Stanford University

Lecture 01: Welcome

CS198B: Additional Topics in Teaching Computer Science
Spring 2026

Stanford University

Computer Science Department

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Introductions: Secret Questions

In your introduction please give us:

- your name
- a favorite SL memory
- your secret question answer…

What is CS198B all about?

- **A nuanced and refreshed perspective on course topics.** This is the content knowledge that should help you prepare for sections quickly and answer student questions with grace.
- **Methods to think about teaching and teaching strategies.** This is pedagogical knowledge: not just knowing 106B, but the ways you can organize and present its content that better guide students towards understanding it.
- **Techniques to lead and organize a classroom.** This is the practical application of pedagogical and content knowledge in-person to create an effective learning environment.
- **Hands-on experience utilizing, and contributing to, course resources.** Preparing for LaIR or section doesn't have to happen in a vacuum; together, we can build an ecosystem of tools and educational materials to make us all stronger section leaders.

Logistics

- Attendance and Participation in Full Group and Small Group Meetings is **MANDATORY FOR CREDIT**
  - Everyone gets two excused absences, no questions asked
  - If you **KNOW** you will be absent from a meeting be sure to **TELL US IN ADVANCE**
  - Each tardy to full group of >5 minutes will count as half an absence

- One Full group meeting every week that every SL in 198B is expected to attend
  - Lecture-style content on pedagogy and topic reviews
  - 50 minutes long
- One Small group meeting every week made up of around 4-5 SLs in each paired with an SGL
  - Prep a question from that week's section problem list
  - Each SL will cover a question for 8-10 minutes
  - Up to 60 minutes long

Final Projects

- **Pass/Fail Assignment** that is expected to take **2-6 hours** to complete
- Task: develop a new resource for CS198/CS198B/CS106B that improves the function of pedagogy of the respective course.
- Must fit into a **category pre-determined by us** (in conjunction with the coords and faculty)
  - To work on something outside of a provided category you must get SGL approval
- Can be completed **individually or in a group**
  - Note: group projects are expected to be scaled in scope based on number of members
- Criteria and Categories will be released Week 3

Course Development

CS198B is a constantly changing class.

As part of this ongoing process, we want as much feedback from y'all as possible. We will have three official surveys (at the beginning, middle, and end of the quarter) that are a necessary component of the participation grade.

However, if at any point you have additional feedback, please let us know!

Questions?

Teaching as Creative Design

Zone of Proximal Development

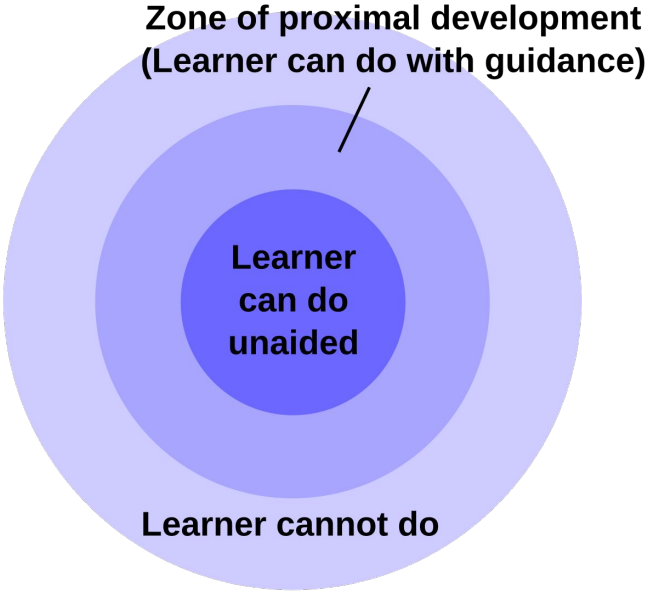
What should we teach students…? 🤔

❌ DON'T help a student do something they can already do on their own

❌ DON'T give a student a task that is impossible for them

Between these points is the zone of proximal development

✅ DO guide students through *challenging problems* that are still possible for them, *given guidance*

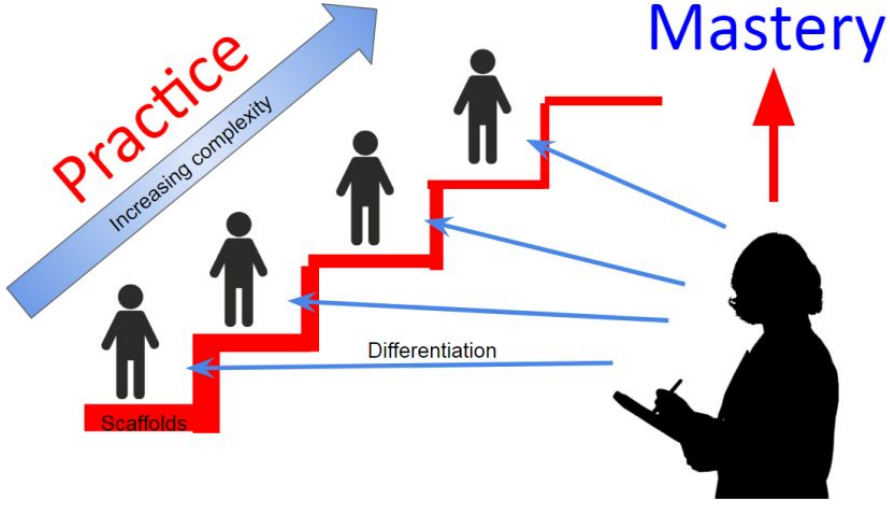


Scaffolding Framework

- As section leaders, we are the first line of staff interacting with students

- To facilitate learning, scaffolding calls for us to:
  - Collaborate with the student
  - Keep the problem in the zone of proximal development
  - Gradually remove support as the student learns

