One Multidisciplinary Approach to IT Education

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What is Informatics?

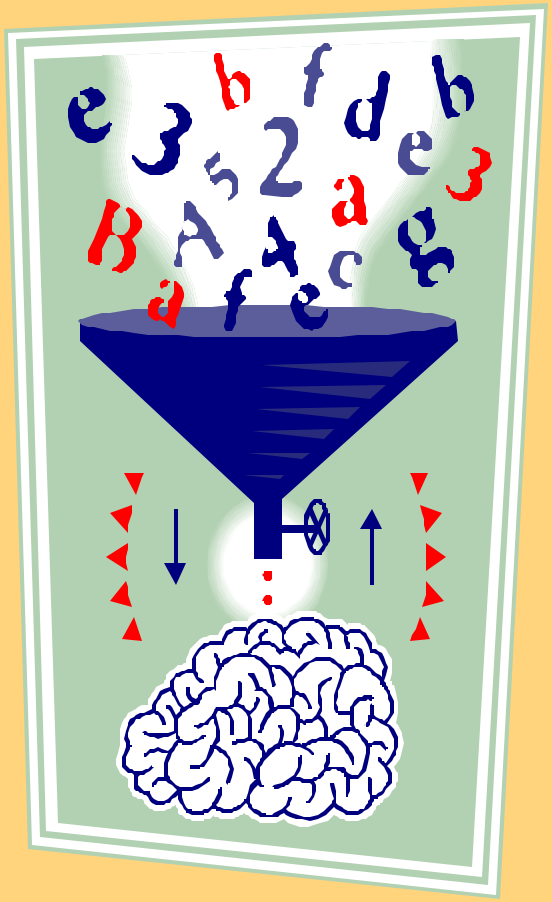
- *Informatics is the integration of the art, science, and the human dimensions of information technology to provide solutions to discipline-specific problems*
- *Informatics is a response to the data/information/knowledge gaps caused by "billions and billions of bits"*

The Central Goal of Informatics

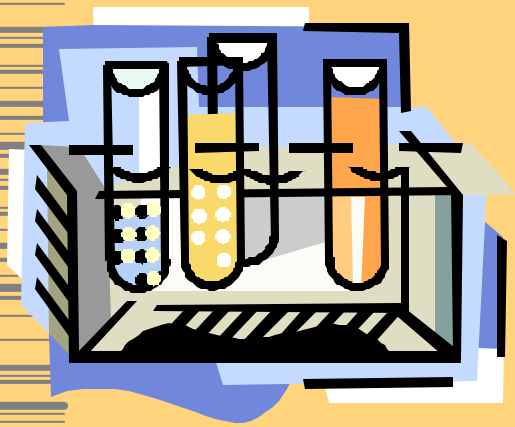
data

information

knowledge



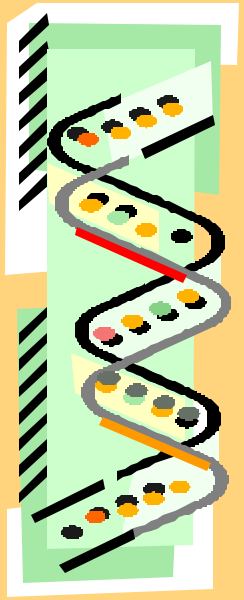
Informatics is "the bridge" between IT and application areas, e.g.



