Compsci 101
Introduction

August 29-Sept 2 Week

<table>
<thead>
<tr>
<th>Day</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/29</td>
<td>Read through Course webpages</td>
<td></td>
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<tr>
<td>8/30</td>
<td>Topics: Introduction to the course</td>
<td>8/30</td>
<td>Pre-Work Q201 in Skallo</td>
<td>Pre-Work Q201 in Skallo</td>
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<tr>
<td>8/31</td>
<td>Read through Course webpages</td>
<td>8/31</td>
<td>Pre-Work Q201 in Skallo</td>
<td>Pre-Work Q201 in Skallo</td>
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<tr>
<td>8/2</td>
<td>Textbook: python, variables, operators, string operations</td>
<td>8/2</td>
<td>Pre-Work Q201 in Skallo</td>
<td>Pre-Work Q201 in Skallo</td>
</tr>
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</table>

Susan Rodger
August 30, 2022

DO NOT SIT IN THE LAST 8 ROWS EVER!

Sea turtles hatching

- [https://www.youtube.com/watch?v=sZYd0-eggqbc](https://www.youtube.com/watch?v=sZYd0-eggqbc)

MS. Yesenia Velasco
Teaching Associate

- Right-hand woman - Handles logistics, substitute lectures, and much more!
- Handles accommodations
  - Email her your accommodation letter
  - yvelasco@cs.duke.edu
A is for …

- **Algorithm**
  - Step-by-step instructions realized in a program
- **Abstraction**
  - Hiding things is powerful
  - “What” vs “How”
- **APT**
  - Algorithmic Problem-solving
    - Testing
- **API**
  - Application Programming
    - Interface - using Libraries

Announcements

- Check out the calendar on the course website
- PRE-WORK – what you must do before the lecture
- LECT/LAB – will put notes/videos here from the live lecture or for the lab
- DUE – what is due each week.

- What has been updated?
- Assignment 0 is already out!
- Lab 0 on Friday
- Prelab for Lab1 (install Python)
- You will see a link to this video!

Course overview, logistics

www.cs.duke.edu/courses/fall22/compsci101

- Programming assignments: APTs and Assignments
  - Acknowledge assistance, to learn to program …
  - Be aware of late policy
- Labs
  - Attend each Friday
- Lecture - Classwork
  - Attend the live lecture - participate
  - If you can’t attend you must watch it and participate within 24 hours
- Exams: 3 exams and final
  - All old exams available
What's in Compsci 101?

- Learning about computing, computer science, and programming
  - Vocabulary of Python and programming
  - Power of automation, repetition, scale
  - Understanding and changing the world
- Programming using Python
  - Tools: PyCharm, Libraries, …
  - Using mathematical and scientific techniques
  - Art and science of programming

Questions?

- Don't send us email!!!!!!!!!!!!
- Post your questions on Ed Discussion
  - We will answer them there!
  - You should try to answer them too
    - Want to be a UTA one day? Answer questions!
- Post Questions during lecture!

WOTO – Working Together

Discuss with others, then everyone fills out their own form.

What is Computer Science?
Vacuum Tubes

- Control electric current using the vacuum
- Can be used to start/stop, or change the flow based on the current
  - Off/On → 0/1
  - 00000011

Prerequisites for Compsci 101

After taking this course you will be able to ....

- Write a program for Wordle
- Write a word finder to help someone solve Wordle
Who are you?

- Let's look at survey to see who is taking Compsci 101 in Fall 2022
  - Do you recognize yourself?
  - Is there a stereotypical Compsci 101 student?
  - Is there a stereotypical computer scientist?

- Everyone can succeed! Ideally you won't have lots of experience programming

WOTO: WOrking TOgether

Analyze this Scratch Program?

Scratch Program

- If you want to experiment with this scratch program, here is the link:
  https://scratch.mit.edu/projects/94064630/

You don’t have to understand this yet!!

What language will we learn?

- http://www.python.org/
- Python is a multi-paradigm language
  - Procedural
  - Functional
  - Object-Oriented
- Simple, libraries, widely used
- Guido von Rossom
Python code

```
# Python code

Created on 1/6/2022
@author: Susan H. Rodger

if __name__ == '__main__':
    print("Hello CompSci 101!")
```

**OUTPUT:**

```
Hello CompSci 101!
```

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**Python Code, second program**

```
def greeting(name):
    print("Hello " + name)

if __name__ == '__main__':
    greeting("CompSci 101!")
    greeting("Beenie, Keeah and Moe")
```

**OUTPUT:**

```
Hello CompSci 101!
Hello Beenie, Keeah and Moe
```

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**Duke Connection: Fred Brooks '53**

- What Would FB Say?
  "The most important single decision I ever made was to change the IBM 360 series from a 6-bit byte to an 8-bit byte, thereby enabling the use of lowercase letters. That change propagated everywhere."

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**Why is programming fun?**

**Fred Brooks**

- First is the sheer joy of making things
- Second is the pleasure of making things that are useful
- Third is the fascination of fashioning complex puzzle-like objects of interlocking moving parts
- Fourth is the joy of always learning
- Finally, there is the delight of working in such a tractable medium. The programmer, like the poet, works only slightly removed from pure thought-stuff.