Welcome to CS106A!

- Three Handouts
- Today:
  - Course Overview
  - Why Learn to Program?
  - Meet Karel the Robot
Who's Here Today?

- Aeronautical Engineering
- African Studies
- Applied Physics
- Bioengineering
- Biology
- Business Administration
- Chemical Engineering
- Chemistry
- Chinese
- Civil Engineering
- Classics
- Communication
- Comparative Literature
- Creative Writing
- Earth Systems
- East Asian Studies
- Education
- Economics
- Electrical Engineering
- English
- Environment and Resources
- Film and Media Studies
- History
- Human Biology
- Iberian and Latin American Cultures
- International Relations
- Japanese
- Law
- Management
- Materials Science
- Mathematical and Computational Science
- Mathematics
- Mechanical Engineering
- Medicine
- Mideastern Languages
- Management Science and Engineering
- Music
- Neuroscience
- Philosophy
- Physics
- Political Science
- Public Policy
- Psychology
- Science, Technology, and Society
- Spanish
- Statistics
- Symbolic Systems
- Urban Studies
- Undeclared!
Course Staff

Instructor: Keith Schwarz
(htiek@cs.stanford.edu)

Head TA: Gil Shotan
(gilsho@stanford.edu)

The CS106A Section Leaders
The CS106A Course Helpers
Course Website

http://cs106a.stanford.edu
Prerequisites

The void where prerequisites usually go
Required Reading

Karel the Robot Learns Java
Required Reading

The Art & Science of Java
An Introduction to Computer Science

ERIC S. ROBERTS
Grading Policies
Grading Policies

- 55% Assignments
- 20% First Midterm
- 20% Second Midterm
- 5% Section Participation
Grading Policies

55% Assignments

20% First Midterm

20% Second Midterm

5% Section Participation

Seven Programming Assignments
Grading Policies

- 55% Assignments
- 20% First Midterm
- 20% Second Midterm
- 5% Section Participation
Grading Policies

- 55% Assignments
- 20% First Midterm
- 20% Second Midterm
- 5% Section Participation

First Midterm Exam
Monday, February 11
7 PM - 10 PM
Grading Policies

- 55% Assignments
- 20% First Midterm
- 20% Second Midterm
- 5% Section Participation
Grading Policies

55% Assignments
20% First Midterm
20% Second Midterm
5% Section Participation

Second Midterm Exam
Monday, March 11
7PM - 10PM
Grading Policies

- 55% Assignments
- 20% First Midterm
- 20% Second Midterm
- 5% Section Participation
Discussion Sections

- Weekly discussion sections.
- Section attendance is **required** in CS106A.
- Sign up between Thursday, January 10 at 5:00PM and Sunday, January 13 at 5:00PM at [http://cs198.stanford.edu/section](http://cs198.stanford.edu/section)
- Do not enroll through Axess; everything will be handled through the above link.
The CS106A Units Flowchart

Start Here

Are you an undergrad? NO

Do you want to take CS106A for fewer units? NO

5 Units NO

3 Units -or- 4 Units YES
Getting Help

- LaIR Hours!
  - Sunday – Thursday, 6PM – Midnight
  - Starts next week.
- Gil's Office Hours in Gates 160
  - Monday/Wednesday, \textbf{10AM – 12PM}
- Keith's Office Hours in Gates 178
  - Tuesdays, 2 – 4PM.
Why Learn to Program Computers?
Computer science is no more about computers than astronomy is about telescopes, biology is about microscopes or chemistry is about beakers and test tubes. Science is not about tools, it is about how we use them and what we find out when we do.

- Michael Fellows and Ian Parberry,
  “SIGACT trying to get children excited about CS”
Computer science is no more about computers than astronomy is about telescopes, biology is about microscopes or chemistry is about beakers and test tubes. Science is not about tools, it is about how we use them and what we find out when we do.

- Michael Fellows and Ian Parberry, “SIGACT trying to get children excited about CS”
Hey, that's us!
All of these projects occurred within the last ten years.
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- Urban Studies
- Undeclared!
Goals for this Course

- **Learn how to harness computing power to solve problems.**

- To that end:
  - Explore fundamental techniques in computer programming.
  - Develop good software engineering techniques.
  - Gain familiarity with the Java programming language.
Meet Karel the Robot
Karel's World

Diagram:

1 2 3 4 5

3

2

1

Karel's position

Diamond

Path traced by Karel
Karel's World
Each row is called a street.
Karel's World

Diagram of a grid with Karel's starting position and the path he takes to the goal.
Each column is called an avenue.
Karel's World
The intersection of a street and an avenue is a **corner**.
Karel's World
Karel's World

Karel cannot move through walls.
Karel's World
Beepers mark locations in Karel's world.
Karel's World
Karel's World

Karel Commands
Karel's World

Karel Commands

move
Karel's World

Karel Commands

move
Karel's World

Karel Commands

move
Karel's World

Karel Commands

move
Karel's World

Karel Commands

move
Karel's World

Karel Commands
- move
- pickBeeper
Karel's World

Karel Commands

- move
- pickBeeper
Karel's World

Karel Commands

- move
- pickBeeper
- turnLeft
Karel's World

Karel Commands
- move
- pickBeeper
- turnLeft
Karel's World

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- move
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Karel Commands

- move
- pickBeeper
- turnLeft
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Karel Commands

- move
- pickBeeper
- turnLeft
- putBeeper
Karel's World

Karel Commands

- move
- pickBeeper
- turnLeft
- putBeeper
Get Ready!
It's Time for Your Very First Karel Program!