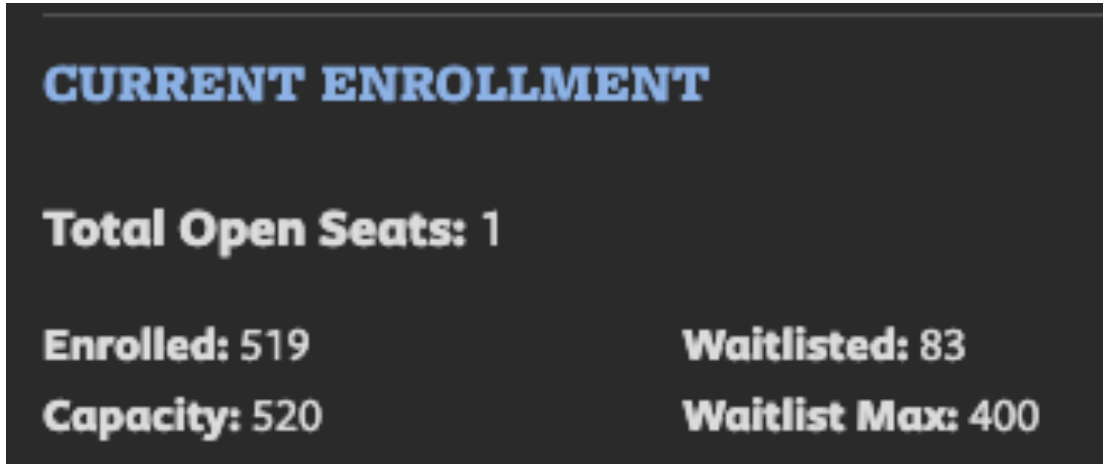
Welcome to CS 61A!

Enrolled students in person…
(Live lecture on zoom: https://tinyurl.com/CS61A-Sp26)

