What is Computer Science?

“Computer science deals with the theoretical foundations of information and computation, together with practical techniques for the implementation and application of these foundations”

– Wikipedia

A computer scientist is a problem solver.
Computer Science is Everywhere!

• Internet
• Politics
• Vehicles
• Genetics
and more!
What is CS61A?

An introduction to the computer scientist’s utility belt


Abstraction
Indirection
Recursion
Control Flow
Parallelism
State
Teamwork
Course Roadmap

- **Functions** (Weeks 1-2)
- **Data** (Weeks 2-4)
- **State** (Weeks 4-5)
- **Interpretation** (Week 6)
- **Other Paradigms** (Weeks 7-8)
Alternative to CS61A

CS10: *The Beauty and Joy of Computing*

[http://inst.eecs.berkeley.edu/~cs10/su12/](http://inst.eecs.berkeley.edu/~cs10/su12/)

- More gradual introduction to CS for non-majors.
- Learn to program in BYOB (“Bring Your Own Blocks”), a graphical language and our variant of MIT’s Scratch.
- Learn some of the “big ideas” of computing.
- Learn more about history, applications, and future.
Who is CS61A?
Who is CS61A?

**TEACHING ASSISTANTS**

- Eric Kim
- Steven Tang
- Joy Jeng
- Stephen Martinis
- Albert Wu
- Allen Nguyen

**READERS**

- Sagar Karandikar
- Jack Long
- Mark Miyashita
- Michael Ball
- Robert Huang
- Keegan Mann

**LAB ASSISTANTS**

- [Cal logo]
Meet Python

>>> 3
3
>>> 2 + 3
5
>>> (5 * 8) + 2
42
>>> 40 / 5
8.0
Meet Python

```python
>>> 4 > 3
True
>>> 6 <= 5
False
>>> 6 == (3 + 3)
True
>>> 6 != 5
True
>>> (4 > 3) and (4 < 5)
True
>>> True and False
False
>>> True and True
True
>>> (4 > 3) or (4 > 5)
True
>>> True or False
True
>>> False or False
False
>>> not True
False
```
Meet Python

>>> 'Hello, World!'
'Hello, World!'

>>> 'Greetings ' + 'Human'
'Greetings Human'
Meet Python

```python
>>> x = 3
>>> x + 5
8
>>> x * 5
15
>>> x = 4
>>> x
4
>>> x = x + 1
>>> x
5
```
Meet Python

>>> max(5, 6)
6
>>> max(5, min(36, 57))
36
>>> pow(2, 3)
8
Meet Python

```python
>>> from math import pi, sqrt
>>> pi
3.141592653589793
>>> sqrt(4)
2.0
>>> sqrt(pi)
1.7724538509055159
```
>>> def square(x):
...     return x * x
...

>>> square(2)
4
>>> square(2) + square(3)
13
>>> square(square(2))
16
>>> def abs_val(x):
...     if x > 0:
...         return x
...     else:
...         return -x

>>> abs_val(-3)
3
>>> abs_val(-1) + abs_val(1)
2
>>> def countdown(n):
    while n > 0:
        print(n)
        n = n - 1
    print(“Blastoff!”)

>>> countdown(3)
3
2
1
Blastoff!
Course Policies

The purpose of this course is to *help you learn*

The staff is here to *help you succeed*
Course Policies – Resources

Course Website:  
http://inst.eecs.berkeley.edu/~cs61a/su12

Piazza:  
http://www.piazza.com/class#summer2012/cs61a
Course Policies – Grades

• This course is NOT curved!
• 300 points total:
  – 2 pts for each homework (14).
  – 2 pts for participation.
  – 90 pts for 4 projects.
  – 50 pts for each midterm (2).
  – 80 pts for the final exam.
• Grading scale on the website.
Course Policies – Homework

• Due **Tuesday** and **Friday** at 11:59:59 PM (the end of the day)

• The first homework (hw1) is already on the course webpage, due Friday (6/22).

• Each worth 2 points.

• Graded on effort!
Course Policies – Projects

• 4 projects due at 11:59:59 PM
  1. Pig – 6/29
  2. Trends – 7/6
  3. Ants vs. SomeBees – 7/24
  4. Scheme Interpreter – 8/7

• Projects 1 and 2 are individual.
• Projects 3 and 4 are partnered.
• Graded on correctness!
Course Policies – Lab and Discussion

• Conducted Monday through Thursday.
• Exercises to help you practice the course material.
• Please try to attend the section you are enrolled in each day.
Course Policies – Exams

• 2 Midterms (50 pts each):
  – 7/9 from 7:00 to 9:00 PM at 2050 VLSB
  – 7/25 from 7:00 to 9:00 PM at 2050 VLSB

• 1 Final (80 pts):
  – 8/9 from 6:00 to 9:00 PM at 1 Pimentel

• E-mail us as soon as possible if you have a time conflict!
Collaboration

• Groups for midterms and studying!
  – Midterms have group parts.
  – You will be assigned groups of 3-4 people in section on Thursday.

• EPA: Effort, Participation, and Altruism
  – 2 points awarded at the end of the semester.

• You are encouraged to help each other learn; however, there are limits.
  – Please don’t cheat.
  – Do not look at another student’s homework or project code.
Academic Dishonesty

- No, really, don’t cheat: We *will* find out.
- Do not misrepresent someone else’s work as your own.
Remember: HAVE FUN!

Welcome to CS61Awesome!