Welcome to Berkeley Computer Science!

How to contact me:
denero@berkeley.edu
piazza.com/berkeley/fall2015/cs61a

Fall 2015 office hours:
781 Soda
Monday 3pm-4pm
Thursday 10am-11am
Fridays by appointment
denero.org/meet

The Course Staff

- 40+ Teaching Assistants (GSIs/UGSIs) run labs, discussions, and office hours
- 30+ Tutors are your personal programming mentors
- 150+ Lab Assistants ensure that you don’t get stuck for too long

Parts of the Course

- Lecture: Videos posted to cs61a.org before each live lecture
- Lab: The most important events in this course
- Discussion: Also the most important events in this course
- Office Hours: Also the most important events in this course [11-5 M-Th & 11-1 Friday]
- Online textbook: http://composingprograms.com

- Weekly homework assignments, three exams, quizzes, & four programming projects
- Lots of special events

What is Computer Science?

The study of

- What problems can be solved using computation, how to solve those problems, and what techniques lead to effective solutions
- Systems
- Artificial Intelligence
- Graphics
- Security
- Networking
- Programming Languages
- Theory
- Scientific Computing

- Decision Making
- Robotics
- Natural Language Processing
- Translation
- Answering Questions

What is This Course About?

- A course about managing complexity
- Mastering abstraction
- Using programming paradigms
- Completing big projects
- An introduction to Python
- Full understanding of fundamentals
- Learning through implementation
- How computers interpret programming languages
- A challenging course that will demand a lot of you

Other Courses

- 61B
- 61C
- 61D
- 61E
- 61F
- 61G
- 61H
- 61I
- 61J
- 61K
- 61L
- 61M
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- 62S
- 62T
- 62U
- 62V
- 62W
- 62X
- 62Y
- 62Z
You choose the pace! The course can be completed over two semesters.

Extra content for people without prior programming experience

A brilliant textbook, interesting projects, a great language, and a dedicated course staff

More info: cs61as.org

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 (6 Python) that sets students up for success in CS 61A

More info: cs10.org

Fundamentals of computing and inference applied to real-world data

Great programming practice for CS 61A

In Fall 2015, piloted as Stat 94 (CCN: 87470)

More info: data8.org & databears.berkeley.edu

Details...
http://cs61a.org/about.html

Types of expressions

An expression describes a computation and evaluates to a value

\[ 18 + 69 \]

\[ \frac{6}{23} \]

\[ \sin \pi \]

\[ \log_2 1024 \]

\[ 2^{100} \]

\[ f(x) \]

\[ 7 \mod 2 \]

\[ \sum_{i=1}^{100} i \]

\[ \lim_{x \to \infty} \frac{1}{x} \]

\[ -1869 \]

\[ \sqrt{4236161} \]

\[ (69)^{18} \]
Call Expressions in Python

All expressions can use function call notation

Anatomy of a Call Expression

Evaluation procedure for call expressions:

1. Evaluate the operator and then the operand subexpressions
2. Apply the function that is the value of the operator subexpression to the arguments that are the values of the operand subexpression

Evaluating Nested Expressions

Expression tree

Functions, Objects, and Interpreters