- LaIR does this at small scale
- Section does this at big scale

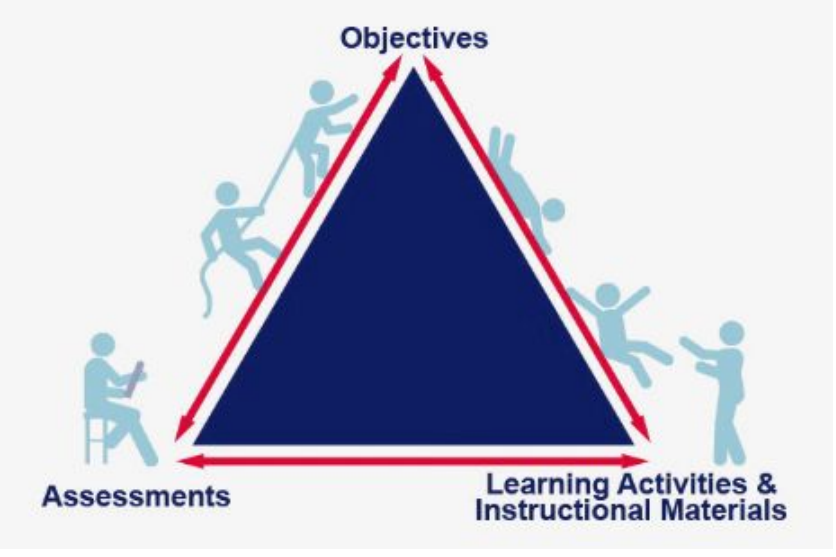


Backwards Design

Teaching goes beyond just helping implement existing resources: it calls on us to design new activities and materials

Backwards Design Steps:

1. Decide on learning goals
2. Decide how to assess that students have learned those goals
3. Create content and activities that promote achievement of the learning goals



Questions?

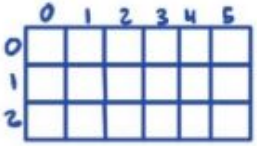
Containers/ADTs

Ordered ADTs

↳ Abstract Data Type

- **Vector** (1d)

- **Grid** (2d)



Indexed

- **Queue** (FIFO)
  - ↳ First In First Out

- **Stack** (LIFO)
  - ↳ Last In Last Out

Not Indexed

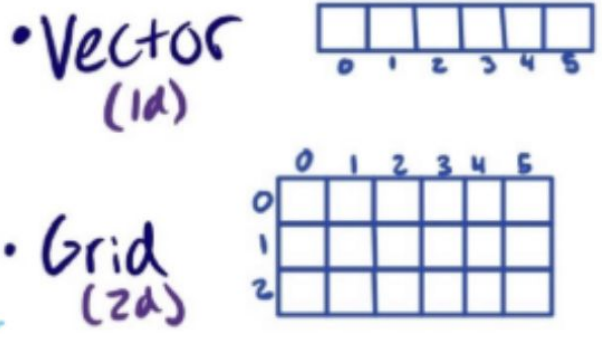
Unordered ADTs

- **Set** (unique elements)
  - ↳ no duplicates

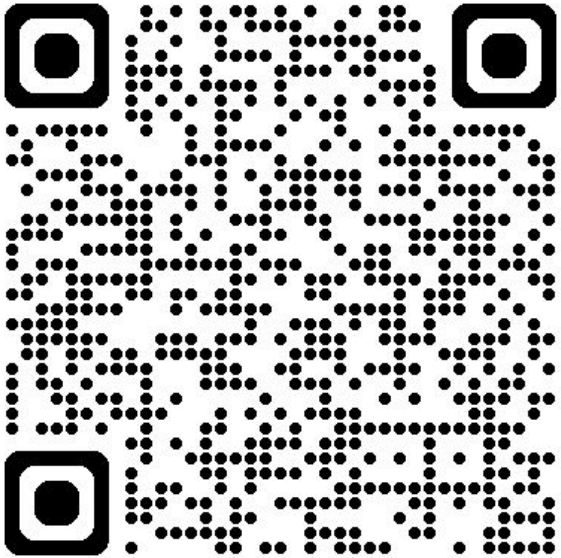
- **Map** (unique keys)


```
Grid<int> myGrid;
GridLocation loc = {10, 5};
if (myGrid.inBounds(loc)) {
    ...
}
```

KISS, MARRY, KILL: ADTs EDITION



Reference the Stanford Library Documentation!



Full Group & Small Group Logistics

Beginning Survey due this Friday @ 11:59 PM

Recap

- Make sure you're in the **slack**
- Make sure you're **enrolled** in the class
- Fill out your **small group logistics** form
- **Beginning Survey** due Friday
  - Help us get to know you 😀
- **No small group this week**
  - Put in your calendar a small group AND section visit next week
- Ask us any questions :)