

**Introduction to Computing Using
Matlab**

CS1112 Fall 2008
(CIS1121)
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<http://www.cs.cornell.edu/courses/cs1112/>

Course Goals

- Develop a practical intuition about **computer problem-solving** and its role in science and engineering
- Develop a facility with the **Matlab** programming environment.

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Computer problem solving

Key: Algorithmic thinking

Algorithm:
A step-by-step procedure that take you from a prescribed set of inputs to a prescribed set of outputs.

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Computer Programming

- Developing instructions for the computer to execute (in order to solve some problem)
- The steps must be **logical**
- Use a particular language *and follow the rules of the language (grammar/syntax)*

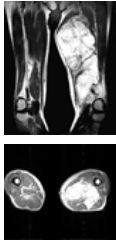
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Computer programming is ...

- a **tool** used by computer scientists, engineers, and other professionals
- not computer science

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Computer science at work in a medical application: MRI



- Imaging (vision)
- Software interface for display & analysis
- Data management
- Security

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Course highlights

- Develop and implement algorithms for solving problems—build your computational expertise
- Fundamental programming concepts
- Sort and search data
- Visualization of data
- Working with image and sound

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CS1112 has a focus on *computational thinking*:

Approximation, randomness,
model building, sensitivity of models

- Lecture examples and homework illustrate these themes
 - Edge detection
 - Ranking web pages
 - Congressional apportionment



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CS1112 Requirements—highlights

- Attend lectures and sections (labs)
- Monitor announcements on website
- Write all exams
- Do homework
- Take a subset of in-class quizzes, using clickers
- Adhere to the Code of Academic Integrity

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Grading

- Best 5 of six projects (25%)
- Section/Lab exercises + in-class quizzes (5%). We count best x of y items, $x < y$.
- Prelim 1 (10%)
- Prelim 2 (20%)
- Prelim 3 (20%)
- Final exam (30%)
- (Weight of worst exam reduced by 10%)

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Course Materials

- Course packet *Foundations of Computational Science & Engineering* by Fan & Van Loan.
 - Part 1 for CS1112 & CIS1121: available now at Campus Store
 - Part 2 for CS1112 only: available in October
- An iClicker clicker
- **MATLAB Student Version R14** optional because you can use it in the public labs

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What to do now?

- Pick a course
Take **either** CS1112 **or** CS1110, not both.
(add/drop: lecture **and** section **and** AEW)
- Check course website
- Start reading (see listing on course website)
- Attend section in the **lab** (Upson B7) next Tues/Wed

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