

Introduction to CS 245

Alice Gao
Lecture 0

Based on work by many people with special thanks to Collin Roberts, Jonathan Buss, Lila Kari and Anna Lubiw.

Come and sit in the front. I won't pick on you. :D

Outline

Introduction to CS 245

Let's get acquainted

Roadmap

Logistics

Succeeding in CS 245

Who am I?

My name is Alice Gao. I grew up in Beijing, China, and have lived in Vancouver, Toronto, Boston, Cambridge (UK), New York City, and Kitchener.

Research: artificial intelligence, game theory, education, and peer grading.

My work/education history:

- ▶ Lecturer, Computer Science, University of Waterloo.
- ▶ Postdoc, Computer Science, UBC.
- ▶ Ph.D., Computer Science, Harvard University.
- ▶ Undergraduate, Computer Science and Mathematics, UBC.

Hobbies: board games, escape room games, hiking, swimming, and traveling.

Meet your peers

- ▶ In the next 2 minutes, introduce yourself to someone you don't know.
- ▶ Talk about courses, co-op, summer activities, dorms, extracurricular activities...
- ▶ I encourage you to sit in a different section of the classroom every lecture and get to know the people around you.

I'd like to learn your names

On your index card, write	An example
Your name	Xi Gao
Your preferred name and tips for pronunciation	Alice Gao
Student number	15270036
Something interesting about you	I once had a pet hedgehog named Ebbie.

Did you bring your clicker today?

The reputation of this course

This course doesn't have a very good reputation...

Do you expect this course to be ...

- (A) Amazing
- (B) Good
- (C) Average
- (D) Not good
- (E) Terrible

Within my power and constraints, I've done a few things to make your experience better: roadmap, learning goals, interactive lectures, and applications.

A roadmap of CS 245

First-order logic:

- ▶ a formal language that we can use to model real world scenarios and to perform inference and deduction.

Applications:

- ▶ Program verification: Prove that a program meets a specification.
- ▶ Undecidability: Prove that a problem cannot be solved by algorithms.

Logic from two perspectives

Logic from two perspectives: a practitioner and a logician

A practitioner cares about:

- ▶ Use logic to model specific things
- ▶ Determining if two formulas are equivalent
- ▶ Deduct a conclusion from a set of premises

A logician cares about:

- ▶ Does every well-formed formula have a unique construction?
- ▶ Can this set of connectives construct any formula?
- ▶ Is every formula I can prove true? Can I prove every true formula?

Besides logic, this course is also about

- ▶ Thinking and communicating precisely
- ▶ Problem solving
- ▶ Creative thinking
- ▶ Critical thinking

Components of this course

- ▶ Lecture (clicker questions 5%)
- ▶ Tutorial
- ▶ Weekly Assignments (20%)
- ▶ Midterm (25%) (June 7)
- ▶ Final exam (50%)

- ▶ **Course website**: things that do not change, e.g. office hours, schedule, assignments (submission and remark instructions) and study exercises.
- ▶ **Piazza**: things that do change, e.g. important announcements, questions, and discussions.
- ▶ **Learn**: tutorial notes, assignment solutions, exam solutions, and marks.

What I do to help you succeed

Lectures:

- ▶ Learning goals
- ▶ Clicker questions
- ▶ In-class problem solving

Course materials:

- ▶ Learning goals
- ▶ Problems and solutions

Office hours: Thursday after class and Monday morning or afternoon?

What I suggest you do to succeed

- ▶ Engage with the materials in lectures and tutorials.
- ▶ Complete the assignments by yourself.
- ▶ Make a plan and test yourself based on the learning goals.
- ▶ Struggling is necessary for learning.