Welcome to CSCI 134!!
Introduction to Computer Science

What is Computer Science?

Think-Pair-Share:

- *Take 1 minute to* ***think*** *about it individually*
- *When the prof. says, discuss with the* ***person*** *next to you*
- *Then we'll* ***share*** *with class*

What is Computer Science?

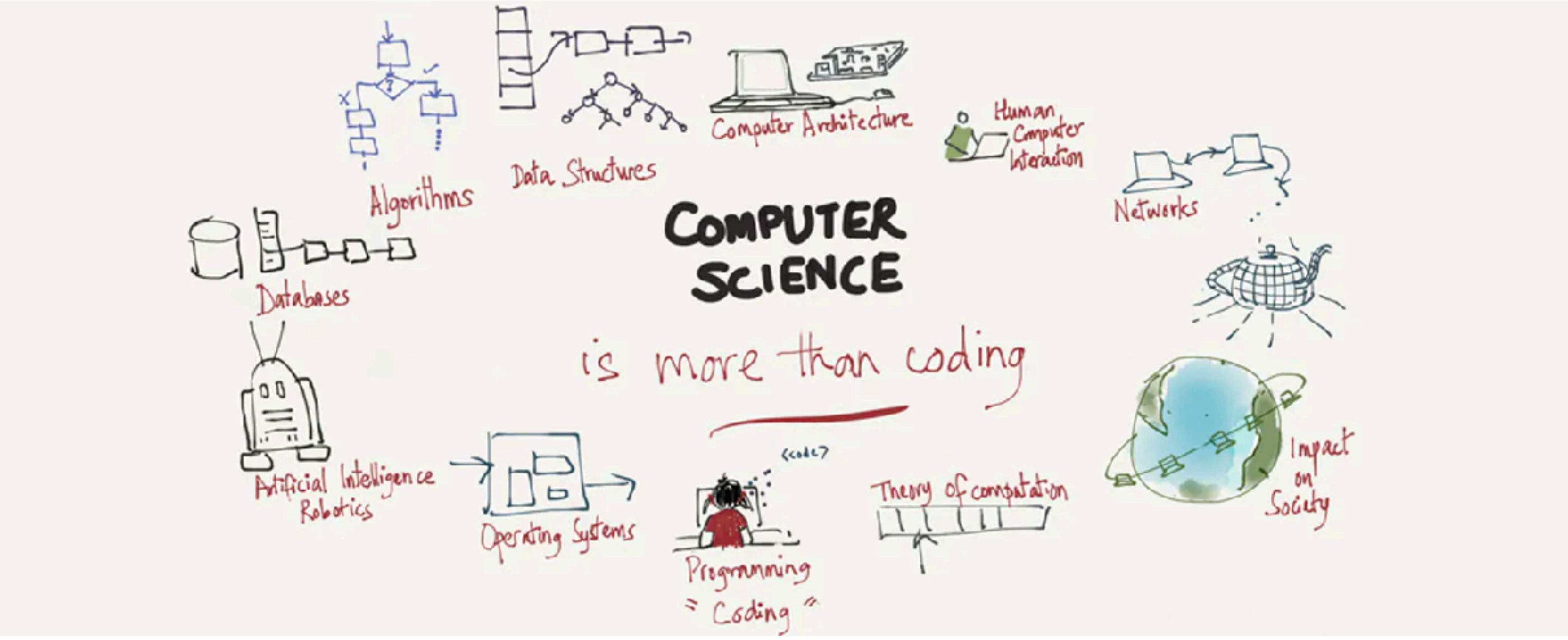
[Hint. It is not really about computers!]

“[Computer science] is not really about computers -- and **it's not about computers in the same sense that physics is not really about particle accelerators, and biology is not about microscopes** and Petri dishes…” — Hal Abelson

“The topic became – primarily in the USA – prematurely known as **‘computer science’ – which, actually, is like referring to surgery as ‘knife science’** – and it was firmly implanted in people’s minds that computing science is about machines and their peripheral equipment.” — Edsger Dijkstra

What is Computer Science?