Bioinformatics

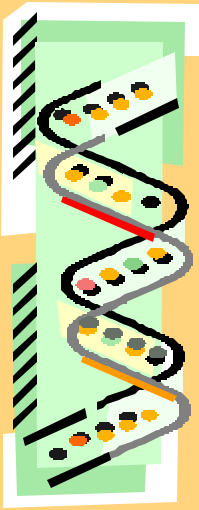
Chemical informatics

Health informatics



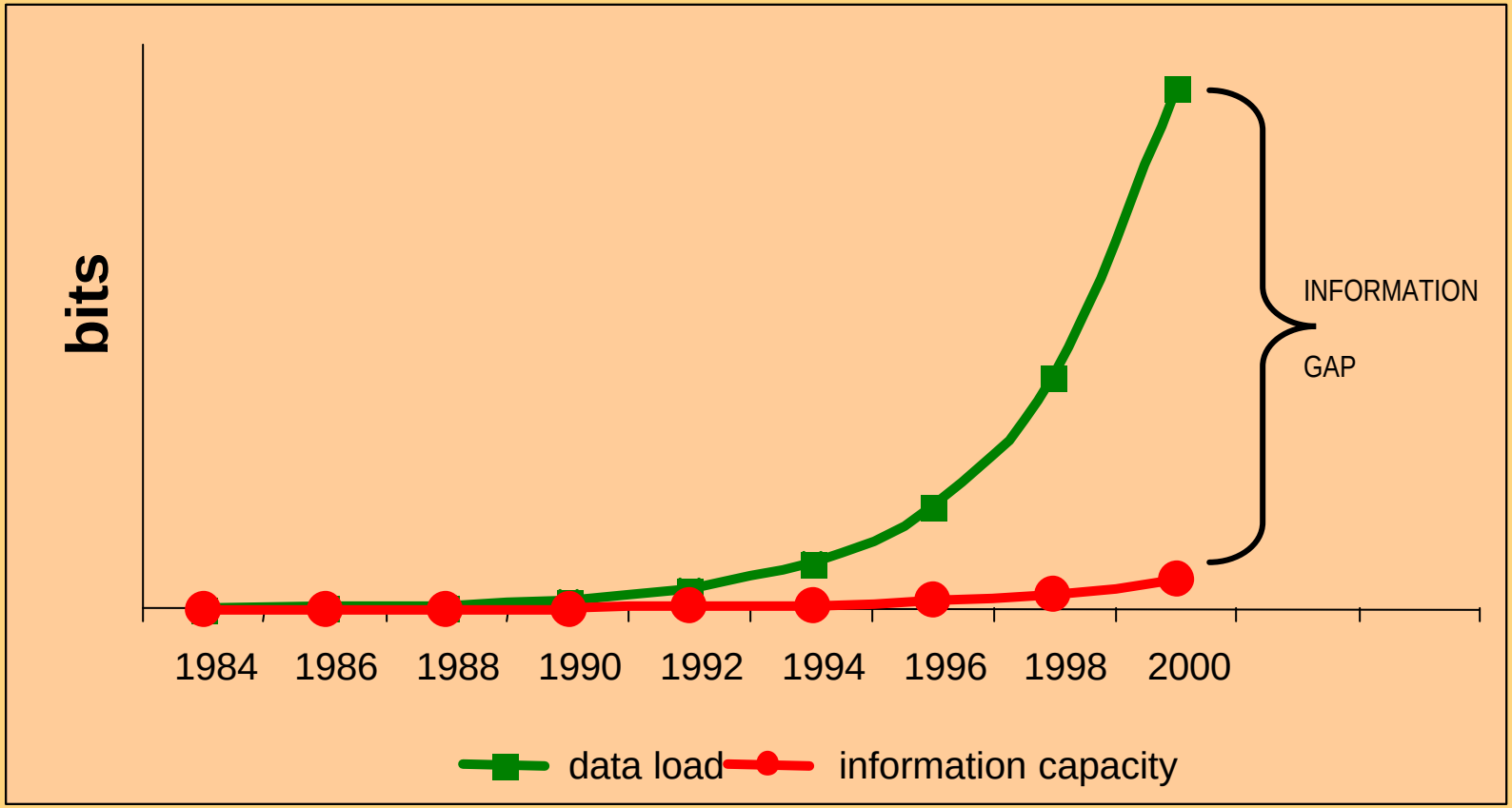
Example: Bioinformatics

- *Providing unprecedented access to biological data*
- *Managing biological databanks with numerous contributors and users*
- *Extracting useful information from large and dense biological data*
- *Assembling molecular pieces into predictive models of biological systems for* in silico *experiments*



Challenge and Opportunity

Why is informatics important?



From Peter Denning's Communications of the ACM column (June, 2001) on "The IT Profession":

An important movement is taking place on campuses. This is the movement to organize IT schools. It is a welcome development in the movement to form an IT profession. This movement is gaining a momentum that overcomes the territoriality of traditional academic departments. We are at last beginning to address the challenging problem of designing an education for an IT professional that is not constrained by the idiosyncrasies of any particular specialty, most notably computer science. …

Peter Denning (cont.)

[One] model is exemplified by the new School of Informatics at Indiana University. Their novel academic structure is likely to appeal to a great number of universities. Rather than operate as a completely self-contained unit, they have a small core faculty and they partner with the participating faculty of other schools. Each participating unit offers a specialization track for students who have completed the core.

Identity Statement

- Indiana University's School of Informatics offers an academic path for students from diverse backgrounds who are seeking a rewarding information technology career which combines with another area of study, thus opening varied career opportunities. The curriculum emphasizes both the technical and human aspects of problem solving, and teaches innovation, teamwork, and optimism.

