per week
- Homework assignments most weeks
 - 1 week to complete
 - Typically a lecture and a lab on the homework topic
- Quiz or exam every few weeks
 - Online
 - Quizzes: ~30 mins, covers material introduced since last exam, followed by lecture
 - Exams:
 - Midterm – covers first half of course
 - Final – cumulative

What to do if you're stuck

This course moves fast! Don't hesitate to reach out.

- Ask questions in class
- Post on Piazza
 - Please don't post your source code in a public message
- Visit office hours

Policies & general expectations

Code of Conduct

- Treat everyone with respect.

per day

Academic Integrity

- No plagiarism or copying allowed.

Attendance Policy

- Live attendance encouraged
- Watch lecture recording if you miss class

Late Policy

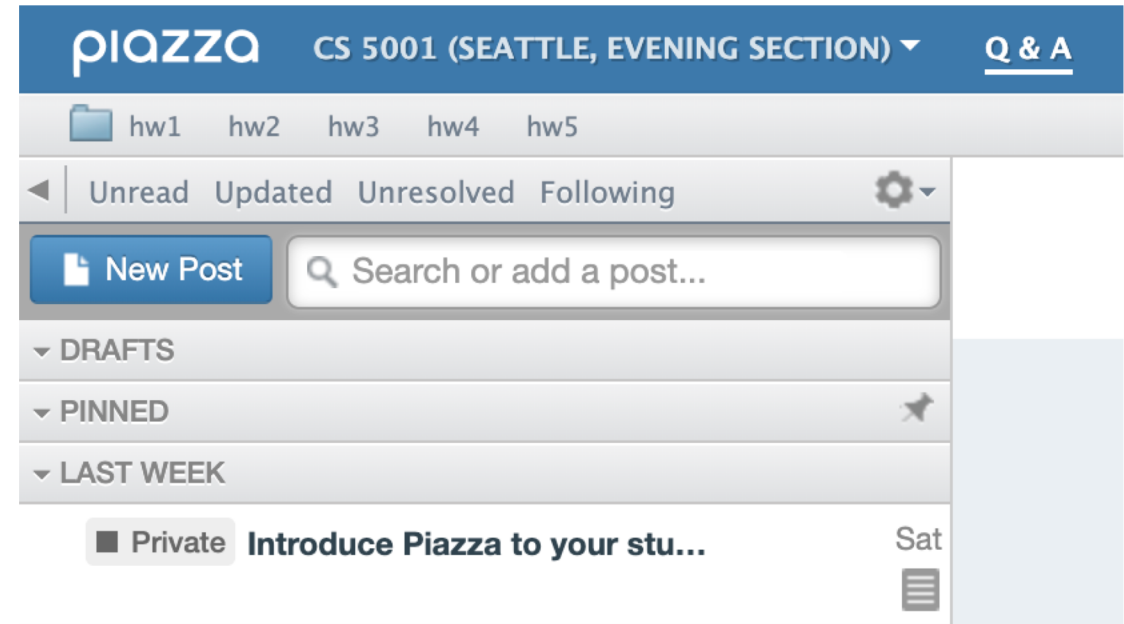
- 4 late days for assignments...
- then late assignments docked 2pts

Special Circumstances

- Let me know right away.

Piazza good practice

- Check Piazza every day
- Choose your notification settings
- Read others' posts before posting a new question
- Make use of the topic folders
- Anonymous posts—you're only anonymous to other students, instructors can see your name