- Computer science ≠ computer programming!
- Computer science is the study of what computers [can] do; programming is the practice of making computers do useful things
- Programming is a big part of computer science, but there is much more to CS than just writing programs!
- Another part of CS is computational thinking



Computational Thinking

- Computational thinking allows us to take a complex problem, understand what the problem is and develop possible solutions. We can then present these solutions in a way that a computer, a human, or both, can understand.
- Four pillars of CT:
  - Decomposition - break down a complex problem or system into smaller, more manageable parts
  - Pattern recognition – look for similarities among and within problems
  - Abstraction – focus on important information only, ignore irrelevant details
  - Algorithms - develop a step-by-step solution to the problem, or the rules to follow to solve the problem
- A computer can performs billion of operations per second, but computers only do exactly what you tell them to do!
- In this course we will learn how to 1) use CT to develop algorithms for solving problems, and 2) implement our algorithms through computer programs

Course Logistics

CS134 Team

Staff email: cs134staff@williams.edu

Iris Howley

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TCL 308

Billy Jannen

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He/Him/His

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Lida Doret

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TCL 205

You will see Iris, Billy, and Lida in your Lecture & Lab classes!

CS134 TA Team

Alessa Somer

Dahlia Felten

Douglas Pineda Gutierrez

Ella Sobhani

Ezra Joffe-Hancock

Jackson Davis

Jane Ladaga

Jenny Patel

Kye Kang

May Blair

Maymouna Bah

Priya Rajbhandary

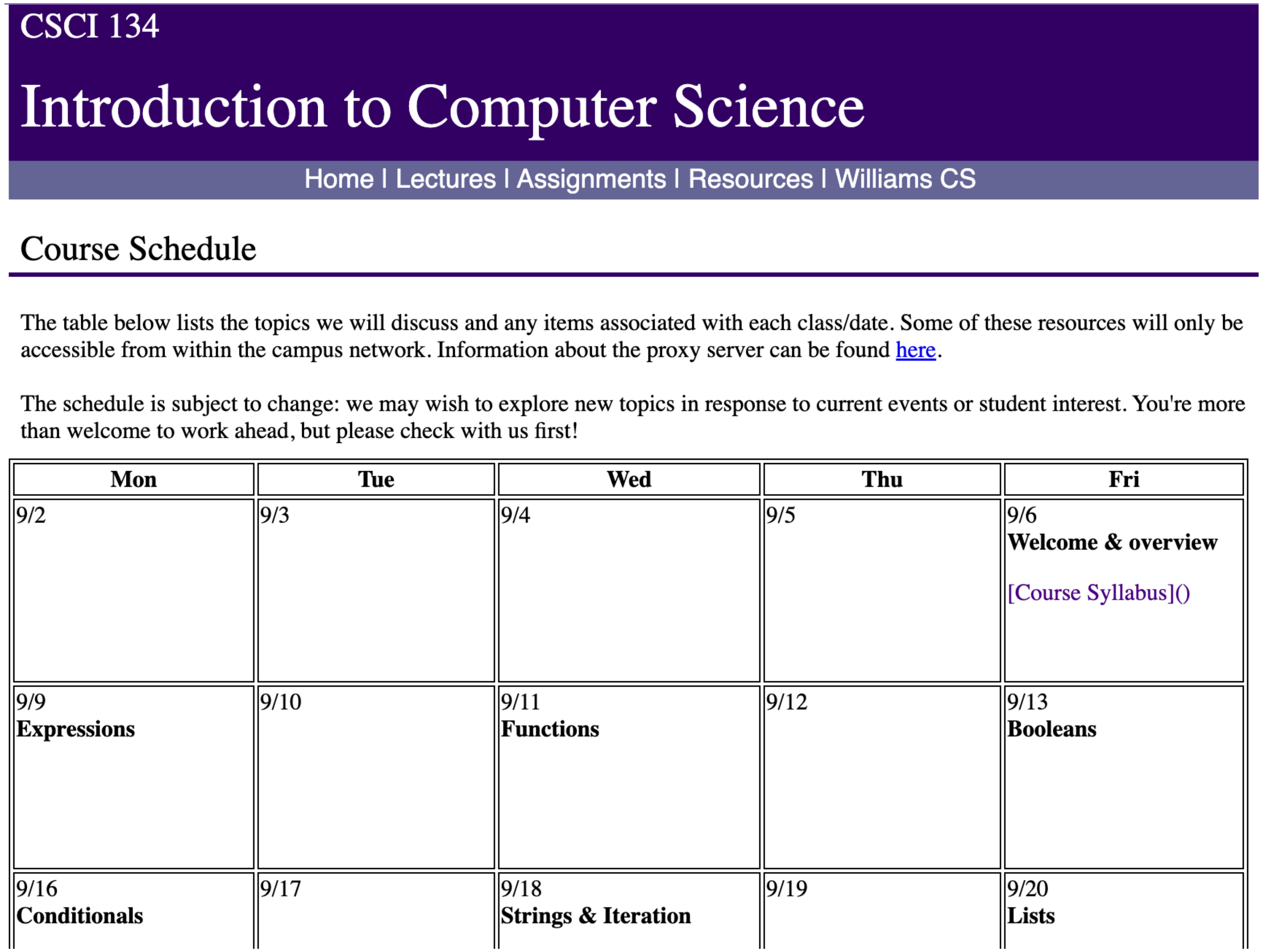
Serah Park

Trung Nguyen

Tryphena Bossman

CS134: Course Website

- Similar url to all CS course websites: https://www.cs.williams.edu/~cs134/
- One stop shop for: Office hours, TA Hours, reference texts, lecture slides, homework, labs, etc!



CSCI 134

Introduction to Computer Science

Course Schedule

The table below lists the topics we will discuss and any items associated with each class/date. Some of these resources will only be accessible from within the campus network. Information about the proxy server can be found here.

The schedule is subject to change: we may wish to explore new topics in response to current events or student interest. You're more than welcome to work ahead, but please check with us first!

Mon	Tue	Wed	Thu	Fri
9/2	9/3	9/4	9/5	9/6 **Welcome & overview** [Course Syllabus]()
9/9 **Expressions**	9/10	9/11 **Functions**	9/12	9/13 **Booleans**
9/16 **Conditionals**	9/17	9/18 **Strings & Iteration**	9/19	9/20 **Lists**

