

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.

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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

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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

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

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- ▶ **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.

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Lectures:

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

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

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- ▶ Complete the assignments by yourself.
- ▶ Make a plan and test yourself based on the learning goals.
- ▶ Struggling is necessary for learning.