

# CompSci 101

## Introduction to Computer Science

active become books career challenges  
china class command duke education  
experience growing gu hours journey keep  
knowledge kunshan learning life live mental  
miles perfect person played preserve problems  
program proposes read really saying scholar skill  
something ten think thought  
thousand together truth  
understanding walk weeks  
words work world yanwu year

Sept. 9, 2014

Prof. Rodger

President Brodhead  
speech graduation 2010

DO NOT SIT IN THE LAST  
FOUR ROWS!

Come forward and sit beside  
someone you haven't met

# Announcements

- Lab 3 this week!
- Reading for next time
  - RQ4 on Sakai Due by 10am Thursday
- Assignment 2 due Thursday, Sept 11
- APT Problem Set 1 due today!
  - APT Problem set 2 out

# Introduction

- Professor Rodger



# How many ways can I run Python in this course?

- Eclipse
  - Complete program
  - Console
  - APT
- Online textbook
  - Beware Python 3 (‘/’ (2.7) vs ‘//’ (3) )
- Python Tutor

# How to get Help in this class

- Piazza
- Consulting hours (Sunday-Thursday nights)
- Office hours (Prof, Tas)
- What happens if my laptop breaks and I can't use my eclipse? Do I stop programming?
  - Clusters, Python Tutor, websubmit, borrow
- What happens if you send Prof. Rodger an email?
  - 46 support people vs. 1 person, may take awhile to answer

# Submitting an APT or Assignment

- Use Ambient – submit
  - MAKE sure you select files
  - Don't Successfully submit nothing – OOPS
  - Submit History – files submitted should be listed!
  - Alternative – use web submit
  - Tuesday midnight means Tuesday 11:59pm + 1 minute

# Why is this person so important to this course?



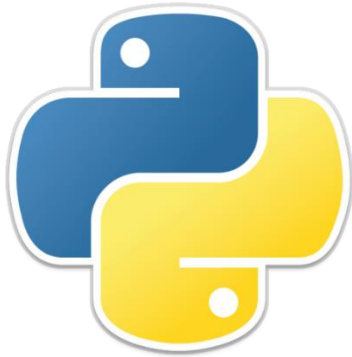
- Have you donated yet?



# What do Computer Scientists look like?



# What did Prof. Astrachan teach you?



$2^{10}$



- Big Thanks to Prof. Astrachan!

# Turtles

```
import turtle
wn = turtle.Screen()

def square (alex):
    alex.forward(100)
    alex.left(90)
    alex.forward(100)
    alex.left(90)
    alex.forward(100)
    alex.left(90)
    alex.forward(100)
    alex.left(90)

if __name__ == '__main__':
    timmy = turtle.Turtle()
    square(timmy)

wn.exitonclick()
```

- Run in eclipse
- Make square with different sizes?
- Make a rectangle?
- Where is the repetition?
- New commands:
  - up(), down(), position(), goto()

# Top 10 list for surviving in CompSci 101

10. Ask questions
9. Eat lots of pizza
8. Learn how to spell Rodger
7. Read the book
6. Keep working until program is correct.

# Top 10 list (cont)

5. Do the reading quizzes
4. Visit your prof in her office
3. Check Piazza every day
2. Seek help (one hour rule!)
1. Start programming assignments early

# Review Functions

- Online form: [www.bit.ly/101fall-0909-01](http://www.bit.ly/101fall-0909-01)

```
def duplicate(word, num):  
    return word * num
```

```
def duplicate2(word, num):  
    print word * num
```

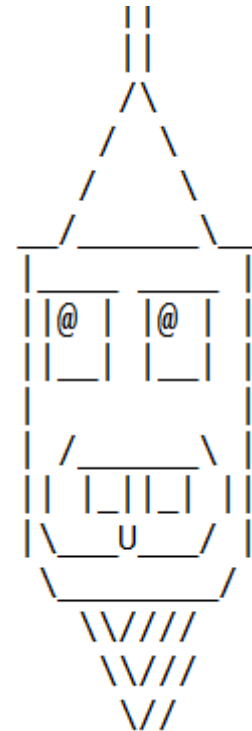
```
def duplicate3(word,num):  
    word * num
```

---

```
1. print duplicate ("Go", 3)  
2. print duplicate2("Go", 5)  
3. print duplicate3("Go", 2)  
4. duplicate("Go", 5)  
5. duplicate2("Go", 4)  
6. duplicate3("Go", 2)
```

# Assignment 2

- How to start?
- Where does import go?
- Student work?





# Computer Science Alum



- Biology and CS
- Undergraduate Research - JFLAP
- Epic
- Now in Med School at Vanderbilt



# Computer Science Duke Alums



CompSci 6 Fall 2011



# More on Strings

- Strings are indexed starting at 0
- Example: `'word'`

w	o	r	d
0	1	2	3

- Use `[num]` – to refer to a particular character in word
- Use `[x:y]` to refer to a slice of the string starting at position x and up to but not including position y. Can leave out x or y.

# Examples

```
phrase = "Duke Blue Devils"  
print phrase[0]  
print phrase[-3]  
print phrase[1:3]  
print phrase[5:10] + phrase[:4]  
print  
(phrase[phrase.find('ev') :]).upper()
```

String fun

Crazy import

# Loop over all characters in a String

```
def mystery(word):  
    answer = ""  
    for ch in word:  
        if ch.lower() != 'e':  
            answer = answer + ch  
    return answer
```

# Loop over string

- Online form: [www.bit.ly/101fall14-0909-02](http://www.bit.ly/101fall14-0909-02)

```
def mystery2(word):  
    count = 0  
    for ch in word:  
        count = count + 1  
    return count
```

```
def mystery3(word):  
    answer = 0  
    for ch in word:  
        if ch.lower() != 'e':  
            answer = answer + 1  
    return answer
```

# Loop over all words in a list

```
def mysteryList(phrase):  
    for word in phrase.split():  
        print word
```

# Loop over words

- Online form: [www.bit.ly/101fall14-0909-03](http://www.bit.ly/101fall14-0909-03)

```
def mystery4(phrase):  
    count = 0  
    for word in phrase.split():  
        count = count + 1  
    return count  
  
def mystery5(phrase):  
    hold = phrase.split()  
    answer = hold[0]  
    for word in hold[1:]:  
        if word[0].lower() != 'b':  
            answer = answer + " " + word  
    return answer
```

# Solve an APT