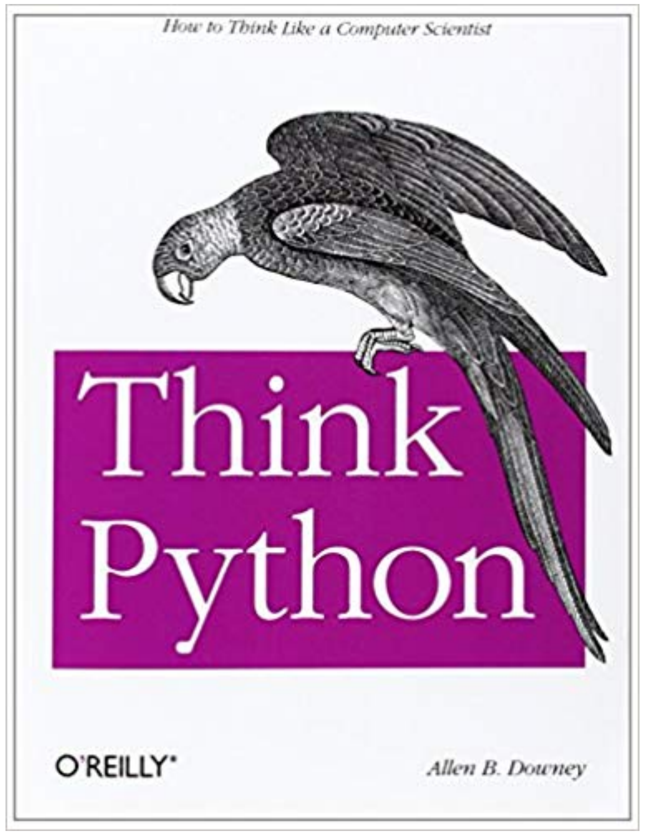
Grading Breakdown

- **Homeworks (10%)**
  - Short answer programming & problem solving questions
  - Due on Mondays at 10pm (usually on GLOW)
  - Practice using "pencil and paper" before submitting answers
- **Labs (30%)**
  - Meet Mon/Tues afternoon for 90 min
  - Monday labs → Wed @ 10 pm | Tuesday labs → Thurs @ 10 pm
  - Review lab as soon as it comes out (~Fridays)
  - Ideally you should work on lab for ~1 hour before lab meeting time via the pre-lab
  - Pre-labs (5% of lab grade)
    - Short paper-based assignments for Lab 2 onwards, graded pass-fail
    - Help prepare you for midterm/final
- **Midterm (30%)**
  - Evening exam on **Thursday, October 17 (plan accordingly!)**
  - Time options — **6-7:30pm or 8-9:30pm**. TPL203.
- **Final (30%)**
  - Scheduled Final Exam

Textbook?

- We do not have a textbook for CSCI134
- We will be using Slide Decks posted to the Course website.

- But if you're a textbook person, you may wish to consider the online textbook **Think Python**: How to think like a computer scientist by Downey: http://greenteapress.com/wp/think-python-2e/



Homework

- Usually multiple choice Gradescope assignments
- Serve as check points to review lecture content
- Will be posted on Gradescope every Wed, due following Mon @10 pm
- Homework 1 is out (linked on course webpage)
    - **Google Form** to get some information about you
    - Due Monday @10 pm
- We'll drop your lowest HW grade

Homeworks are low-stakes practice that students have found helpful to prepare for exams. Use them as a tool to learn and improve your understanding!

Labs

- Longer programming assignments typically released on Friday
- Will be posted on course assignments page
- We expect you to read over the lab write-up and complete the pre-lab exercise (starting w/ Lab 2) **before** your lab meeting.
- When you're done with the pre-lab exercise, we strongly encourage (but don't require) you to start working on the actual implementation
- Lab sessions are short: only 1.5 hours! Make the most of it by coming prepared!

Labs are where you put principles into practice. Labs are the most rewarding and time consuming part of this course. Ask questions and seek help early!

Weekly Workload Summary

MON	TUE	WED	THU	FRI	SAT	SUN
		Next HW posted			Complete pre-lab	
Lab Sessions	Lab Sessions	Graded Lab returned			Work on HW	
HW due 10 pm		Mon Labs due 10pm	Tues Labs due 10pm	Next Lab handout posted	Review Lectures	

Help Hours

course calendar link

	MON	TUE	WED	THU	FRI	SAT	SUN
Instructors (CS Common Room)			1-4pm	2-4pm			
TAs (TCL 216/217a)			**4-6 pm**	**4-6 pm**			
	7-10 pm	**7-10 pm**	**7-10 pm**	**7-10 pm**			**7-10 pm**

Late Policy

- Students are expected to turn in all assignments by the due date to receive full credit. However, for lab assignments, you may choose to take a 12-hour extension **twice** during the semester.
- You must tell us when you are taking one of your two extensions by filling out this form **before the original deadline**:
- You cannot apply two 12-hour extensions to the same lab assignment.
- In any other case, please contact your instructors at cs134staff@williams.edu as soon as possible if you cannot meet a deadline.

Late days are for any **lab** that you won't hand in on-time, whether that be due to athletics, illness, or other life events! But we're reasonable people, and if you have an exceptional situation, **please talk to us**!

