Christine Alvarado

- **Current position**: Lecturer with Security of Employment, UCSD (1.5 years)
- **Previously**: Associate Professor of Computer Science, Harvey Mudd College (7 years, with 1 sabbatical)

UC San Diego

Large public school
~500 students, per year in Computer Science!

Harvey Mudd College

Small private school
~800 students, total
Q: What do these schools have in common?

A: My job description

**UC San Diego**

2 courses per quarter
= 6 courses per year
Teaching occupies ~75% of my time.
Other expectations include “scholarly activity”, service and contributions to diversity

**Harvey Mudd College**

2.5 courses per semester
= 5 courses per year
Teaching occupies ~75% of my time
Other expectations include “scholarly activity”, service and contributions to diversity
What courses have I taught?

Intro programming (in Java and Python; for advanced students and beginners)
Intro programming 2 (CS 1.5)
“Baby” data structures
Advanced data structures
Computer Architecture
Operating Systems
Programming Languages
Artificial Intelligence
User Interface Design
Pen-based Interfaces
Teaching Methods in Computer Science (TA training)
Summer programs for high school students

Perhaps a better question is what have I not taught
Do I get a choice? Yes and no…
Who is my audience? Do they want to be there?

- Typically I teach to CS majors, but many of my lower div courses have non majors who are required to take the class
- My students want to be there because I convince them that they want to be there
3 ESSENTIAL TIPS FOR HOW TO LOVE TEACHING AND STAY SANE
Limit your new preps

- Make a 2-3 year plan with your chair
- Teach each class at least twice (preferably more)
- Limit the number of different classes you teach as much as possible for the first 3-5 years
Put hard boundaries on your prep time

- My first year... I saw a lot of 2’s and 3’s in the wrong digit on the clock

- My solution:
  - Do my class prep in the N hours before class
  - Forced me to limit prep time
  - Usually class went just as well!
Put hard boundaries on your prep time

- Choose $N$ that is comfortable for you ($N$ between 1 and 3 seems to work well)
- Leave (some of) your class prep for the $N$ hours right before class
- You will get better at fitting things into this limited time
- Then you can move the hours around! (I now typically prep well before class, but I am good at keeping the work within the bounded time)
“Flip” your classroom! (Or, rather, just make it active)

- Specifically, consider a technique called Peer Instruction
Flipped classroom with Peer Instruction

Lecture
First Exposure

Textbook & Homework
Hard Stuff

Exam
Show Knowledge Mastery

Textbook & Closed Lab
First Exposure

Lecture
Grapple with Hard Stuff: With teacher and discussion

Homework
Practice skills

Exam
Show Knowledge Mastery

Slide credit: Beth Simon
Peer Instruction

1. Students individually consider and respond to a multiple choice question

2. Students discuss the *same* question in groups, then submit another response

3. Instructor guides students in a class-wide discussion

public static boolean contains( int[] a, int num )
{
    for ( int x : a )
    {
        if ( x == num )
        {
            return true;
            System.out.println( "Found it!" );
        }
    }
    return false;
}

public static void main( String[] args )
{
    int[] myA = {2, 4, 6, 1, 15};
    MyClass.contains( myA, 1 );
}