



## Instructor

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## Course Description

The course is a university seminar on the natural/technological world for the SAGES program. The rapid emergence of network and mobile technology is changing the way we live, learn and organize. Mobile phones with digital photos and video cameras, digital portable music players that hold thousand of songs, location-based sensors that can track and record the behaviors of everyone in the room all the time, smart dust that can create instant self-organizing ad hoc networks in the air, all of these are just a few examples of how fast technologies are changing. This course critically examines the nature of emerging network and mobile technologies and discusses their consequences for everyday life, learning and organization. Drawing on recent developments in the areas of computer science, design, sociology, and networks, students will discuss the psychological, social, economical, technological and political implications of the emergence of new mobile network technologies. Students will engage in personal ethnographic work to explore the consequences of recent developments in network / mobile technology such as mobile phones, digital cameras, MP3 players, weblogs and podcast.

## Readings

There are five books that we will read and discuss. All of these books are available in paperback.

Shneiderman, B., *Leonardo's Laptop: Human Needs and the New Computing Technologies*, The MIT Press, 2003, ISBN 0262692996

McCullough, M., *Digital Ground: Architecture, Pervasive Computing, and Environmental Knowing*, The MIT Press, 2004, ISBN 0262134357

Castells, M., *The Internet Galaxy: Reflections on the Internet, Business, and Society*, Oxford University Press, 2001, ISBN 0199255776

Barabasi, A-L., *The Linked: How Everything is Connected to Everything Else and What It Means*, Plume, 2002, 0452284392

Rheingold, H., *Smart Mobs: The Next Social Revolution*, Basic Books, 2002, ISBN 0738208612

In addition, there are few articles that are assigned for the first week. They are also available in electronic form.

## Grade Evaluation

Students will be evaluated based on the following elements:

1. Weekly weblog on readings (20%):
  - Students will be required to keep a personal weblog using the Case weblog service and post at least once a week (at least 500 words) commenting on the readings and the current affairs related to the course.
  - Students are expected to read other students' weblog postings and leave comments.
  - Weekly postings will be graded for both style and quality of argument and class time will be devoted to discussing the writing.
2. Three research papers (60%):
  - Students are required to write three papers. Each paper counts for 20% toward the final grade.
  - The first paper is a critical analysis of a mobile technology. Students are asked to choose a mobile technology currently available in the market and learn about its features and intended purpose, along with the claims made by the vendors and reviews by the pundits. Drawing on the theoretical perspectives we discuss in the course, students are expected to critically analyze assumptions and claims made about the technology (5-7 pages, excluding references and other supporting materials, double spaced with 11 point Times Roman font). The paper is due on **September 29, 2005**. You should choose the technology that you will analyze during the first week of the semester and inform me.
  - The second paper is a personal ethnographic study. Students are asked to spend time with a mobile technology of their choice and critically examine how they are using it in their own everyday lives – including learning, playing, organizing, etc. Using the examples from their own personal experiences, students are asked to support, expand or contradict some of the theoretical frameworks we read in the class (5-7 pages, excluding references and other supporting materials, double spaced with 11 point Times Roman font). The paper is due on **October 3, 2005**.
  - The third and final paper is a team paper. There are two options. The first option is to go out to one of the University Circle institutions (including Case Western Reserve University) to explore ways in which mobile technology can improve the experiences of people at the institution. It can be people who work there, visitors, or passers-by. Students are expected to spend some time in the field observing people and their interactions and interviewing them to explore new ideas. The final paper should include: (a) the summary of the findings from the field study; (b) concrete suggestions about ways in which the institution can integrate mobile tools; and (c) approaches to examining the consequences of the tools. The second option is to conduct a case study of a radical transformation of social practices, institution or place as a result of the use of mobile technologies. Examples of such instances include the Orange Revolution in Ukraine, Red Devil in South Korea during World Cup 2002, or Dog-Poop-Girl instance in Seoul in June 2005. The final paper should include: (a) facts and timelines of major events; (b) major factors contributed to the instance; (c) the nature of the transformation; and (d) your commentary. In either case, the final paper should draw on the readings and enable them to expand some of the theoretical frameworks (10-12 pages excluding references and other supporting materials, double spaced with 11 point Times Roman font). The paper is due on **December 8, 2005**.
3. Class participation (20%): Each week, one or two students will make a short presentation of a critical incident in which they were involved in the use of mobile technologies. The class will

