

# **IT, Informatics and a New Direction in IT Education**



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# A Story of One Univeristy



- Indiana CS undergraduate enrollments
  - **Like all departments, skyrocketing enrollments**
    - **But ... only 20% of intro students make it into major.**
  - **The rest are not stupid! Most talented and successful in other areas**
    - **Arts, languages, humanities, other sciences**
  - **Why are they there in our CS classes?**
    - **A paradigm shift.**

# A look around campus 1997



- Computer Science
- School of Library and Information Science
- Institute for Social Informatics
- Multidisciplinary Prog. In Cognitive Science
- Computational Science Program
- Program in New Media
- Business Information Systems
- Medical, Chemical and Bio Informatics
- Emerging Multi-Disc. Prog. In HCI

# Is there something more than the sum of these parts?



- Two committees
  - **One to address the questions:**
    - Is it time to address this constellation of activities as a new discipline?
    - If so, what is its intellectual core?
    - How does it differ from Computer Science?
  - **One to design the infrastructure and undergraduate and graduate program, possible masters and Ph.D and research programs.**

# A School of Informatics



- Edinburgh Definition

- **Informatics studies the representation, processing, and communication of information, in natural and artificial systems. It has computational, cognitive and social aspects. The central notion is the transformation of information - whether by computation or communication, whether by organisms or artifacts."**

# A Human Dimension



- The impact of tech on
  - **our social, economic and government institutions.**
  - **the way we work, live and play.**
  - **our arts and culture (humanities)**
  - **the way we do basic science.**
- (As computer scientists we must -
  - **understand what WE have unleashed.**
  - **Be active participants in making it serve humanity.)**

# A Multi-Disciplinary Approach



- Bio/Chem Informatics is not just some biology plus some CS.
  - **It is a synthesis of domain knowledge with specialized algorithmics and tools.**
- New Media is not just painting with CAD and rendering tools.
  - **It is about new ways to use technology to communicate and entertain.**
- Understanding emergent behavior in complex information system

# Information Technology and the Liberal Arts Student

## ■ Informatics 101

- **the history of the evolution of the information culture. The analysis of the politics and economics of information. Basic information representation and processing. Searching and organization, evaluation and analysis of information.**

## ■ Informatics 102

- **HCI and Human factors, Collaborative technologies and group problem solving. Ethics, privacy, and ownership of information and information sources. Information representation and the information life cycle.**



# Second level courses

- I200 Information representation
  - **The basic structure of information representation in social and scientific applications. Basic object and relational database technology. Forms of knowledge representation and discovery.**
- I201-202 Information Infrastructure
  - **programming, data storage, architecture.**
- I203 Mathematical foundations
  - **mathematical and logical tools used in information sciences, including finite math, automata and computability, prob. and stats and basics of classical information theory.**

# The Last Two Years.



- I300 The Human Computer Interfaces.
- I310 Distributed systems and collaborative computing.
- I320 An Introduction to Social and Organizational Informatics.
- The Cognate Area.
  - **A set of courses provided by application disciplines**
    - **Arts and Humanities, Social Sciences, Physical Sciences, CS.**

# Conclusion



- The School exists.
  - **Mike Dunn is our dean.**
- Others are ahead of us!
  - **Pace, RPI, ....**
- Reaction from Computer Science
  - **1. Denial**
  - **2. Fear and loathing**
  - **3. Understanding and active participation.**
- We probably will not get it right the first time