STS 2113: History and Philosophy of Internet Technology
4 to 5:20 pm, Tuesdays and Thursdays, Rogers Hall 317
Department of Humanities and Social Sciences
Polytechnic Institute of New York University
Spring 2011

Instructor
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Office hours: 2 to 3 pm, Tuesdays & Thursdays, or by appointment

Prerequisite
Students must have completed HuSS 1023W (or the equivalent) before taking this course.

Course Description
The course considers the Internet in its cultural and historical context, assessing typical claims about the
development of its hardware and software. Unlike many other projects in the age of big science, the
Internet was not organized and developed by a project team on a strict deadline. Indeed, it is impossible
find a germ of an idea and watch it flourish. To the contrary, the history of the Internet involves many
false starts and happy accidents, conflicting ideologies and divergent inspirations. Only by studying the
interactions among these histories and philosophies can one appreciate the current implementation of
network technologies and imagine new possibilities for the networks of the future.

Objectives
This semester you will learn to:
• Distinguish early attempts to create networks from the Internet
• Identify the scientific and technical culture that lay behind particular network instantiations as well
  as the objectives and ideals of practitioners
• Explain how a defense project became a platform for commerce and interpersonal exchange
• Analyze technology transfer challenges in the internationalization of the Internet
• Use fundamental terms in Science and Technology Studies, such as technology transfer,
technological dialogue, actor-network theory, and technological determinism

Structure
Most class time is devoted to lectures about course topics and discussion of the reading material.

Readings
There are required texts for the course are:
• Severo M. Ornstein, Computing in the Middle Ages, 1st Books, 2002
• Ronald J. Deibert, et al., Access Controlled, MIT Press, 2010

These are at the college bookstore and, when available, on reserve in Dibner library.
In addition to the required books, there will be journal articles that you can download from library
databases and PDFs that you will find on Blackboard. Please let me know in advance of class if you have
any trouble locating a required reading assignment.
Bibliography

I shall refer to these standard reference books during the semester. Since you may find them useful, I have placed them on reserve in the Bern Dibner Library.

- Abbate, Janet. 1999. *Inventing the Internet*. The single most important book about Internet technology, from packet switching to the worldwide web.
- Goldsmith, Jack and Tim Wu. 2006. *Who Controls the Internet? Illusions of a Borderless World*. Legal history, as far back as DNS but mainly concerned with the 1990s.

Requirements

**Attendance**: On-time attendance for the entire class period is mandatory. Students who miss four or more classes automatically fail the course. For the purposes of attendance, missing fewer than twenty minutes counts as one-third of an absence (arriving late, departing early, leaving the room). Missing more than twenty minutes counts as an absence. Doctor’s notes are not necessary.

**Attentiveness**: Please pay attention during class and avoid behaviors that distract others. Do not eat, drink, or sleep during class. You should not use electronic devices, such as cell phones or laptops, at all. Do not hold side conversations; if someone tries to talk to you during class, tell him or her to speak to you after class. Do not bring visitors without advance permission.

**Examinations**: There is a midterm exam during our regular class period and a final exam during the exam period at a date and time the Registrar sets. The exams are cumulative and closed-book. They consist of short answer and essay questions.

**Honesty**: Please be advised that I take the University policy about academic dishonesty seriously and will punish cheating or plagiarism by awarding a grade of “F” for the course and referring cases to Student Affairs for further action.

**Papers**: You will write two short papers (1,000 words) for this class; both must be uploaded to Blackboard and scanned by SafeAssign before the deadline.

**Preparation**: According to New York State guidelines, a student should spend at least two hours to prepare for each hour in class. Thus, for this course, you can expect to spend about six hours per week getting ready for class. Please plan accordingly so that you can read thoroughly, write carefully, and comment thoughtfully.

**Quizzes**: There will be unannounced quizzes on the reading assignments and course lessons. You may consult your own handwritten notes, but not books or printouts, for these quizzes. If you miss a quiz due to lateness or absence, you shall receive a zero.

**Grading**

I shall calculate your semester grade as follows:

- Quizzes: 30%
- Papers: 30% (15% each)
- Exams: 40% (15%, 25%)

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How to Do Well

1. Be on time. At the start of class, you will notice that I provide a preview of what is coming up and also answer questions. If you regularly miss these first minutes, you will start to feel the uncomfortable sensation that you do not know what is going on. Keep in mind that trains, subways and busses usually take much longer than they “should,” so plan accordingly. Being late once is ok; it happens to everyone. If you are always late, then you are doing something wrong.

2. Ask questions. Please raise your hand at the beginning of class or during a presentation. It does little good to whisper to the person next to you; instead, feel free to ask me for clarification. Also, use office hours or write an e-mail message for additional information.

3. Take notes, even if I am not writing on the board. Taking notes helps you stay focused on the material we are studying. Note taking also serves another purpose: it helps you to get used to writing about the course materials in your own words. Since the evaluation in this course is written, taking notes is valuable practice (and good exercise for your writing muscles!). There is no need to write down everything I say, but make sure you take down interesting ideas and connections to the course themes. Go over your notes after class to fill in the gaps.

4. Read actively. Prepare by reading the assignment for the day carefully before class. Mark key phrases and passages that have to do with the ideas in the course. Take notes like you are preparing a laboratory notebook – write down what you think is important, with examples, and prepare questions you want to ask.

