

Welcome to CSCI 134!
Introduction to Computer Science

What is Computer Science?

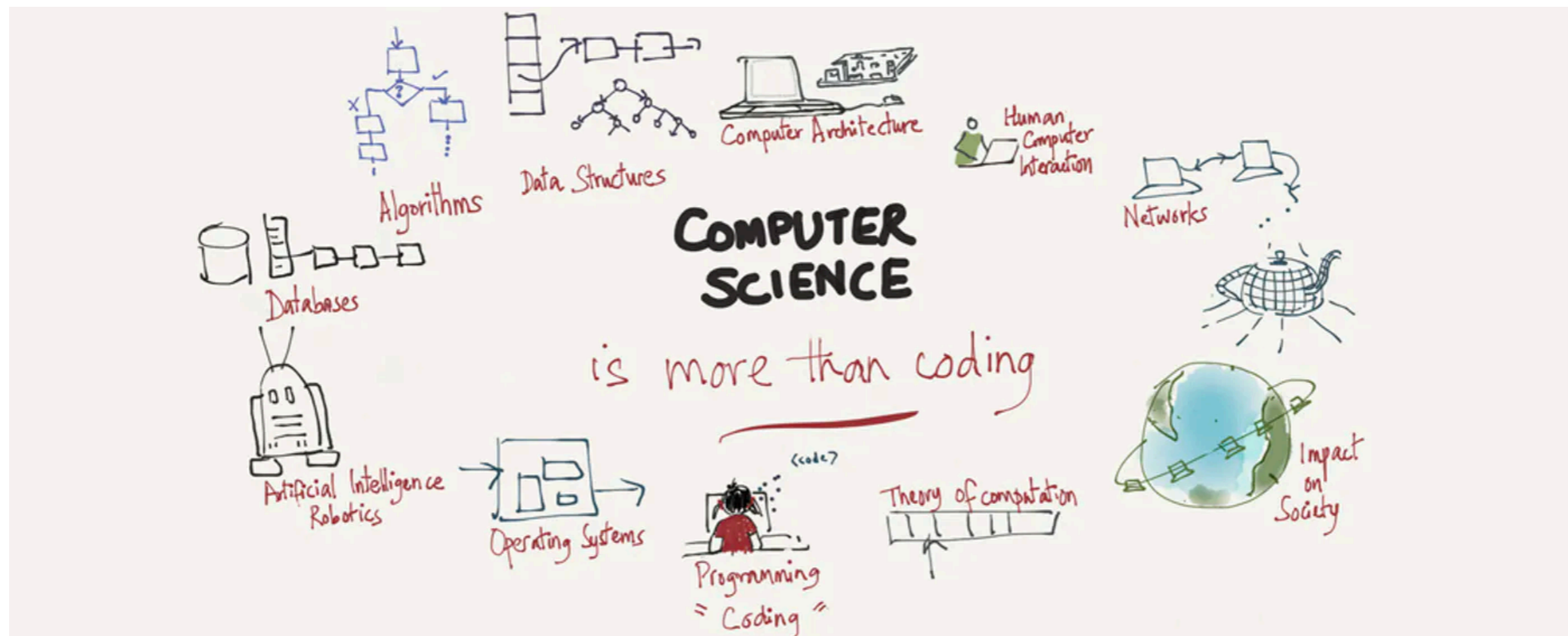
[Hint. It is not really about computers!]

“[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 \neq computer programming!
 - 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 perform billions 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

CS 134 Team



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CS 134: 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
Home | Bill's Lectures | Shikha's Lectures | Assignments | Resources | Williams CS

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
1/29	1/30	1/31	2/1	2/2 Welcome & overview Course Syllabus
2/5 Expressions	2/6	2/7 Conditionals	2/8	2/9 Functions

Grading Breakdown

- **Homeworks (10%)**

- Short answer programming & problem solving questions
- Due every Monday (usually on GLOW)
- Practice using “pencil and paper” before submitting answers

- **Labs (30%)**

- Meet Mon/Tues for 90 mins
- Monday labs → Wed @ 10pm Tuesday labs → Thurs @ 10 pm
- Review lab as soon as it comes out (~Fridays)
- **Prelab** (5% of lab grade): complete before lab