Enrollment check



CURRENT ENROLLMENT

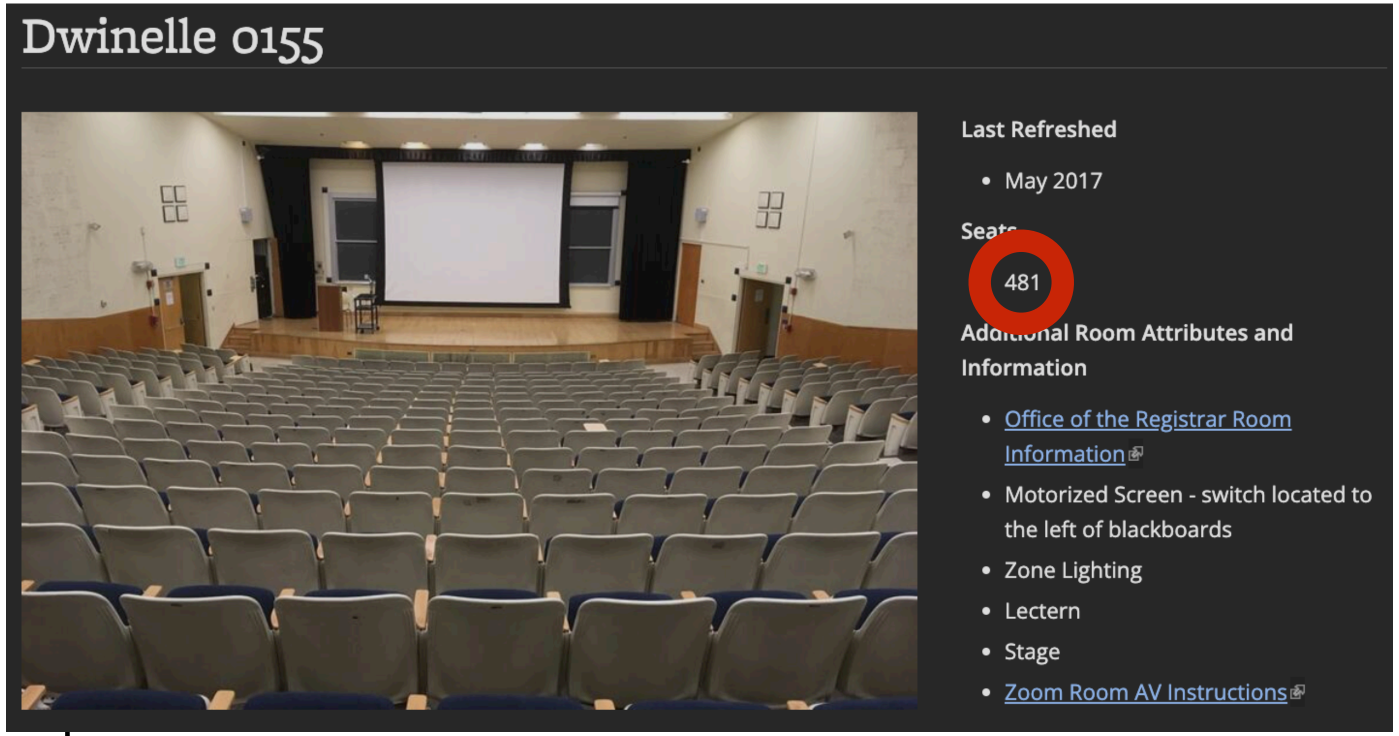
Total Open Seats: 1

Enrolled: 519

Capacity: 520

Waitlisted: 83

Waitlist Max: 400



Dwinelle 0155

Last Refreshed

- May 2017

Seats

481

Additional Room Attributes and Information

- Office of the Registrar Room Information
- Motorized Screen - switch located to the left of blackboards
- Zone Lighting
- Lectern
- Stage
- Zoom Room AV Instructions

We're full at 520 students
- 83 more on waitlist
- 72 more are concurrent enrollment students
- = potentially 675 students … in a room that holds 481

We asked the department to expand class (we're optimistic) and will let all know updates when we hear… Until you're registered (so you're not behind if/when you are enrolled):
- You can't attend live lecture
- Attend the "mega" sections
- Keep up with the homework / project

Instructors

Dan Garcia (he/him)
ddgarcia@berkeley.edu

Teaching Professor in EECS

I got my PhD from UC Berkeley!

I do research in Computational Game Theory and CS Education

Personal interests: Golf, Travel, Snowboarding, Genealogy

Office hours start next week:

- Mondays 5–6pm (777 Soda)

Manuel Sabin (they/them)
msabin@berkeley.edu

NEW Teaching Professor in EECS

I got my PhD from Berkeley too!

My research is in Theoretical Computer Science (Complexity Theory) and CS Education

Personal interests: Guitar, Cats, Judo, Gardening

Office hours start next week:

- Fridays 9–10am (621 Soda)

https://cs61a.org/staff/

About the Course

What is This Course About?

A course about managing complexity

- Mastering abstraction
- Isolating and solving problems
- Techniques for organizing complex programs

An introduction to programming

- Full understanding of Python fundamentals
- Large projects to demonstrate how to manage complexity
- How computers interpret programming languages

Different types of languages: Python, Scheme, & SQL cs61a.org

Should you take CS 61A?

According to the Syllabus

There is no formal programming-related prerequisite for CS 61A, but...

- Taking the course without any prior programming experience is typically very challenging.
- Most CS 61A students have had significant prior programming experience.
- Students who take the course without prior programming experience typically **must work substantially harder** to master the material and **tend to receive lower final grades.**

Students who take the course later often get more out of it due to increased understanding.

CS 10: The Beauty and Joy of Computing

Designed for students without prior experience

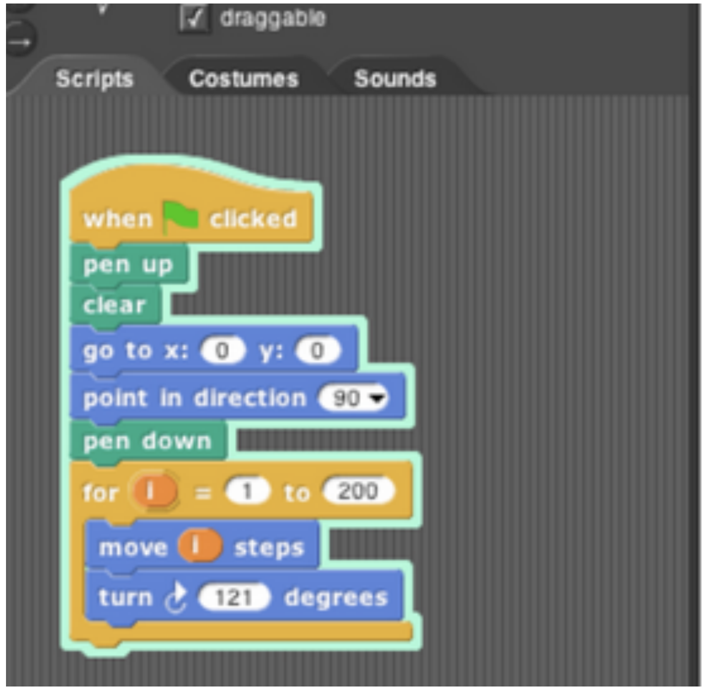
A programming environment created by Berkeley,
now used in courses around the world and online

An introduction to fundamentals (& Python)
that sets students up for success in CS 61A

If you might switch to CS 10, start attending its lectures ASAP and enroll soon before it fills!