Tentative Schedule (revised 29 January 2011)

Jan. 25 Introduction

Part 1: Prehistory

Feb. 1 Networks and The Commons
   • Hughes, “Edison’s System Abroad: Technology Transfer,” from Networks of Power
   • Lawrence Lessig, “Building Blocks: Commons and Layers“ from The Future of Ideas

Feb. 3 Microfilm
   • H. G. Wells, “The World Brain”
   • Vannevar Bush, “How We May Think”

Feb. 8 From Whirlwind to SABRE
   • George E. Valley, Jr., “How the SAGE Development Began”
   • Severo M. Ornstein, chapters 1–3 of Computing in the Middle Ages
   • View “SAGE: Early Warning Defense Radar Computer System”

Feb. 10 Computing Culture
   • Severo M. Ornstein, chapters 4–9 of Computing in the Middle Ages
   • Steven Levy, chapters 1 and 2 of Hackers, Heroes of the Computer Revolution

Feb. 15 Packet Switching
   • Paul Baran, “On Distributed Communications”
   • View Leonard Kleinrock video
   • Paper 1 due by 8 pm

Part 2: Rise of the Networks

Feb. 17 Computers and ARPA
   • Severo M. Ornstein, chapters 10–14 of Computing in the Middle Ages
   • J. C. R. Licklider, “Memorandum for Members and Affiliates the Intergalactic Computer Network” (1963)
Feb. 22 ARPA.Net and Alohanet
• Lawrence G. Roberts and Barry D. Wessler, “Computer Network Development to Achieve Resource Sharing” (1970)
• Severo M. Ornstein, chapters 15–19 of Computing in the Middle Ages
Feb. 24 The Great Switch
• Bernard Aboba, “How the Internet Came to Be”
• Janet Abbate, “Designing the Internet”
Mar. 1 USSR and France
• SlavaGerovitch, “InterNyet: Why the Soviet Union Did Not Build a Nationwide Computer Network”
• Howard Rheingold, “Telematique and Messengeries Rose”
• View “High Tech France: Part One”
Mar. 5 CSNET
• Carl Malamud, “Wisconsin” from Exploring the Internet: A Technical Travelogue
Mar. 8 Germany and China
• Werner Zorn, “How China Was Connected to the International Computer Networks”
• Jack Goldsmith and Tim Wu, “China”
Mar. 10 Midterm Exam

Part 3: The Age of the Internet

Mar. 22 The People’s Internet
• USENET: read the Haubens, “The Net and the Netizens: The Impact the Net has on People’s Lives” from Netizens
• Julian Dibbell, “A Rape in Cyberspace (Or TINYSOCIETY, and How to Make One)”
Mar. 24 Entering the Public Consciousness
• Katie Hafner and John Markoff, excerpt from “RTM” in Hackers
Mar. 29 Internationalization and Privatization
• Carl Malamud, “Dublin,” “Amsterdam,” and “London” from Exploring the Internet: A Technical Travelogue
• NSFNET, A Partnership for High-Speed Networking, Final Report
Mar. 31 WorldWideWeb
• Tim Berners-Lee, chapters 2 and 3 of Weaving the Web
• Nicholas Negroponte, “Less is More” from Being Digital (1995)
Apr. 5 The Dot-Com Boom
• Debra Howcroft, “After the Goldrush: Deconstructing the Myths of the Dot-Com Market”
• Mauro F. Guillén and Sandra L. Suárez “Explaining the Global Digital Divide: Economic, Political and Sociological Drivers of Cross-National Internet Use”
• Paper 2 due by 8 pm
Apr. 7 Web 2.0
• Tim O’Reilly, “What is Web 2.0?”
• TreborScholz, “Market Ideology and the Myths of Web 2.0”

Part 4: Contemporary Issues

Apr. 12 Surveillance and Control
• Read chapters 1–3 of Access Controlled
Apr. 14 Surveillance and Control, continued
• Read chapters 4-6 of Access Controlled
Apr. 19  A Broader Picture
   • Read North America and your group’s regional profile (CIS, Europe, Australia/Asia, Middle East and North Africa)

Apr. 21  Participatory Culture
   • Open Source: read excerpt from Raymond, “The Cathedral and the Bazaar”
   • Henry Jenkins, “Quentin Tarantino’s Star Wars? Grassroots Creativity Meets the Media Industry”

Apr. 26  Politics 2.0
   • Evgeny Morozov, “Open Networks, Closed Minds” from The Dark Side of Internet Freedom
   • Henry A. Giroux, “The Iranian Uprisings and the Challenge of the New Media: Rethinking the Politics of Representation”
   • Ethan Zuckerman, “The First Twitter Revolution?”

Apr. 28  The Global Digital Divide
   • Christian Fuchs and Eva Horak, “Africa and the Digital Divide”
   • Richard Perkins and Eric Neumayer, “Is the Internet Really New After All? The Determinants of Telecommunications Diffusion in Historical Perspective”

TBA  Net Neutrality
   • David Levinson, “Network Neutrality: Lessons from Transportation”

TBA  Final Exam: The Registrar’s Office will schedule our final exam sometime in May. Do not make travel plans until the date and time have been announced.