- The School understands the role of multidisciplinary research in building a world-class faculty and in recruiting and educating outstanding students, but also places a primacy on creating new knowledge/technologies /uses for the benefit of humankind.

- The School is committed to collaboration with industry and government in order to hold up its side of the "three legged stool" that supports economic growth and progress.

Informatics B.S.

31 cr. Informatics Core courses,
9 cr. Informatics Electives

Required Core courses (31 cr.)
INFO I101 Introduction to Informatics (4 cr.)
INFO I200 Information Representation (3 cr.)
INFO I201 Mathematical Foundations of Informatics (4 cr.
INFO I202 Social Informatics (3 cr.)
CSCI A201 Introduction to Programming I (4 cr.)
CSCI A202 Introduction to Programming II (4 cr.)
INFO I303 Organizational Informatics (3 cr.)
INFO I450/451 Design and Development of an Information System (3-3 cr.)
OR INFO I460/461 Thesis (3-3 cr.)

IUB Cognate Area Courses (15-21 cr.) *(IUPUI "same but different")*

- Apparel Merchandising and Interior Design
- Business
- Biology
- Chemistry
- Cognitive Science
- Computer Science
- Communication and Culture
- Economics
- Fine Arts
- Geography
- Instructional Systems Technology
- Journalism
- Linguistics
- Mathematics
- Political Science
- Psychology
- Public and Environmental Affairs
- Telecommunications

Two sample B.S.cognates

Fine Arts

•FINA F102 Fundamental Studio-2D (2cr.)
•FINA N198 Introduction to Photography for Non-majors (3cr.)
12 morel credit hours to include 9 credit hours at the 300-400 level from following:
•FINA S250 Graphic Design I (3cr.) (P: F102)
•FINA S351 Graphic Design II (3cr.) (P: S250)
•FINA S352 Production for Graphic Designer (3cr.)(P: S351)
•FINA S451 Graphic Design Problem Solving (1-6cr.)(P: S352)
•FINA T230 Computer Art: Survey and Practice (3cr.)
•FINA T330 Computer Art II: Interact Media (3cr.)
•FINA T420 Digital Video (3cr.)
•FINA T430 Advanced Multimedia (3cr.)
•FINA T439 Advanced Digital Media Project (3cr.)

Chemistry

•CHEM C105 Principles of Chemistry I (3cr.)
•CHEM C106 Principles of Chemistry II (3cr.)
•CHEM C341 Organic Chemistry Lecture I (3cr.)
•CHEM C342 Organic Chemistry Lecture II (3cr.)
•CHEM C371 Chemical Informatics I (1cr.)
•CHEM C372 Chemical Informatics II (2cr.)
•CHEM C471 Chemical Information Sources and Services (1cr.)
•CHEM C472 Computer Sources for Chemical Informatics (1cr.)
•CHEM C483 Biological Chemistry (3cr.)

Indiana University School of informatics

- *First new school at IU in 28 years – 2 years old.*
- *"Metaschool" building upon and enhancing successes of existing I.T. units.*
- *Focus is on applications of information technology to problems in various disciplines.*
- *At both Bloomington and Indianapolis. This fall at IUSB. Then other regional campuses?*

