The University of Texas at Austin
Computer Science
College of Natural Sciences

Fall 2025

CS 109: What is Computer Science?
Understanding the Big Picture

From the Think Lab Team:

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The study of the capabilities of computing machines.

Don Fussell, Chair

What do you think it is?

What it is not?

Coding
Fixing everyone's computer
Using an LLM or LLMs
Building web pages with HTML (see Coding)

What is it?

Theoretical Computer Science
Systems and Networking
Graphics
Artificial Intelligence
Robotics
Computer Architecture
Software Engineering
Scientific Computing
Computational Biology
Game Development
Machine Learning
Quantum Computing
Computer Vision
Data Management
Computational Neuroscience
Natural Language Processing
Virtual and Augmented Reality
Information Retrieval
Parallel and Distributed Computing
Human Computer Interaction
Programming Languages and Compilers
Security and Privacy
Formal Methods

CS and the World

CS is everywhere
Shows up in daily living
Every company is a tech company

Lots of room for interdisciplinary collaborations

Interdisciplinary Collaborations

IFML

Texas Robotics

X+CS

Good Systems

But to do all this, you need to know some computer science…

How UTCS Supports Your Learning

CS Core:

- 2 programming
- 2 systems
- 2 theory

CS Electives:

- BS chooses 8
- Interdisciplinary degrees vary: all have at least 4, but some may be prescribed
  - Including BSA, X+CS, CSB

Also:

- UT Core
- Math
- Science
- Foreign Language and Culture
  - most of you

Connecting Your Interests to Your Degree

Concentrations

Certificates/Minors

Fields of Study

X+CS

You are successful if you learn what you want to learn.

Success is not…

Checking off the checklist of required courses

Earning the best grades

Getting out of here the fastest

…

Academic Integrity

Taken very seriously in UTCS.

With great power comes great responsibility.

Keeping Your Integrity

Definition is course dependent

Check the syllabus for parameters

- Help from colleagues, code on web, Stack Overflow, ChatGPT or other LLMs, GitHub coPilot, CourseHero, Chegg, Craig's List

You need to know the collaboration/cheating boundary

Actions Have Consequences

1st time:

- Course Level: 0 on the assignment, reduced letter grade, failing the course
- Community Level: ethics training, other possibilities
- Academic probation
- Grad schools may inquire and learn about the infraction

2nd time:

- 1st time consequences + suspension from the university

3rd time:

- 1st time consequences + expulsion from the university

You are successful if you learn what you want to learn.

That said, none of this is easy.

Sometimes you might feel out of place…

“Everyone seems to understand this. Why am I not getting it?”

“I must have gotten into this program by mistake.”

“This is really hard. It seems easier for everyone else.”

“I feel like I don’t belong here.”

This happens to all of us.

Maria Klawe

- BS in Math from UAlberta in 1973
- PhD in Math from UAlberta in 1977
- Started 2nd PhD in CS at UToronto, stopped when offered a faculty position
- 16 years in industry IBM Research Almaden: research scientist, manager of Discrete Math group and of the Math and Related CS Department
- Head of CS at UBC for 15 years, then VP of student and academic services, then Dean of Science
- Princeton Dean of Engineering, 4 years
- President of Harvey Mudd 2006-2023

This happens to all of us.

Growth Mindset

Mental effort changes the brain and increases capacity.

Khan Academy

Preparation and ability are not the same thing.

But in terms of practical help…

ACM has a list of common terms you will hear:

We lied. Here's what they do have…

Also they swear it is coming back.
:woman_shrugging:

When you feel you can’t do it…

Ask for help!

Academics:
TAs, UGCAs, professors, discussion boards

Health:
UHC, CMHC, CARE Counselors, Crisis Line, and a 24/7 app

Also… build your community.

But mostly…

We're here to learn and have fun!

So let's start by figuring out what CS means to us…

Coming Up

Assignments due:

- Reflection on CS assignment 9/8
- Student org assignment 9/9

Next week: Attend discussion section! (And not Big Lecture :))