then discuss how the incident can be used to support, expand, or contradict some of the theoretical frameworks we are learning from the reading.

### Writing Instruction

A special emphasis will be given to improving students writing abilities.

(a) Weblogs – As the Internet becomes a primary means of communication, an ability to articulate and communicate one's ideas through the Internet becomes critically important. Students will learn how to use weblogs as a way to construct and convey their arguments. Students will also learn how to objectively critique contributions of the entire group and constructively contribute additional thoughts to the discussion stream and advance the on-going discussion.

(b) Research papers – Students will also learn how to write independent research papers to present their own understandings and arguments. Students will have to submit a draft of each paper to the teaching assistant, and be critiqued on style and content before submitting a final version

(c) Field Research – In order to help students for their field project, we will spend parts of the first two weeks learning how to conduct field research. Students will be introduced to basic qualitative research techniques such as, how to perform field interviews or document and report field observations. Also, students will read some of the exemplary field research papers in order to learn the basic structure and elements of a field research paper. Students will have to submit a draft of their team research paper to the instructor in order to get feedback on both the style and the substance of their field research paper, in addition to the feedback provided by the teaching assistant.

### Instructor biography

**Youngjin Yoo** is Lewis-Progress Associate Professor in Information Systems department at the Weatherhead School of Management at Case Western Reserve University. He holds a Ph.D. in information systems from the University of Maryland. He received his MBA and B.S. in Business Administration from Seoul National University in Seoul, Korea. He joined Weatherhead School of Management in fall 1997. Dr. Yoo was selected as a participant to 16<sup>th</sup> Ernst & Young/International Conference on Information Systems Doctoral Consortium representing the University of Maryland at College Park and was the recipient of 1995 Frank T. Paine Award for Academic Achievement in Maryland Business School. He also received Walter Nord Grant for 1998 – 1999 to investigate the role of IT in managing electronic teams in global economy. He was a summer research fellow at NASA in summer of 2001 and spent a year as a research associate in 2003 – 2004 at NASA Glenn Research Center to study the implementation of the integrated financial management systems at NASA. Also in 2003 – 2004, he was a Glennan Fellow to study how to incorporate *design* approaches into management education. In summer 2004 and 2005, he was a visiting professor at Hong Kong City University. His research interests include knowledge management, the role of information technology for virtual teams, and IT-based new organizational forms. His work was published at leading academic journals such as *Information Systems Research*, *MIS Quarterly*, *Organization Science*, *the communications of the ACM*, *the Academy of Management Journal*, *the Journal of Strategic Information Systems*, *the Journal of Management Education*, and *Information Systems Management*. He also wrote several books chapters. He also presented his work at several national and international research conferences, including International Conference on Information Systems, Americas Conference on Information Systems, and Hawaiian Conference on Systems Sciences. He has researched or consulted leading companies

including Andersen Consulting, American Management Systems, Lotus, NASA, Parker Hannifin, Poly One and the Department of Housing and Urban Development.

### Tentative Schedule

#### Week 1: (8/30, 9/1)

##### Introduction

We will learn something about each other and our own expectations from the course in order to build a mutual understanding of the purpose and the format of the course. We will talk briefly about our own experiences with mobile network technologies and why we liked or disliked our experiences. We will talk about the field research, focusing on how to structure the problem and engage in data collection.