More info: http://cs10.org/

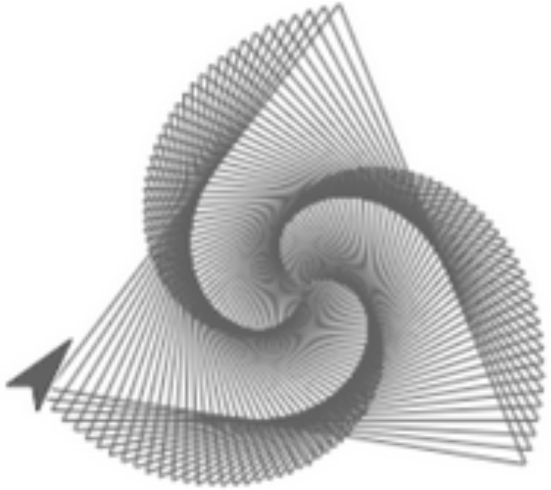
Dan is teaching it also!!



☑ draggable

Scripts Costumes Sounds

```
when 🏳 clicked
pen up
clear
go to x: 0 y: 0
point in direction 90
pen down
for i = 1 to 200
  move i steps
  turn ↻ 121 degrees
```



Data C88C (Formerly CS 88): Computational Structures in Data Science

Based on CS 61A, but covers only 3 out of 4 units worth of the content:

- Two programming projects (instead of four) that are adapted from CS 61A projects
- Everything you need to know to continue on to CS 61B
- Omits the unit on how programs run other programs

For students taking Data 8 (Foundations of Data Science) or who took it already

We're investigating expansion options

How to Succeed

Lecture, Videos, and the Textbook

Videos posted to cs61a.org are essential viewing **before** coming to lecture. All of the course content will be covered in the videos.

Get the most out of the videos by typing examples from the videos yourself!

The textbook, composingprograms.com, is written to be concise and useful. Its content is very similar to the videos.

Lecture Mon, Wed, & Fri will cover *the most important content* from the videos (but not all of it), work through examples, discuss problem-solving strategies, and give perspective.

Spotify then

Student Advice from Fall 2024

"Watch videos before lecture"

"Watch the videos. Definitely helps with understanding the lecture beforehand, and the reason why I was so lost during the second half of the semester."

"Obviously watch the videos, try not to watch it at 2x speed (which is what I did and regret)...if you don't take time processing information, it will leave your brain by next morning"

"keep up with lectures, watch the videos, try to really understand everything along the way so it doesn't pile up at the end"

"Make sure to watch lecture videos before the lectures, so that lectures can be utilized for asking questions and further understanding."

https://cs61a.org/articles/advice/

Problem-Solving Practice

Solving problems becomes easier with **practice.**

Lab Monday/Tuesday: attendance is required (unless you're in mega lab)

Discussion on Wed/Thurs/Fri: attendance is required (unless you're in mega discussion)

These prepare you for weekly **homework** assignments & four larger programming **projects**

Drop-in one-on-one assignment help (called "**office hours**" at Cal) starts next week.

What does a "discussion section" look like?

Expectation

https://engineering.berkeley.edu/students/academic-support/

Reality

https://www.microsoft.com/en-us/research/blog/grassroots-data-science-education-uc-berkeley/

Goal: Provide a great environment to learn how to solve problems through practice & *discussion*

Discussion (Starts This Week)

Unless you've elected the mega discussion...

- You should have a group number shared with the 4-6 students in your group, a room, and a discussion time. There will be 2-7 groups per room, so make sure you find the right group.

- TAs often oversee discussions in two rooms simultaneously.

What happens during discussion section?

- You're given a paper worksheet full of problems to solve together & some instructions.

- The point is not just to solve those problems, but to learn how to solve similar problems.
  - Discussion problems aren't graded; you don't have to solve them all.
  - If you solve them all but don't talk to anyone, you've missed out.

- Bring a laptop or tablet, but a phone works in a pinch.

Student Advice from Fall 2024

"Try to collaborate and with others and try to make friends within the class."

"Attend lab and make sure you understand how each program is structured"

"really utilize discussions. learning is easier with others!"

"Attend discussions and labs as it helps you discuss the content with other students"

"Go to discussion. I am so, so grateful for the fact that I had an active discussion group. Make the tough choice and commit yourself to spending that hour each week solving problems with other people just as confused as you are-- I guarantee that you'll look back on the decision and have no doubt that it was worthwhile."

"ASK OTHER PEOPLE FOR HELP WHEN NEEDED, DON'T BE AFRAID TO MAKE FRIENDS!!!”

Take 3 minutes and get to know the people around you!

Important: Lab 1

Prep: Lab 0 is posted. Try to complete it **before** you come to Lab 1.

Your first exam: Quest (many more details later)

50m online assessment delivered Mon–Tue–Wed of week 4 (just before drop-deadline)

You schedule yourself for the exam!

