

**CS100J Fall 2007**

- CS100J: Intro to computing, using Java.  
David Gries, instructor.
- CS100M: Intro to computing, using Matlab.  
Daisy Fan, instructor.
- CS100R: 14 weeks of Matlab, using robots.

**CS100J & CS100M: no previous programming experience required.**

**CS100R: Programming some language. Will move fast.**

**Quote for the day:**

"I think there is a world market for maybe five computers."

--Thomas Watson, chairman of IBM, 1943

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**CS100J Fall 2007**

**CS100: M or J?**

**M**

- No prior programming experience
- Matlab
- One semester of calculus
- Math & engineering type problems

**J**

- No prior programming experience
- Java
- No calculus
- Non-numerical problems
- Later assignments: processing images, games, playing music

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**CS101J: Transition to OO (using Java)**

**CS101M: Matlab**

- Both require previous programming experience.
  - CS101J starts this fall, CS101M in spring 2007.
  - Self-paced, 1-credit (4 weeks), S/U courses.
- Engineers take CS100M-CS101J or CS100J-CS100M.

**CS211 Computers & Programming**

- Uses Java
- Prerequisite: CS100J or CS101J.
- This semester only: CS101J corequisite, or take informally.

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**Course outcomes:**

- (1) Basic understanding of object-oriented and procedural aspects of programming, as expressed in Java.
- (2) Fluency in Java —able to write programs using classes and subclasses, as well as assignments, conditionals, recursion, and loops.
- (3) Knowledge of the basic API classes and their specifications.

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**CS100J Fall 2007**

**Methods to increase chances of success in the course.**

1. **Section.** In the **ACCEL Lab**, where you will do guided exercises on the computer, with a TA and some consultants walking around, helping.
2. **Quizzes.** Designed to let you know what material is important for you to know at that point. You will know quite clearly what the quiz will cover, and everyone is expected to get A on each quiz.
3. **Lectures are not 45 minutes of Gries talking.** You will see demos of programming and execution of programs in class almost every lecture. There will be some interactive work with you. We will try to make it interesting.

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**Methods to increase chances of success in the course.**

- **Course text:** provides an alternative way for you to learn the material; the CD at the back of the book has 250 2-4 minute lectures, each on one specific point.
- **"Interludes"**, where we will discuss some aspect of computing or the internet or computer science, to help you understand the computing world we all live in today.
- **AEW Workshops.** 1 credit, 2 hours. No homework. No class this week.  
M 0230-0425P or F 0230-0425P  
If sections get filled, we can add more.  
Talk to advisors in Olin 167.

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## CS100J

### Reading for this and the next lecture:

Sections 1.1, 1.2, 1.3. Lab 1 will give you practice with concepts and details of 1.2, 1.3

**PLive:** Lesson 0, Lesson page 1.3, Activity 1-4.1.

**Summary of lectures:** On course home page, click on “Handouts” and then “Outline of lectures held so far”.

### Today:

- Introduce expressions in Java (using DrJava)
- Show you around the CD **ProgramLive**

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## Programming Languages

- **Computer program:** set of instructions for a computer to perform, or execute. Written in a programming language.
- **Machine (computer) instructions:**
  - Load memory location 60000 into register 2
  - Load memory location 80310 into register 3
  - Add register 2, register 3, put result in register 2
  - If register 2 > 0, take next instruction from location 40000
- Use **high-level language:** Java, C, C++, Matlab, Algol 60.
- **Compiler:** translates program written in Java into a machine language.

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Type: A set of values together with operations on them.

Memorize this definition!  
Write it down several times.

Type **integer**:

values: ..., -3, -2, -1, 0, 1, 2, 3, 4, 5, ...

operations: +, -, \*, /, unary -

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Type: A set of values together with operations on them.

Memorize this definition!  
Write it down several times.

Type **integer**:

values: ..., -3, -2, -1, 0, 1, 2, 3, 4, 5, ...

operations: +, -, \*, /, unary -

Type **int**:

values: -2147483648, -2147483647, ..., -3, -2, -1, 0, 1, 2, 3, 4, 5, ..., 2147483646, 2147483647

operations: +, -, \*, /, unary -

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Type: A set of values together with operations on them.

Type **double**:

values: Examples:   $-22.51E6$  equivalent to  $-22510000$  or  $-22.51 * 10^6$   
 $22.51E-6$  equivalent to  $.00002251$  or  $22.51 * 10^{-6}$

An approximation to the real numbers.

operations: +, -, \*, /, unary -

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## Precedence of operators (page 23)

- Unary operators: + - !
- Binary arithmetic: \* / %
- Binary arithmetic: + -
- Arithmetic relations: < > <= >=
- Equality relations: == !=
- Logical and: &&
- Logical or: ||

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