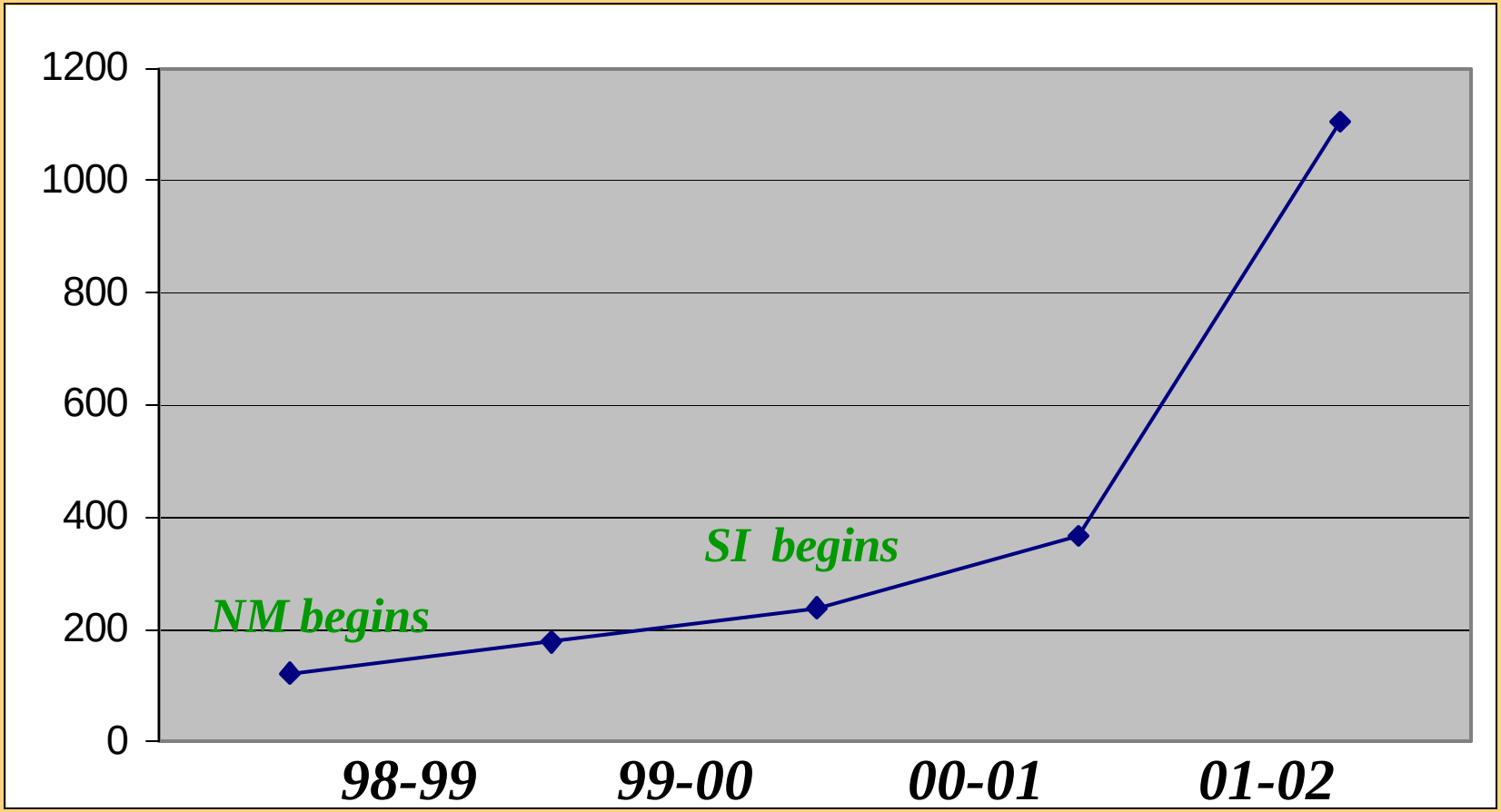
IUPUI Communications-Technology Complex/Informatics Complex. (Occupancy Fall 2004)

Indiana University School of informatics

- *B.S. degree. M.S. degrees in health informatics, bioinformatics, chemical informatics, and human computer interaction.*
- *Incorporates New Media Program at IUPUI with B.S. and M.S. degrees. Also Health Info. Admin. B.S. at IUPUI.*
- *Ph.D. in planning stage.*

IUB
Informatics Building
(Occupancy Fall 2002)

Growth in majors/grad students (IUB/IUPUI combined)



IUB Faculty

(IUPUI "same but different")

*4 fulltime with Informatics (but adjuncts with other units)**
2 joint positions with SLIS
*2 with CS**
*1 with Journalism**
*1 with Education (IST)**
1 with Chemistry
1 with Chemistry/Library
*1 with Math**
*1 Philosophy/CS **
*1 with Center for Genomics & Bioinformatics**
1 with CS, Physics, Pervasive Technology Laboratories
*3 visitors**
3 "affiliated faculty" from COAS, SLIS teaching
Over 60 "affiliated faculty" at IUB
primary responsibility is Informatics

IUB Faculty with One or More of Degrees listed --undergrad or grad

(IUPUI "same but different," e.g. many Fine Arts)

CS 7
Math 7
Chemistry 3
History of Science 2
Philosophy 2
EE 1
Journalism 1
Library Science 1
Linguistics 1
Physics 1
Psychology 1
Slavics 1

Plusses & Minuses

Plus: ***Multidisciplinary*** ***("Breaking down silos")***

- ***Needed***
- ***Fun/exciting***
- ***Agent of change ("subversive")***
- ***Center for collaboration among units***
- ***Leverage resources***

Minus: ***Multidisciplinary*** ***("Silos are resilient")***

- ***Management***
- ***P&T issues***
- ***Faculty loyalty/commitment***
- ***Threatening***
- ***Budget ("RCM")***

The Informatics Research Institute

IUB:

NSF Science Digital Library Grant

Distributed Molecular Database

$900,000 (2 yrs.)