- **Midterm (25%)**

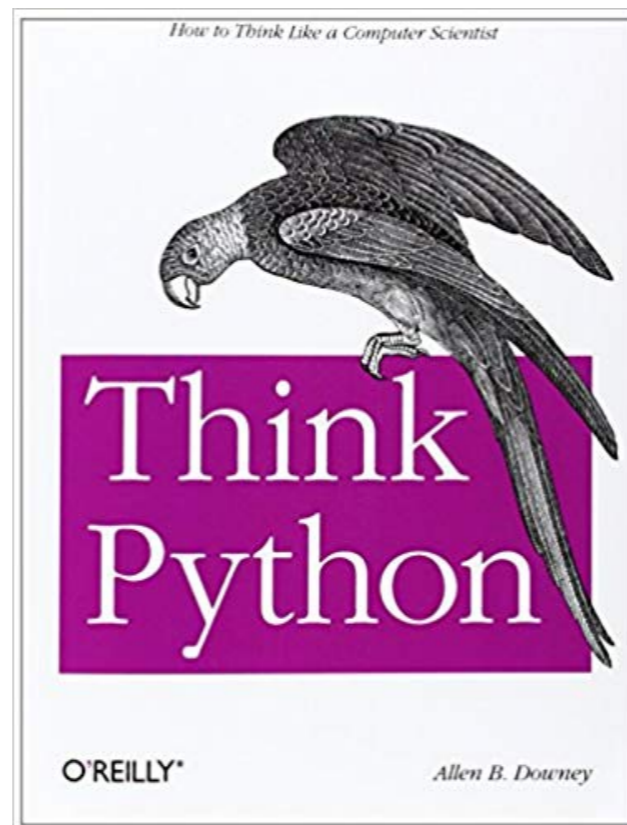
- Evening exam on **Thurs, March 14**

- **Final (35%)**

- Scheduled Final Exam

Textbook?

- We **do not** have a textbook for CSCI 134
- We will post all lecture materials (slides, code examples, etc.) on the website
- Free Online Textbook **Think Python** can be a helpful reference:
<http://greenteapress.com/wp/think-python-2e/>



Homework

- Usually multiple choice GLOW "quizzes"
- Serve as check points to review lecture content
- Will be posted on GLOW every Wed, due following Mon @10 pm
- Homework 1 is out (linked on course webpage/GLOW)
- **Google Form** to get some information about you
- Due Feb 5 (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!

Accounts

- **CS accounts**
 - You should have received 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 always locked!
 - The combination is **3-9-2-7-8-1** (think powers-of-3: 3-9-27-81)
- Each of you have also been assigned a unique anonymous ID
 - Allows us to implement anonymous grading
 - Your email from Lida contains this info
 - Do **not** share your ID

Weekly Workload Summary

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

Help Hours

[course calendar link](#)

Room: TCL 216/217a

MON	TUE	WED	THU	FRI	SAT	SUN
4-5pm		noon-4pm	1-4pm			
			4-6 pm			
7-10 pm	7-10 pm	7-10 pm	7-10 pm			7-10 pm

Late Policy

- Expected to turn in assignments by the due date to receive full credit
- No late days
- Things happen. If something comes up, please reach out to the course staff ***as soon as possible*** if you cannot meet a deadline.
- **All emails for extenuating circumstances:**
cs134staff@williams.edu

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

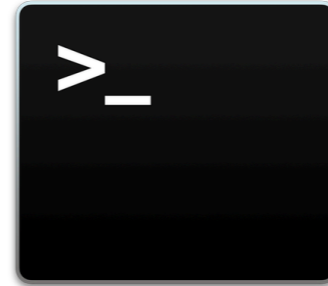
Let's work to create a vibrant, positive, and inclusive classroom environment!

CS 134 Tools

Computer Scientist's Tools

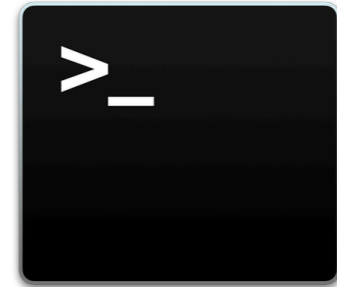
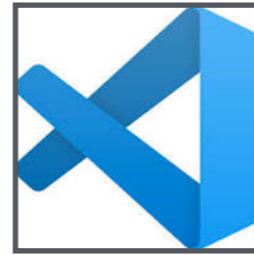
- **Terminal**

- Command line or “Shell”
- Text input/output interface to interact with your computer



- **Editor**

- Visual Studio Code (or VS Code)



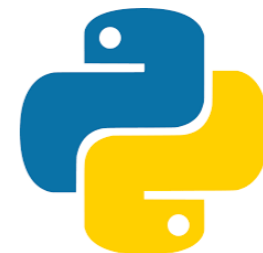
- **Git**

- Version-control system



- **Python**

- Programming language
- Created by Guido van Rossum in the late 1980s.



