

CSCI 135: Information Technology and Society

David Keil, Spring 2012, Framingham State University

SYLLABUS

Invitation

Do you trust all the ways information technology can be used? Computers provide tools and connections for us, but they also create new potential problems for all of us. I often think, “Can we do better than the computer systems that we have?” Help us consider this question.

What this course offers you is a chance to investigate what computers offer us, as members of society, and how to improve our world. Can we keep our privacy? Who owns songs and videos? How much can we depend on technology? How do social networks like Facebook connect us, and how do they place us at risk?

If you are curious about how information technology could change your life for better or worse in the next ten years, then please join us in this inquiry.

Catalog course description

An exploration of the impact of computing and information technology (IT) on individuals and society in the United States and the world. The course addresses the impact of IT on areas such as: digital technology at home; personal devices; rapid unregulated spread of (mis)information; political processes of dissemination and polling capabilities; empowering individuals and families with information included in medical and other databases; personal and work place communication; the networked information economy and globalization. Other topics may include the interaction of IT with intellectual property, privacy, ethics, security concerns and freedom of expression.

Prerequisites

It is expected that students have high-school-level knowledge of reading, writing, and social studies.

Meeting times

MWThF 11:30-12:20

Hemenway Hall 132 (annex)

Contacting me

I'd like students to visit to talk or ask about any course-related topic.

Office hours (Hemenway Hall 318A):

M 12:30-1:30 p.m., W 10:30-11:20 a.m.,

Tue. 4:00-4:30 p.m.; F 1:30-2:20 p.m.

Others by appointment

Telephone: (508) 626-4724

Email: dkeil@framingham.edu

URL: www.framingham.edu/~dkeil/its-matls.htm

Strongly recommended reading

Slides and handouts.

Sara Baase. *A Gift of Fire*, 3rd ed. Pearson Prentice Hall, 2008.

The slides and questions handouts provide a summary and study guide. Textbook material, like classroom discussion, presentation, and exercises, is essential for understanding the material in this course. It's the basis for much of the classroom discussion. We will refer to the textbook a number of times in the group work and exams. I like our text because it's easily read and because it looks at both the problems and the opportunities created by IT.

Course overview

Our central idea is that the *globalized society* and the *information technology revolution* are shaping *each other*. Information technology *embodies* social values and in turn produces *change* in values.

We will discuss hardware and software and how they are changing our lives. We will use some of this software and will use the Internet to manage part of our discussion, to access research material, and to present academic material in new media form.

Part of the course will be about *social, legal, and political issues* raised by changes in our lives due to information technology. Four such issues are *freedom of expression, intellectual property, privacy, and social distribution of access to IT* (“the digital divide”). Each of these cases forms the basis for an argument that *IT changes and will change our lives in profound new ways*.

This course reflects three points of view: the *sociological*, the *ethical/legal*, and the *technical*. The instructor is a computer scientist whose research in theoretical computer science intersects with the decentralization theme of the course.

A second central idea is that *information technology and recent other changes are producing a global economy and society organized increasingly as networks rather than as hierarchies* (Manuel Castells, *The Rise of the Network Society*).

As part of the FSU first-year Foundations program, this course includes a seminar, presentations, and discussions about FSU and college work.

Objectives

After taking this course, successful students will show the capabilities to do the following:

- 0a. Participate in class activities throughout the semester
- 0b. Solve a problem as part of a team
- 0c. Present a short talk in the classroom
- 0d. Write a documented research paper
- 0e. Support opinions by evidence*
- 0f. Acknowledge counter arguments*
- 0g. Document sources used*
- 1a. Explain basic principles of computer hardware and operating systems
- 1b. Explain concepts of major office applications
- 1c. Use software that supports collaboration
- 1d. Explain concepts of networked and Internet computing*
- 2a. Explain what social and economic factors have driven the information revolution*
- 2b. Explain the effects of computing and information technology on society
- 2c. Discuss IT issues in the context of theories of ethics*
- 3a. Explain issues raised by IT related to security and crime
- 3b. Explain and apply theories of privacy in the IT era
- 4a. Discuss trade-offs between conflicting legitimate concerns about freedom of expression*
- 4b. Explain how IT offers opportunities for and risks to free expression
- 5a. Explain intellectual-property law and its motivations and exceptions

- 5b. Give reasons and ways to support intellectual property rights in the information society*
- 5c. Give reasons and ways to broaden access to information and entertainment in the information society*
- 6a. Explain how changes in IT affect work life*
- 6b. Discuss educational issues raised by IT changes
- 6c. Discuss how changes in IT influence cultural life
- 7a. Explain risks related to IT and ways to manage them*
- 7b. Explain ethical responsibilities of IT professionals
- 8a. Explain the roles of IT and networks in the globalized economy*
- 8b. Explain how IT fosters decentralized structures in the economy and in society
- 8c. Discuss future experiences with technology

*Core objectives

What we'll investigate

These are some of the questions we'll ask:

- What are the major *technical changes* in computing that affect us as members of society?
- What are the effects of universal connectedness, ubiquity of computing, and the speed and low cost of processing, storage, copying, and communication of information?
- Does today's IT embody values from the social environment? Or is it *value free* (value neutral)?
- How are *social values* shaped by how IT operates and is used?
- Does information technology, acting on itself, *accelerate the rate of change* by enabling application of knowledge to knowledge?
- Does IT enable a *global economy*?
- Does *connectedness of all people* via information technology raise social issues and enable changes in society?
- Is privacy about power? (Do IT-enabled security and privacy intrusions assert *power* over individuals? Do privacy protections protect the power of individuals?)
- Do computer systems widen freedom of expression?
- Do computer systems limit and constrain freedom of expression?

