

## Today's lecture

- Course goals
- What is computer programming?
- Choosing among CS100 M, J, H
- Related courses
- Course objectives/policies (highlights)
- Example Matlab program

## Course Goals

- Develop a practical intuition about problem-solving with the computer
- Develop a facility with the [Matlab](#) and [Java](#) programming environments.

## 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)

## Example: *Adding songs from the internet to your music library*

- Find a website with MP3 or other audio files
- Register with the music site, if required for music downloading. (Don't steal music.)
- Click on the music file to download it onto your computer
- Drag the file to your library

Reference: iTunes

## Example: *Adding songs from the internet to your music library*

- Drag the file to your library
- Click on a music file to download it onto your computer
- Find a website with MP3 or other audio files
- Register with the music site, if required for music downloading. (Don't steal music.)

These steps are out of order! Illogical!

## Example: *Adding songs from the internet to your music library*

- Find a website with MP3 or other audio files
- Register with the music site, if required for music downloading. (Don't steal music.)
- Click [redacted] file to download [redacted]
- file Drag your library to

Bad grammar (syntax)!

## Key: Algorithmic Thinking

Algorithm:

A step-by-step set of rules to be followed in problem-solving.

Reference: Oxford Dictionary

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## Computer programming is ...

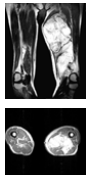
- a **tool** used by computer scientists, engineers, and other professionals
- not computer science

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## Computer science at work for a medical application: MRI



miritutor.org

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

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## Course Objectives—highlights

- Develop and implement algorithms for solving problems
- Fundamental programming concepts
- Basic application of object-oriented programming
- Sort and search data
- Visualization of data

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## CS100: M or J?

**M**

- No prior programming experience
- 7 wks Matlab, 7 wks Java
- One semester of Calculus
- Math & engineering type problems

**J**

- No prior programming experience
- 12 wks Java, 2 wks Matlab
- No Calculus
- More nonnumerical problems

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## CS100M Requirements—highlights

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

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