CMPSCI 190 IN / INFO 101
Introduction to Informatics

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Class and Office stuff

- Classroom ELAB 323, Tu/Th 4:00-5:15.
- No books (readings from the Internet)
- Bill's Hours:
  - LGRC A356, Tu/Th 2:00-3:30
  - verts@cs.umass.edu
- Michelle's hours:
  - CS212, Tu/Th 1:00-3:30
  - mtrim@cs.umass.edu

Course Scoring

- 15%: Midterm #1, October 2
- 15%: Midterm #2, November 6
- 25%: Final Exam, December 12, 3:30-5:30
- 45%: Class work throughout semester
  - Homework
  - Quizzes
  - Projects

What is Informatics?

- I haven't a clue.
- Actually, I have a clue, just not a sound-bite description that I'm happy with.
- Let's ask the Web…

Here's an Example: Digital X-Ray

- Someone with computer expertise can write code or use programs to:
  - Enhance contrast
  - Sharpen the image
  - Identify regions of interest
- Someone with medical expertise can then interpret the image to identify diseases.
- In Medical Informatics this is the same person.

So, Informatics is…

- "The study of information and the ways information is used by and affects human beings and social systems" (Ann Arbor)
- "The interdisciplinary study of the design, application, use and impact of information technology" (U.C. Irvine)

So, Informatics is…

- "The science of Information. It studies the structure, algorithms, behaviour, and interactions of natural and artificial systems which store, process, access, and communicate information." (Wikipedia)
- Broadly, the confluence of computer science with some other field.
- Is there a better sound-bite?

Examples

- Medical Informatics
- Data Mining & Information Analysis
- Bio-Informatics (Life Science Informatics)
- Social Computing
- Game Informatics

What is this class all about?

- We wish to give a broad introduction to the "Big Ideas" of Informatics.
- We will drill down more deeply into a few of these areas with projects and examples.
- We want you to understand:
  – Computational Thinking
  – Computational Methods and Artifacts
  – How to create, test, evaluate, and debug those artifacts

What are the "Seven Big Ideas"?

- (1) Computing is a creative human activity that engenders innovation and promotes exploration.
- (2) Abstraction reduces information and detail to focus on concepts relevant to understanding and solving problems
- (3) Data and Information facilitate the creation of knowledge.

What are the "Seven Big Ideas"?

- (4) Algorithms are tools for developing and expressing solutions to computational problems.
- (5) Programming is a creative process that produces computational artifacts.
- (6) Digital devices, systems, and the networks that interconnect them enable and foster computational approaches to solving problems.

What are the "Seven Big Ideas"?

- (7) Computing enables innovation in other fields including science, social science, humanities, arts, medicine, engineering business.

Other Important Concepts
(from André DeHon, UPenn, 1999)

- See long document at:
  http://www.seas.upenn.edu/~andre/general/computer_science.html