- Does the global information infrastructure embody democratic values?
- Does the direct sharing of information and culture enabled by information technology outpace efforts to enforce intellectual-property rights?
- Is current law supporting takedown notices sufficient to protect legitimate intellectual-property rights?
- Does the information revolution result in:
 - individualization of work?
 - increased fragmentation of society?
 - Increased social connectedness and cohesion?
 - radical changes in education?
 - radical changes in our culture as a result of integration of text, video, and images?
 - radical changes in our culture due to open access to culture?
- Is the reliability of software today at an advanced or primitive stage?
- In shaping our world, are we *enabled* by the ubiquity of computing and the connectivity of people?
- Does the IT revolution make possible *centralization* or *decentralization* of power and production, or both?
- Have informationalism and globalization decreased or increased social polarization?
- Is informationalism associated with a new non-hierarchical organizational logic?
- Does research in *indirect interaction*, *decentralized emergent behavior*, and *self organization* shed light on social changes being effected by IT?

Classroom format, quizzes, and grades

Please see the paper, "What we do in my classroom," which is part of this course's syllabus. See especially guidelines there for assignments, grading, and collaboration. The following is a summary of that document.

Our classroom environment emphasizes active learning and governed by respect and support among all participants. Learning is a busy, often collaborative process of the learner constructing knowledge, so participation by all is at the center of my classroom. I ask questions and I expect students to ask questions. We keep in step but acknowledge different paces of learning.

My objectives for each course are listed in the syllabi. Grades are based on attainment of these objectives.

For each topic, we have presentations, discussion, assignments, and quizzes. I score each item of work submitted or each grading criterion on a scale of 0 to 1.0. Students will have multiple opportunities in the semester to show attainment of each objective, and the highest level of attainment will be recorded as a score for the objective. The entire semester grade is computed from numbers showing attainment of these objectives.

Semester grading weights

The following categories group course objectives and outcomes (see previous page), which are assessed by means of assignments, quizzes, exams, and records of classroom discussion and presentations.

Application of capabilities and knowledge	
core objectives	25
other objectives	25
Knowledge of concepts and facts	15
Independent inquiry	10
Presenting results in person	10
Participation	<u>15</u>
	100 %

Accommodations

"Students with disabilities who request accommodations are to provide Documentation Confirmation from the Office of Academic Support within the first two weeks of class. Academic Support is located in the Center for Academic Support and Advising (CASA). Please call (508) 626-4906 if you have questions or if you need to schedule an appointment." (See <http://www.framingham.edu/CASA/Accommodations/accomm.htm>.)

Course Plan

Dates	Topic	Reading
1/19 – 1/25	<i>Introduction</i>	
1/26 – 2/1	1. Technical background	Handouts ^{1,2}
2/2 – 2/8	2. Social, ethical, and economic background	Baase, Ch. 1; Handouts ^{3,4}
2/9 – 2/17	3. Privacy and security	Chs. 2, 5
2/22	<i>Longer-answer quizzes on topics 1-2</i>	
2/23 – 3/1	4. Freedom of expression	Ch. 3; Handout ⁵
3/2	<i>Reports on research proposals and abstracts</i>	
3/5	<i>Longer-answer quizzes on topics 3-4</i>	
3/7 – 3/21	5. Intellectual property	Ch. 4
3/22	<i>Make-up quizzes on topics 1-4</i>	
3/26 – 4/2	6. Work, culture, and education	Ch. 6
4/4	<i>Reports on research preliminary drafts</i>	
4/5	<i>Longer-answer quizzes on topics 5-6</i>	
4/6 – 4/12	7. Risks, ethics, and evaluation of IT	Chs. 7-8
4/13 – 4/23	8. Network structures in the global economy	Handouts ^{4,6,7}
4/25	<i>Reports on research final drafts</i>	
4/26	<i>Longer-answer quizzes on topics 7-8</i>	
4/27 – 5/3	<i>Summary and review</i>	
4/30	<i>Make-up quizzes on topics 3-6</i>	
5/4	<i>Final exam part A (longer-answer)</i>	
Thur., 5/10, 11:30am-2:30pm	<i>Final exam part B (multiple choice)</i>	

¹ D. Keil, Text-formatting concepts; D. Keil, Spreadsheet concepts

² Shelley and Frydenberg

³ M. Castells, pp. 13-21

⁴ D. Keil, The informational society and the post-2008 economic crisis.

⁵ D. Johnson, Is the Global Information Infrastructure a Democratic Technology?

⁶ T. Friedman, "The World is Flat"

⁷ M. Resnick. Decentralized modeling and decentralized thinking. <http://lcs.www.media.mit.edu/courses/tft00/modeling/modeling.html>