Welcome to CS 101!

Introduction to Programming

CS101 Lecture #1
go.illinois.edu/cs101
Grading

<table>
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<tr>
<th>Percentage</th>
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<td>20%</td>
<td>Homework</td>
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Required Supplies

- i>clicker
  Grades count starting Wed 08-31
Required Supplies

- **i>clicker**
  Grades count starting Wed 08-31

- **CodeLab account**
  Instructions in hw01
Required Supplies

- i>clicker
  Grades count starting Wed 08-31
- CodeLab account
  Instructions in hw01
- No textbook!
Homework Policies

- No late homework submissions.
Homework Policies

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- All machine-generated grades are final.
Homework Policies

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- All machine-generated grades are final.
- Late registrants should keep up with work.

Corollary: No extensions or exceptions for late registration.
Homework Policies

- No late homework submissions.
- All machine-generated grades are final.
- Late registrants should keep up with work.
  
  Corollary: No extensions or exceptions for late registration.

- Get help at Piazza forum.
  
  Be civil to staff and peers.
  All posts containing solutions should be marked as private.
Lab #1 begins today!
Early mathematics
Early mathematics

pentagon construction
Early calculation
Early calculation
AN ESSAY
Towards a
REAL CHARACTER,
And a
PHILOSOPHICAL
LANGUAGE.

By John Wilkins D.D. Dean of Ripon,
And Fellow of the ROYAL SOCIETY.

LONDON,
Printed for S. Gellibrand, and for
John Martyn Printer to the ROYAL
SOCIETY, 1668.
Modern calculation
Modern calculation
Modern calculation
Modern calculation
Modern calculation

David Hilbert
Alan Turing
Kurt Godel
Alonzo Church
Modern calculation
Modern calculation
add \$t0, \$t1, \$t2
Computing

Programming

```plaintext
add $t0, $t1, $t2
x = y + z
```
depth * area = volume
depth * area = volume

\[
\text{volume of rain} / \text{volume per raindrop} = \text{number of raindrops}
\]
depth * area = volume

volume of rain / volume per raindrop = number of raindrops

volume_rain = area * depth
depth * area = volume

volume of rain / volume per raindrop
    = number of raindrops

volume_rain = area * depth

n_raindrops = volume_rain / volume_raindrop
What is a program?

A set of instructions a computer executes to achieve a goal.
What is a program?

- A set of instructions a computer executes to achieve a goal.
What is data?

Information stored in a computer. All data is stored in binary.
What is data?

- Information stored in a computer.
What is data?

- Information stored in a computer.
- All data is stored in binary.
What is data?

- Binary data must be interpreted:
  - instruction
What is data?

- Binary data must be interpreted:
  - instruction
  - value (number, character)
What is data?

- Binary data must be interpreted:
  - instruction
  - value (number, character)
  - memory location
What is data?

- Binary data must be interpreted:
  - instruction
  - value (number, character)
  - memory location
What is a program?

Programs are data! Instructions are encoded in binary.
What is a program?

- Programs are data!
What is a program?

- Programs are data!
- Instructions are encoded in binary.

```
00000001 00101010 01000000 00100000
add $t0, $t1, $t2
x = y + z
```
Reminders
Reminders

- **i>clicker**
  Grades count starting Wed 08-31

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