#### Week 2: (9/6, 9/8)

##### An overview of mobile network technologies

We will discuss the predictions of computing both from the past and currently, and how they have (or have not) been realized in the real world. We will also watch some videos that feature “future computing” and discuss the meanings of technologies being projected in those videos. We will also continue to discuss the field research methodology, by reading a couple of *exemplary* research papers based on field research data.

Lyytinen, K., and Yoo. Y. (2002). The next wave of *nomadic* computing. *Information Systems Research*, 13:4, 377-388.

Special Issue of the *Communications of the ACM* on Ubiquitous Computing, December, 2002, Volume 45, Number 12.

Weiser M (1991): The Computer for the 21<sup>st</sup> Century, *Scientific American*, September, pp. 94-104.

#### Weeks 3 and 4 (9/13, 9/15, 9/15, 9/22)

##### Benn Shneiderman, Leodardo's Laptop

Shneiderman is a leading scholar in human-computer interaction. He challenges the “old” computing paradigm that centers on machines and programs and suggests that the “new” computing paradigm should focus on user experiences and activities. He applies his basic ideas of new computing to the areas of learning, business, medicine, and government. While he does not focus exclusively on mobile network technologies, many of his ideas reflect the increasing importance of mobility and network connectivity in computing.

#### Weeks 5, 6 and 7 (9/27, 9/29, 10/4, 10/6, 10/11, 10/13)

##### Malcolm McCullough, Digital Ground

The emergence of ubiquitous computing environments radically changes the meaning of everyday experiences of interactions situated in physical world. The use of location-based technology, mobile tools, and embedded sensors enable embodied interactions. In this book, McCullough explores how the changes in hardware and software changes the way we interact. Drawing on the rich tradition of phenomenology, design, software engineering, sociology, architecture and geog-

raphy, he makes a convincing argument that interactivity is culturally enacted, not technological engineered. Furthermore, he makes the case that design of interactivity is the key skill in the coming years.

**Weeks 8 and 9 (10/18, 10/20, 10/27)**

Manuel Castells, [The Internet Galaxy](#)

How can we understand the impact of mobile network technologies? What has happened in the society since the beginning of the Internet revolution? What do we know so far? Manuel Castells is an urban sociologist who conducted years of careful research on the social impact of the Internet. This book provides in-depth analysis of the fundamental changes that happened in various layers of society. We will attempt to use his analysis to discuss how mobile technology will further introduce changes.

**Weeks 10 and 11 (11/1, 11/3, 11/8, 11/10)**

Albert-Laszlo Barabasi, [Linked](#)

There is increasing scientific discovery about how networks of all kinds can produce emergent characteristics and power that are much greater than the sum of parts combined. In this book, Barabasi explores many different types of networks and finds that they all share similar characteristics. The book concludes with an analyses of the impact of the Internet and the networked economy. We will discuss his analysis of networks and emergence characteristics as we explore different types of mobile network technologies.

**Weeks 12 and 13 (11/15, 11/17, 11/22)**

Howard Rheingold, [Smart Mobs](#)

In this book, Howard Rheingold discusses how networks of the mobile tools and actors can create a powerful force for social change. Building on network theories, he explores the potential of wireless mobile networks in forming what he calls smart mobs – a group of people who act in concert even though they don't know each other and are in different locations. He discusses how technologies like mobile text messaging, location-based sensing and peer-to-peer resource sharing can enable the creation of novel forms of social forces that never existed before. Examples like “Red Devils” in South Korea during the World Cup 2002 or spontaneous yet well-organized peaceful demonstrations in Ukraine after the presidential election in 2004 are examples of such smart mobs. Do you agree that such smart mobs are indeed new forms social forces in the world? What are potential unintended consequences of such smart mobs?

**Weeks 14 and 15 (11/29, 12/1, 12/6, 12/8)**

**Wrap-up**

During these weeks, students will report what they learned from their field study. These findings will serve as an empirical basis for an integrated discussion of the readings.