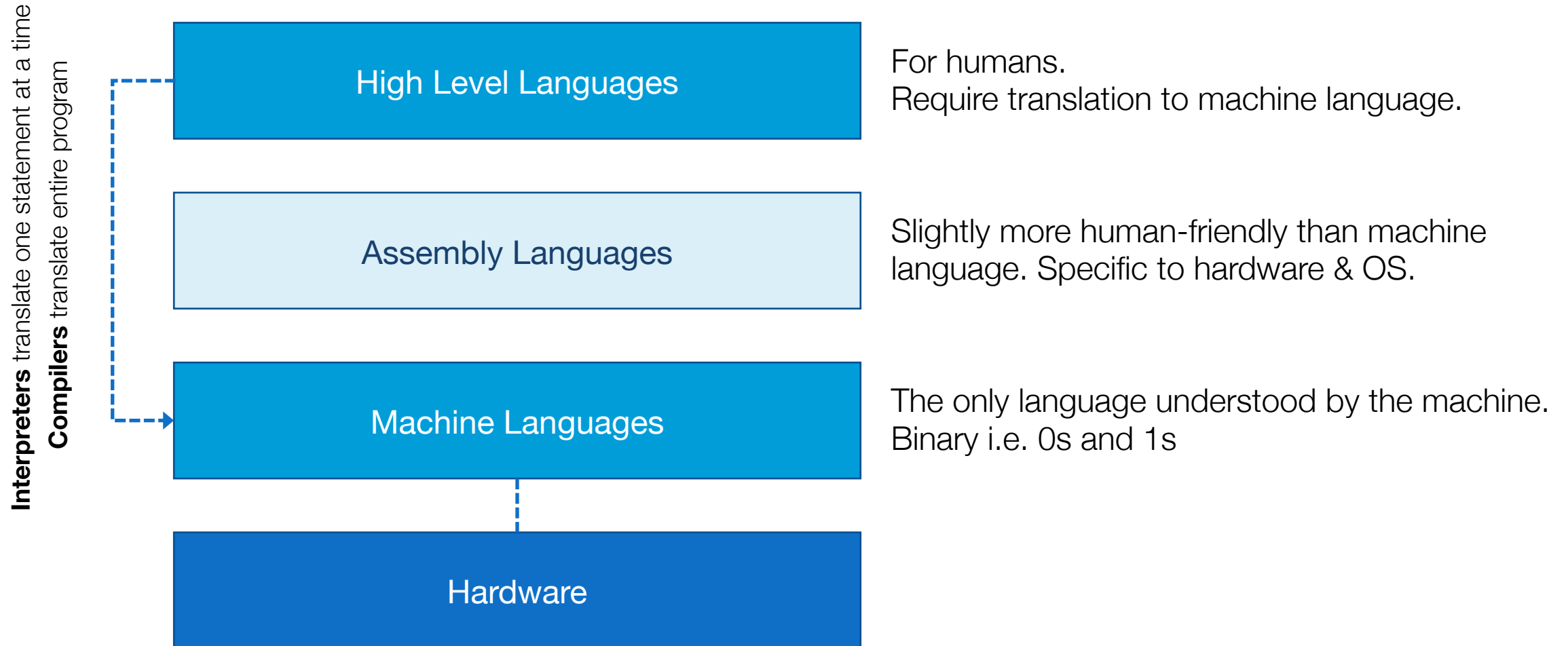
Intro to CS

What is Computer Science?

“the study of computers and algorithmic processes, including their principles, their hardware and software designs, their [implementation], and their impact on society”

Tucker, A. (2003). *A Model Curriculum for K-12 Computer Science*. ACM.

Programming languages



Python

- A high level programming language
 - Others include Java, C++, C# etc.
- Popular for beginners but also widely used in industry:
 - Used for data science, machine learning & more
- The language we'll use to learn and practice CS fundamentals

Foundational CS topics in this course

- Input/output
- Variables and expressions
- Collective data structures
- Decision-making statements
- Repetition & loops
- User-defined functions
- Object-oriented programming
- Abstract data types

We'll cover these topics in Python but they apply to other languages too!

Syntax example: Python vs. Java

Python

```
# Prints "Hello, World!" to the terminal  
print("Hello, World!")
```

Java

```
public class HelloWorld {  
    public static void main(String[] args) {  
        // Prints "Hello, World!" to the terminal  
        System.out.println("Hello, World!");  
    }  
}
```

Humans are smart

"It deosn't mttar in waht oredr the ltters in a wrod are, the olny iprmoetnt tihng is taht the frist and lsat ltter be at the rghit pclae. The rset can be a toatl mses and you can sitll raed it wouthit porbelm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe."

- Source: the Internet. (Note: the above paragraph is not entirely true).

Computers are dumb

Don't be put off by errors! They happen to everyone, even experts.