You’ll take it using PrairieLearn in a Computer-Based Testing Facility (CBTF)

It’ll be auto-graded, so won’t require the TAs to grade all night to get scores back to you

We’re preparing a “practice quest” and will release when it’s ready

We’ll ask you to sign up for an Orientation some time week 3

Your midterm will be a traditional pen-and-paper 2hr evening exam

Your final will be a traditional pen-and-paper 3hr exam

Asking Questions

?

Ed: You can reach all staff (private posts) and all students (public posts)

ddgarcia@berkeley.edu / msabin@berkeley.edu: Prefer you ask first on Ed

cs61a@berkeley.edu: Goes to several staff members & the instructors

Course Policies

Course Policies

Learning

Community

Course Staff

Details...

https://cs61a.org/articles/about-61a/

Collaboration

Working together is highly encouraged

- Discuss everything with each other; learn from your fellow students!
- Some projects can be completed with a partner

What constitutes academic misconduct?

- *Please* don’t look at someone else's code!
  Exceptions: lab, your project partner, or **after you already solved the problem.**
- *Please* don't tell other people the answers! You can point them to what is wrong and describe how to fix it or show them a related example.
- *Please* don't use AI tools (such as ChatGPT or Copilot) to write code for you.
  - Do not use the "Github Copilot" extension in VS Code in this course.
- Copying/generating project solutions causes people to fail the course.

Build good habits now

AI Use

- **Acceptable use of AI (except AI banned during exams)**
  - *“Teach me <CS61A topic>”*
  - Try: *“Teach it to me as if I were in grade school” (then middle school, high school, college)* if lost to get big ideas first.
  - *“Generate some exam problems for me to practice”*
  - *“Can you teach me debugging techniques for Python?”*

- **Unacceptable uses of AI (and Googling + other people)**
  - *“Here’s the project specification, please do it for me”*
  - *“Write this function / block for me”*
  - *“Here’s my broken code, debug it for me”*

Build good habits now

Let's Stop Harassment & Discrimination

Disparaging remarks targeting a particular gender, race, or ethnicity are not acceptable.

From the Berkeley Principles of Community:

> "We affirm the dignity of all individuals and strive to uphold a just community in which discrimination and hate are not tolerated."

From the EECS department mission:

> "Diversity, equity, and inclusion are core values in the Department of Electrical Engineering and Computer Sciences. Our excellence can only be fully realized by faculty, students, and staff who share our commitment to these values."

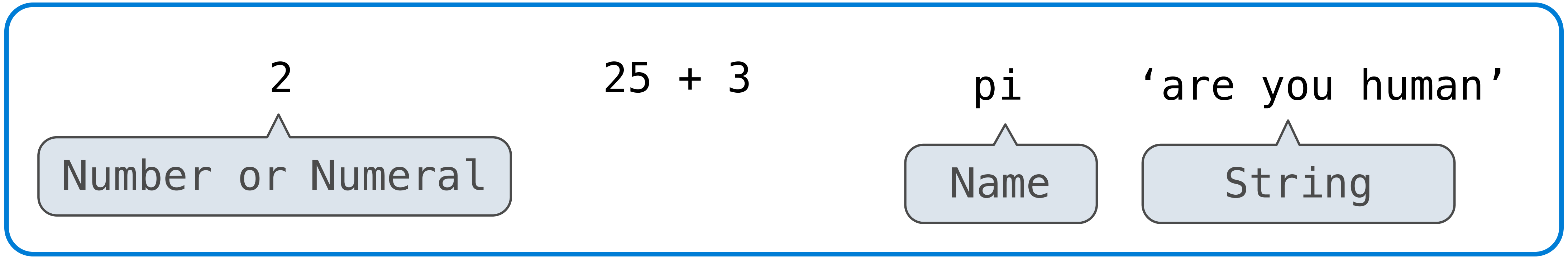
EECS Student Climate & Incident Reporting Form: Informs the EECS department of any issues. You can also contact Antoine Davis (antoined@eecs.berkeley.edu) directly.

Basic Needs: https://basicneeds.berkeley.edu/

Values, Operators, and Expressions

Types of expressions

An expression describes a computation and evaluates to a value



2

Number or Numeral

25 + 3

pi

Name

‘are you human’

String

$$\frac{6}{23}$$

$$\log_2 1024$$

$$2^{100}$$

$$\sin \pi$$

$$\sqrt{3493161}$$

$$\boxed{f(x)}$$

$$7 \bmod 2$$

$$\lim_{x \to \infty} \frac{1}{x}$$

$$\sum_{i=1}^{100} i$$

$$\binom{69}{18}$$

$$|-1869|$$

We hope you LOVE CS61A!!

…see you Friday…
(and be sure to watch the videos first!)