Accounts

- **CS accounts**
  - You will receive an email from Lida about your CS account. This is a separate account from your campus account!
  - You will use these accounts for submitting labs this semester
- **Labs** are in **TCL 217A and TCL 216** (behind the stairwell)
  - This door is also always locked!
  - The combination is **3-9-2-7-8-1** (think 3-9-27-81)

Learning & Your Health

- Mask optional/friendly. Choose whatever makes you feel most safe, and respect others' decisions
- If something comes up that prevents you from conducting business as usual, try to let us know as soon as possible — cs134staff@williams.edu
- Do not eat or drink in labs (not just a COVID thing!)
- **If you are sick, or have tested positive for COVID-19:**
  - *First: We hope you feel better soon!*
  - *Second:* DO NOT COME TO CLASS (plz)
  - Email cs134staff@williams.edu to let us know!

Honor Code

- **"Any work that is not your own is considered a violation of the Honor Code."**
  - This includes work copied from webpages, auto-generated code, etc
- If you are taking photos of someone else's screen, looking at someone else's screen, or telling someone else what to type, it is likely your/their work is no longer the work of an individual student.
- The following are all considered violations of the Honor Code:
  - giving/showing your solution to other students
  - submitting another person's solution as your own
  - using another person's solution as the starting point for your solution
- One of the major goals of this course is **to learn how to write code**. Any use of generative AI technology (e.g. ChatGPT, Github Copilot) for code generation is therefore considered a violation of the Honor Code.
- If you aren't sure if something is considered a violation, just ask (beforehand)!

About Class Participation

- **We like interaction in our classes!**
- Many ways to participate:
    - Ask questions! (there are no bad questions!)
    - Answer questions (there are no bad answers!)
    - Talk to us after class/come to office hours
- Class participation does not mean dominating classroom discussions or interrupting your peers

Let's work to create a vibrant, positive, and inclusive classroom environment!

CS134 Tools

Computer Scientist’s Tools

- **Terminal**
  - Command line or “Shell”
  - Text input/output interface to interact with your computer
- **Editor**
  - Visual Studio Code (or VS Code)
- **Version-control**
  - git
- **Programming Language**
  - python
  - Created by Guido van Rossum in the late 1980s.

CSCI 134 Is A Fast-Paced Course

- How to succeed:
  - Read and think about labs as soon as they are released
  - Seek help! Use resources! We are all here to help you!
- Learning to program is all about **PRACTICE, PRACTICE, PRACTICE!**
  - Just like learning a musical instrument, learning to ski, or building muscle, it requires repetition, dedication, and reflection
  - Cannot be a passive participant
  - **Don't be afraid to fail and make mistakes**—in fact you are encouraged to do so! "Fail early and often"
  - No one learns anything without making mistakes and learning why and how to fix them
    - A program bug can be a powerful teaching tool. There are some mistakes that I will only make once thanks to my experience debugging!