- 1) `print ("Hello, World!")`
- 2) `pirnt ("Hello, World!")`
- 3) `Print ("Hello, World!")`
- 4) `print ("Hello, World!")`
- 5) `print ("Hello, World!"`
- 6) `print ("Hello, World!')`

Programming is a skill



Practice, practice, practice!

- Writing code is far more useful than reading about it, memorizing it, or listening to someone talk about it

Everyone has days like this, even experts

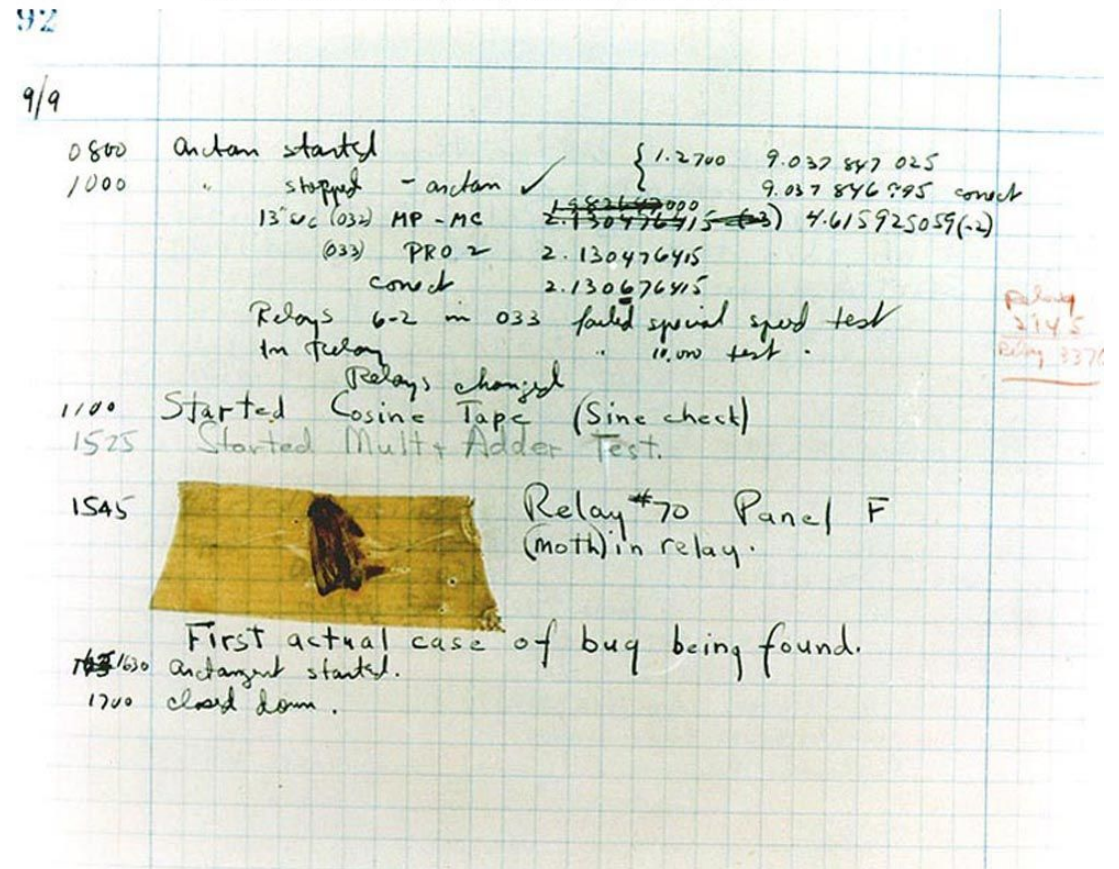
Debugging is a skill

“Bug” = an error in a computer program

“Debugging” = the process of identifying and fixing bugs

The first computer bug reported by Grace Hopper in 1947

Photo # NH 96566-KN (Color) First Computer “Bug”, 1947



Tips for success in computer science

- Adopt a “growth” mindset
 - Remember that skills can be mastered through practice
 - Mistakes/failures are usually good for learning
 - Seek help when you need it—we’re here for you and we want you to succeed!
- Expect bugs now and forever...
 - Start assignments early
- Look after yourself
 - Mental & physical health
 - Make time for people/things that are important to you

Lab 0: Environment setup