Syllabus: UIC CS 491 (special topics)/Kent Law Special Topics, Computer and Network Privacy and Security: Ethical, Legal, and Technical Considerations

> History will record what we, here in the early decades of the information age, did to foster freedom, liberty, and democracy. Did we build information technologies that protected people's freedoms even during times when society tried to subvert them? Or did we build technologies that could easily be modified to watch and control?
>
> Bruce Schneier, *Risks of Data Reuse*, CRYPTO-GRAM, July 15, 2007, http://www.schneier.com/crypto-gram-0707.html.

Protecting privacy and ensuring security requires "watch and control" technology. How much should we build and how should we use it? We should answer this question in a way fully informed by our fundamental values. Unfortunately, this is not happening. The economic concerns of businesses—not our values—are driving a rapid and extensive development of "watch and control" technology.

Unless otherwise indicated, all readings are available on the course websites. For the Chicago-Kent website go to www.kentlaw.edu/classes, click on "Richard Warner," click on "Privacy and Security."

Team taught:
Prof. Richard Warner, Kent/IIT School of Law,
Prof. Robert Sloan, UIC Computer Science Department.

Tuesdays and Thursdays, 2:00–3:15

Tuesdays: Kent Law School Room 170 (565 W. Adams St.)
Thursdays: UIC Lecture Center A4
(middle of block bounded by Halsted, Morgan, Taylor & Harrison)
(Tuesday January 11 at UIC location also)

Required book: Ross Anderson, *Security Engineering,* (2nd edition, 2009, and edition matters!). Numerous other provided readings.

This unusual course will meet with a mixed class of UIC students from computer science and other disciplines concerned with privacy in the modern era, and Kent Law school students.

Prof. Warner's course page:
http://www.kentlaw.edu/faculty/rwarner/classes/privacy/
Prof. Sloan's course page:
http://www.cs.uic.edu/bin/view/Sloan/PrivacyCourseSpring2010

I. INTRODUCTION TO AMERICAN LAW (for non-law students)

Grokster v. MGM. This 2005 Supreme Court decision is only tangentially connected to privacy issues, but received wide attention and interest in the technology community.

The decision is available from FindLaw at
http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=us&navby=title&v1=grokster

Tutorials (optional) (go to www.kentlaw.edu/classes, click on "Richard Warner," click on "Introduction to American law.")

II. WHY PRIVACY MATTERS

Sloan and Warner, The Relation Between Privacy and Security

A. Privacy Values and Interests

Asimov, The Dead Past (Xerox)

Kang, Information Privacy in Cyberspace Transaction (selections)

Warner, The Problem of Mass Surveillance

Warner, Why Mandating Consent Will Not Work

B. Privacy Norms

Helen Nissenbaum, Privacy as Contextual Integrity

Dwyer v. American Express

Daniel Solove, A Taxonomy of Privacy

Bartow, "A Feeling of Unease about Privacy" (a response to Solove) (recommended)

Topheavy Studios, Inc. v. Jane Doe (recommended)

Remsberg v. Docusearch, Inc. (recommended)

C. Information and Market Efficiency

Sloan and Warner, The Economics of Liability for Unauthorized Access

Varian, *Price Discrimination*

Odlyzko, *Privacy and the Clandestine Development of E-Commerce*

D. *An Overview of Risk Assessment*

Odlyzko, Economics, Psychology and Sociology of Security

Anderson, *Security Engineering,* Chapter 25.5, Risk Management

III. PRIMER ON THE INTERNET

Including structure of the Internet, overview of TCP/IP, intelligent versus dumb networks, and the end-to-end principle.

Warner and Sloan, *Primer on the Internet*

Optional: Hal Ableson, Ken Ledeen, and Harry Lewis, *Blown to Bits: Your Live, Liberty and Happiness After the Digital Explosion,* available from http://www.bitsbook.com/excerpts/, Appendix: The Internet as System and Spirit. (Easy read, recommended for students with very little technology background.)

IV. PRIVACY: WHAT TECHNOLOGY HAS CHANGED

Hal Ableson, Ken Ledeen, and Harry Lewis, *Blown to Bits: Your Live, Liberty and Happiness After the Digital Explosion,* available from http://www.bitsbook.com/excerpts/, Chapter 2, Naked in the Sunlight.