CSCI 134 Is A Fast-Paced Course

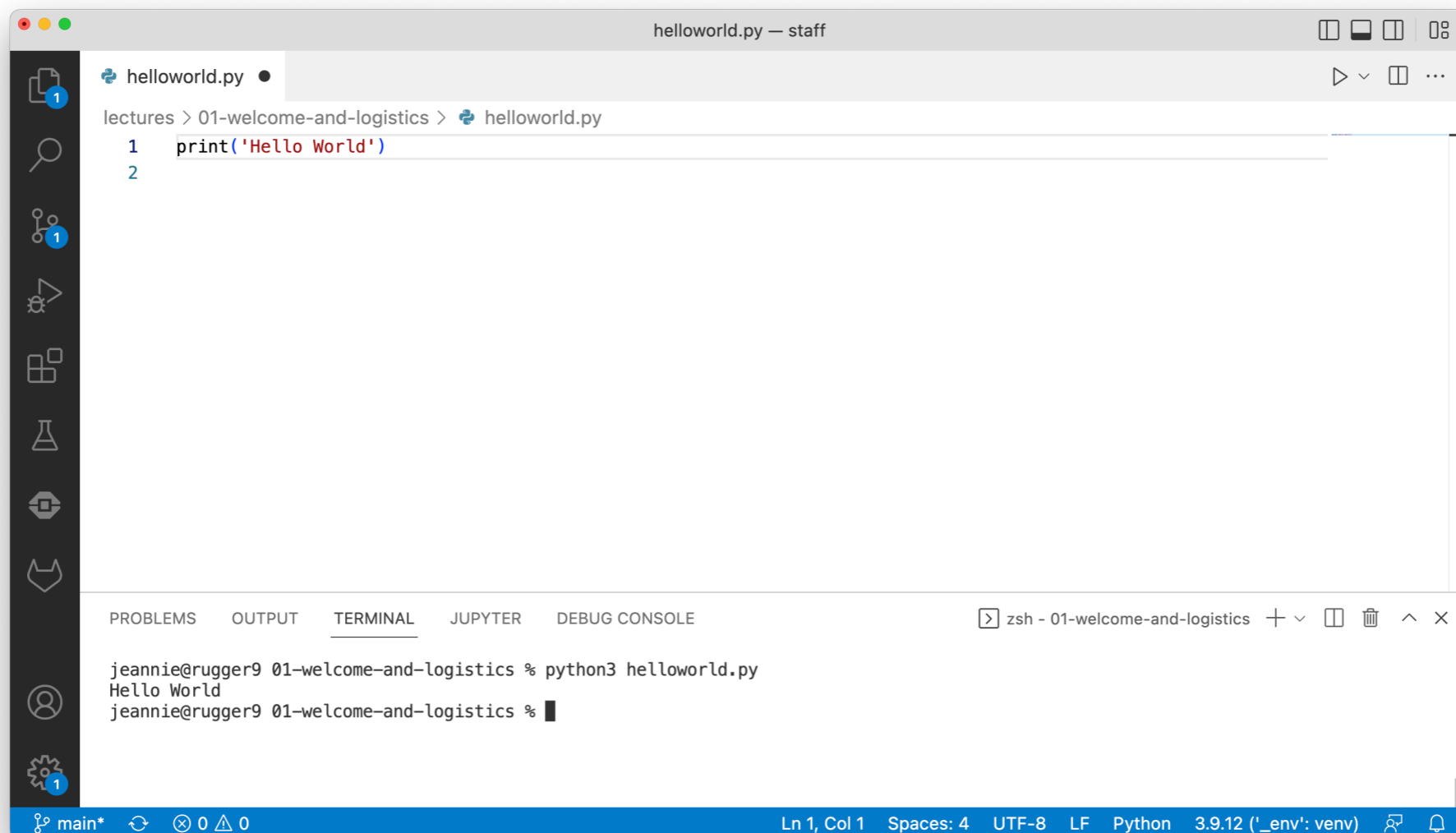
- How to succeed:
 - Read and **think about** labs as soon as they are released
 - Seek help! Use resources! We are all here to help you!
- Learning to program is all about **PRACTICE, PRACTICE, PRACTICE!**
 - Just like learning a musical instrument, learning to ski, or building muscle, it requires repetition, 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

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



```
helloworld.py — staff
lectures > 01-welcome-and-logistics > helloworld.py
1 print('Hello World')
2

PROBLEMS OUTPUT TERMINAL JUPYTER DEBUG CONSOLE
zsh - 01-welcome-and-logistics
jeannie@rugger9 01-welcome-and-logistics % python3 helloworld.py
Hello World
jeannie@rugger9 01-welcome-and-logistics %
```

main* 0 0 0 Ln 1, Col 1 Spaces: 4 UTF-8 LF Python 3.9.12 ('_env': venv)

CS Colloquium Today

- Almost Every Friday
- Time: **2:35pm**, Location: **TCL123** (Wege Auditorium)
- Great way to engage with the CS community @ Williams
- Today: Thesis Proposals

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