Collection of molecular structures with graphical tools, accessible by the Internet

IUPUI:

IMLS Leadership Grant

Digital Cultural Library Indexing

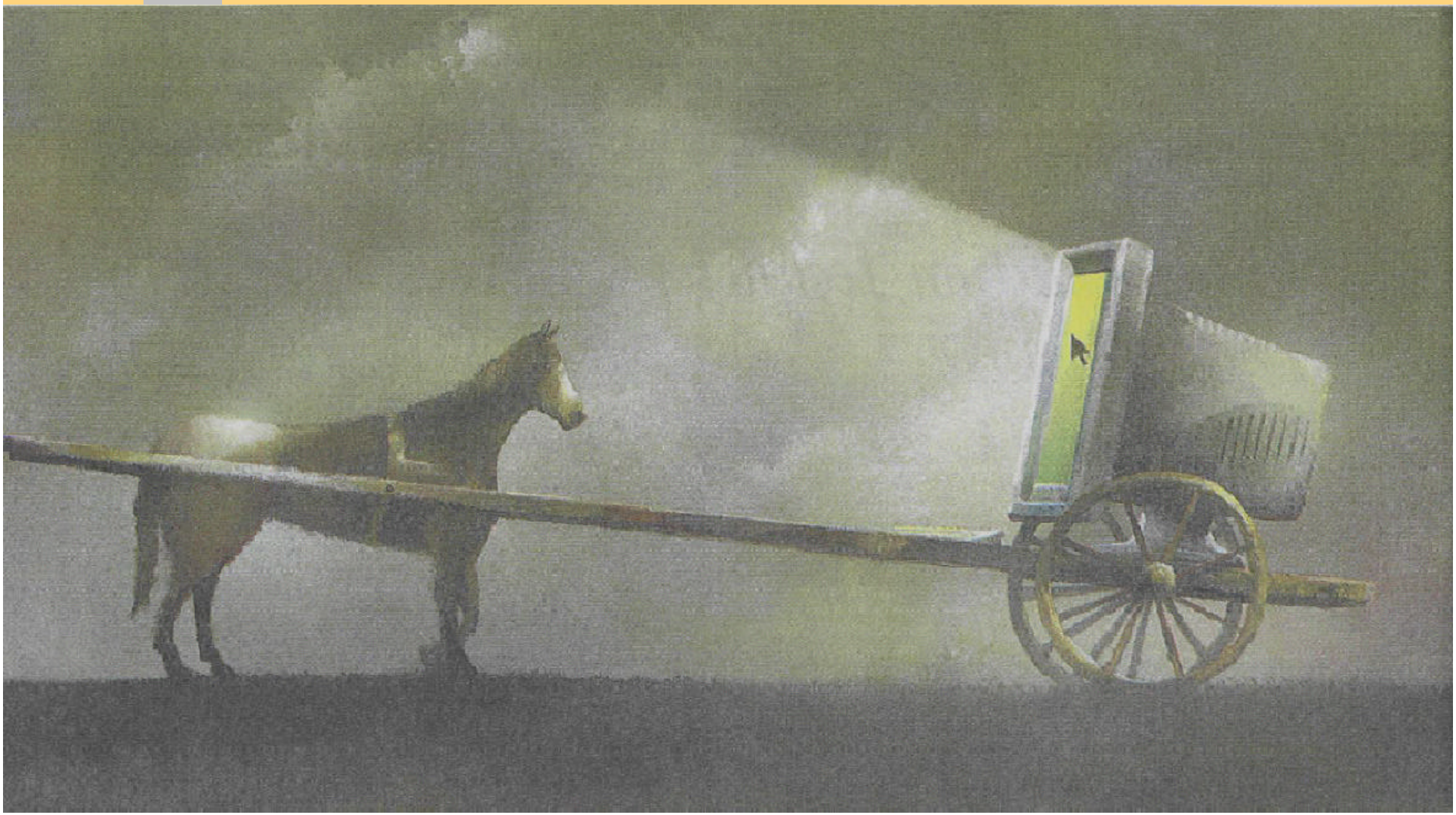
Our Heritage

$250,000 (1 yr., renewable for 2nd yr.)

Chichen Itza, Uxmal, Angel Mounds, and other threatened archaeological sites will come "back to life" in virtual reality

Don't put Descartes before the Horace!

form/technology content/human




Indiana University School of
informatics