Anderson 23.3, "Bleeding Edge: Web Applications"

The most recent Facebook Controversy:
The facts:

- http://bits.blogs.nytimes.com/2009/12/09/facebook-rolls-out-new-privacy-settings
- http://trueslant.com/KashmirHill/2009/12/17/did-facebook-break-the-law-when-it-changed-privacy-settings/
- http://bits.blogs.nytimes.com/2009/12/17/privacy-group-files-complaint-on-facebook-privacy-changes/?ref=technology

The complaint:
http://epic.org/privacy/inrefacebook/EPIC-FacebookComplaint.pdf

V. GENERAL INTRODUCTION TO INFORMATION SECURITY

Anderson, SECURITY ENGINEERING, Chapters 1–2.3, 25.1–25.2

A. Foundations of Information Security

1. Security goals: the confidentiality, integrity, availability triad
2. Security standards and policies
3. Security mindset
4. Defense in depth
5. Brief overview of threats
6. Security versus usability, time, and/or money tradeoffs
7. Psychological and sociological factors; social engineering

VI. THE ECONOMICS OF INFORMATION SECURITY

A. Overview and Information Security as a Negative Externality

Anderson book, Chapter 7, Economics

Anderson, *The Economics of Information Security*

B. The Lemons Market in Security Products

Bruce Schneier, *A Security Market for Lemons*, http://www.schneier.com/crypto-gram-0705.html

C. Prevention or Response?

1. Prevention technologies
2. Response and remediation

D. Market Solutions

1. Information markets

   Readings to be determined

2. Insurance

Kalinich, *Network Risk Insurance: A Layman's Overview*

AIG on network risk insurance, http://www.aigexecutiveliability.com/executiveliability/productdetail/0,2128,448-13-2995,00.html

E. Legal Solutions

VIII. SOFTWARE

A. Why Software Vulnerabilities Are Inevitable

Anderson, Chapter 22.3

1. Technological reasons

2. Economic reasons

B. The Problem of A Single Dominant Operating System

C. A Role for Open Source Software

D. Legal Responses

1. Industry standards

In re America Online Inc. Version 5.0 Software Litigation
Kaczmarek v. Microsoft Corp. (recommended)
In re Sony BMG DD Technologies Litigation (recommended)

2. The large grey area

E. Market responses

Sunstein, INFOTOPIA: HOW MANY MINDS PRODUCE KNOWLEDGE (selections)

iDefense http://labs.idefense.com.

F. End User License Agreements

Warner, Turned On It's Head: Norms, Freedom, and Internet Contracting

ProCd v. Zeidenberg

Privacy International, *A Race to the Bottom: Privacy Ranking of Internet Service Companies*

Privacy International, *2007 Privacy Rankings*

Anderson, Chapter 24.6, Privacy and Data Protection

IX. INFORMATION SECURITY TECHNOLOGY

A. Technology

1. Protocols

Anderson, Chapter 3, omitting 3.7

2. Authentication and Passwords

Anderson, Chapter 2.4–2.6

2. Cryptography and Digital Systems

Abelson et al. book, Chapter 5.

Anderson, Chapter 5.1–5.3

3. Access Control

Anderson, Chapter 4, skipping 4.3.

B. Legal responses

1. Negligence liability

Guin v. Bazos
Forbes v. Wells Fargo Bank
Banknorth v. BJ's Wholesale Club
Sovereign Bank v. BJ's Wholesale Club

2. Disclosure statutes

California Civil Code Section 1798.82
Federal Trade Commission, Identity Theft Survey Report

C. Governmental Surveillance

Anderson, Chapter 24

X. MALWARE, SPYWARE, ADWARE

A. Viruses, Worms, and Trojans

1. Legal responses

United States v. Morris
Entry of Verizon-Maine into the InterLATA Telephone Market

2. Market responses

B. Spyware and Adware

1. Legal responses

Tom Hughes, *How Well Do You Know Your Internet Marketing Partners?*
In the Matter of Direct Revenue

2. Market Reponses

XI. DENIAL OF SERVICE AND NETWORK ATTACKS

A. Network Attacks, Technological Defense Measures

Anderson, Chapter 21

1. Spyware programs

2. Firewalls

3. Network intrusion detection

4. Botnets

C. Market Responses

D. Legal Responses

XII. E-MAIL (if time allows)

A. What Is Spam?

CAN SPAM Act

B. Who Should Attempt to Regulate Spam?

Media3 Technologies, LLC v. Mail Abuse Prevention System
Hall v. Earthlink Network, Inc.