Welcome to CS 42!
Why?
CS 42: Principles & Practice of Computer Science
CS 42: Principles (Practice) of Computer Science
The Principles in CS 42

1. **Theory of computation • Machines** (~4 weeks)
   What is a computer?

2. **Functional programming** (~4 weeks)
   Behavior = Data

3. **Problem-solving techniques** (~4 weeks)
   What is Computer Science?
   Behavior & Data

4. **Object-oriented programming** (~3 weeks)
   How do we structure a program so that it can grow and change?
   Behavior + Data

5. **Logical programming** (~1 week)
   How does language influence thought?
   Behavior as data
Prior experience: programming languages

Assembly
Racket
Python
Java
Prolog

soon
later
I often participate in class.

I tend to dominate group discussions.

I often take notes.

I work better by myself.
I know that I don’t know.

Hands-on ; All Together ; All-in
Honor Code: prepare to discuss

1. Suggest at least two good practices

2. Identify at least two warning signs

3. Ask at least two “unknowns”
   Conundrums / gray areas
   Questions / confusions
Soundbite syllabus

or is it “soundbyte”?

- One-stop shop: [www.cs.hmc.edu/cs42](http://www.cs.hmc.edu/cs42)
schedule, assignments, tutoring hours, syllabus, etc.

- All course communication happens in-person or on Piazza

- You can work in pairs on assignments
  unless we say otherwise

- Come to class and participate fully

- There’s lots of support. We’re here for you!

your friendly CS 42 grutors
Schedule

• A typical week
  Class on Tuesday and Thursday
  Assignment due Tuesday at 11:59pm
  New assignment available no later than Wednesday evening
  Tutoring hours every day in the LAC
  Office hours TBD (I’ll let you know this Thursday)

• Exams
  Take-home midterm 1: September 25–October 2
  Take-home midterm 2: October 23–October 30
  In-class final: Tuesday, December 13 from 2–5pm
Important places

- Olin (Ben)
- Sprague (CIS)
- SHAN
- Platt (F&M)
- LAC

Physical access: F&M
Electronic access: CIS

See also: www.hmc.edu/map/
Olin is the west-most building at HMC. Prof. Ben’s office is in the northeast corner of the building.
What is Computer Science?
What is Computer Science?

Not a definitive definition!

Computer Science is the **study** of how we can **automate** our ability to generate, transform, store, and retrieve information.
What does Computer Science study?

Given a problem
Is there a solution?
What is it?
How good is it?

What do we mean by “problem”?

There’s not always! How would we know?!

← programming
(but also algorithms, data structures, ...)

What do we mean by “good”?
How do we measure goodness?
What does Computer Science study?

Given a problem

Is there a solution?

What is it?

How good is it?

What do we mean by “problem”?

Theory of computation
What do we mean by “problem”?

CS problems manipulate information

A problem is a question that we can write down and give to a computer, which can give us an answer.

e.g., “Is 42 an even number?”

How?!

What do we mean by “computer”?

e.g., “yes” or “no”

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How?!

e.g., "yes" or "no"
What do we mean by “computer”?

A problem is a question that we can write down and give to a computer, which can give us an answer.

e.g., “Is 42 an even number?”

How?!

e.g., “yes” or “no”
What do we mean by “problem”?  
Our working model: a simplification of “problem” that is good enough for now

A problem is a question that we can write down and give to a computer, which can give us an answer.

encoded in binary

"yes" or "no" (decision problem)
But...
What is a computer?
(our focus for the next month)
Before Thursday’s class: Picobot

No assignment. Just spend about an hour playing with Picobot.

description
tinyurl.com/picobot-ref

playground
www.cs.hmc.edu/picobot
Things to do before Thursday

• Make sure you can sign on to Piazza

• Read the syllabus
  I’ll expect and assume that you have done so
  Ask questions in person or on Piazza

• Respond to the survey
  If you haven’t already

• Play with Picobot
  tinyurl.com/picobot-ref

• Remember that you’re wearing a name tag!

• Help erase the boards