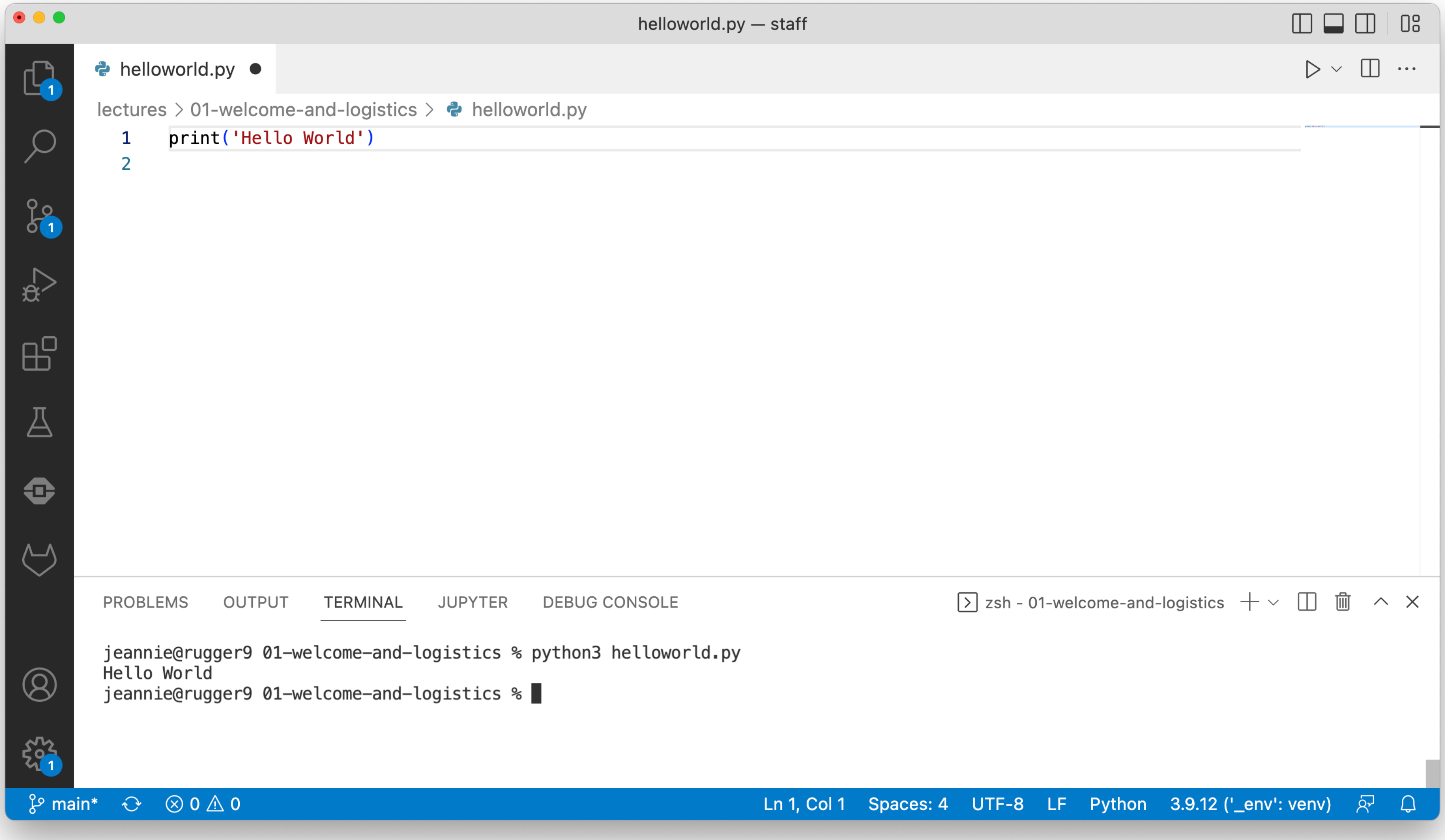
Setting up your Personal Machines

- We strongly encourage you to use the lab machines (Mac)
  - Already configured with everything you need
  - Better ergonomics (30-year-old you will be grateful!)
  - CS Community
- **Resources to setup your personal** (Windows/Mac) **machines** are also available
  - Come see us (and TAs) if you get stuck!
  - Useful if you are traveling or sick
  - It's empowering to make your environment your own

Programming Example

Hello World!

- Our first program:
  - Create a file called **`helloworld.py`** in VS Code
- Execute a python3 program from Terminal (either standalone or within VS Code)
  - Type **`python3 helloworld.py`** and enter



```python
print('Hello World')
```

```
jeannie@rugger9 01-welcome-and-logistics % python3 helloworld.py
Hello World
jeannie@rugger9 01-welcome-and-logistics % █
```

An Aside: CS Colloquium Today

- Almost Every Friday
- Time: **2:35pm**
- Normal Location: **TCL 123** (Wege Auditorium)
- Today: Faculty research overview
  - Meet the CS faculty & Student Groups
  - Learn more about the dept

The end!