INFO 300
Intellectual Foundations of Informatics

COURSE SYLLABUS
Autumn 2002

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Class Meetings: T TH 10:30-11:50 a.m., 228 Mary Gates Hall
Lab: F 9:30-11:20 a.m., 430 Mary Gates Hall

Class Web Site: http://courses.washington.edu/i300au02/
E-Reserve: https://eres.lib.washington.edu/coursepage.asp?cid=1369
Class Listserv: info300a_au02@u.washington.edu

COURSE DESCRIPTION
Informatics refers to the study of information systems - the people, the information, and the information technology. But what is information? How can it be supported by technology? And what is the relationship between human activity, information, and information technology? In this course, we take up these questions and more. We begin by examining the definition and scope of information. We study how it can be represented, manipulated, and classified. Next we turn our attention toward information technology, with an emphasis on modern technologies. We investigate interfaces, interactive design, the Internet, augmented reality and ubiquitous computing. Then drawing on our understandings of information and information technology, we explore the implications of information systems for human values and human activity. We conclude with consideration of cutting edge information systems that link biology, information and computation.

CLASS LIST SERV
Important messages regarding assignments and class work will be distributed via the listserv that has been set up for the class. You are automatically subscribed to the list by virtue of enrolling in the class. To send a message to the listserv, simply send an email to: info300a_au02@u.washington.edu

LABS
The lab for this course meets once a week on Friday from 9:30-11:20 a.m. in the computer classroom, 430 Mary Gates Hall. The lab is required and counts for 15% of the final grade. While I anticipate that many of the labs can be completed during the scheduled lab time (one or two require work outside of lab), I recognize that individuals work at different paces. The purpose of the lab is not to test your speed but to provide you with an opportunity for meaningful hands-on experiences. Thus while many of you will complete the labs in the scheduled time, the lab write-ups are not officially due until the beginning of the following lab session. Note: No lab on Friday, November 29 (Thanksgiving Holiday).

Lab write-ups should be turned in as finished documents. In other words, write-ups should be well organized, written clearly and concisely, and without spelling or grammatical errors. Labs will be graded either √, √+, or √-. Labs will earn a √ if the specific requirements for that lab are met, materials are turned in on time, and the write-up demonstrates thoughtful consideration of the subject. A grade of √+ will be reserved for work which is exceptional in its treatment and presentation of the material. Unsatisfactory work will earn a √-. In general, graded labs will be returned in lab the week after the due date.

WRITING AND iSCHOOL WRITING CENTER
The iSchool expects students to tailor writing assignments to the audience intended for each assignment. In order to aid students in excelling at their writing, the School offers an extensive writing resource in collaboration with the College of Engineering, the Engineering and iSchool Writing Center (EiWC).

Schedule an appointment at the EiWC in any of the ways listed below and talk to a peer writing consultant one-on-one.

1. Call (206) 221-4184 during the EiWC's hours or leave a voicemail with your contact information
2. Email eiwc@u.washington.edu
3. Take your chances and drop in to Engineering Annex Room 304 or Mary Gates Hall 091

DISABILITY
This course follows the UW guidelines for disability. Please see the UW Website at:
http://www.washington.edu/admin/eoo/eoost.html

ACADEMIC HONESTY
This course follows the UW guidelines for academic honesty. Please see the UW Website at:
http://depts.washington.edu/grading/issue1/honesty.htm

GRADING
15%   Project 1: Due Tuesday, November 12 at the beginning of class.
25%   Midterm: Thursday, November 14.
15%   Project 2: Due Tuesday, November 26 at beginning of class.
20%   Project 3: Topic due Tuesday, November 26; project due Tuesday, December 10 at beginning of lab.
15%   Lab
10%   Class Participation and short writing assignments.

Grading criteria follow UW guidelines and can be found at:
http://depts.washington.edu/grading/practices/guidelin.htm .

REQUIRED TEXT
Dertouzos, M. (1997). *What Will Be. How the New World of Information Will Change Our Lives*. San Francisco, CA: HarperCollins Publishers. (Hereafter referred to as *What Will Be*.)
Course Reader. Available at the Odegaard copy center or by electronic reserve.

TOPICS AND READINGS

1. Informatics – Definition and Scope

What Will Be, Preface (pp. xv – xvi), and The five pillars of information (pp. 51-54).

Buckland, M. K. (1991). Information as thing. *Journal of the American Society for Information Science, 42,* 5, 351-360.

Meadow, C. T. and Yuan, W. (1997). Measuring the impact of information: defining the concepts. *Information Processing and Management, 33*(6) 697-714.

AAAS. (1989, June/July). Educational foundations for tomorrow's information scientists: A report from the American Association for the Advancement of Science. *Bulletin of the American Society for Information Science*, 21.

What Will Be, Vision (pp. 3-24).

Diener, R. A. V. (1989, June/July). Information science: What is it?… What should it be? *Bulletin of the American Society for Information Science*, 17.

Skovira, R. J. (1989, June/July). Pluralism in information science. *Bulletin of the American Society for Information Science*, 18-19.

Horn, R. E. (1999). Information design: Emergence of a new profession. In R. Jacobson (Ed.) *Information design* (pp. 15-33). Cambridge, MA: The MIT Press.

2. The History of the Internet

What Will Be, Chapter 2: The revolution unfolds (pp. 25-51) and Chapter 4: New Tools (pp. 81-98).

Bush, V. (1945, July). As we may think. *Atlantic Monthly*. (http://uic.nnov.ru/pustyn/lib/vbush.html)

3. Representation

Marcus, A. (1992). Chapter 3: Symbolism (pp. 51-64). *Graphic Design for Electronic Documents and User Interfaces*. New York, NY: ACM Press.

Savage-Rambaugh, E. S., Williams, S. L., Furuichi, T., & Kano, T. (1996). Language perceived: Paniscus branches out. In W. C. McGrew, L. F. Marchant, & T. Nishida (Eds.), *Great Ape Societies* (pp. 173-184). Cambridge: Cambridge University Press.

Saxe, G. (1981). Body parts as numerals: A developmental analysis of numerations among the Oksapmin in Papau New Guinea. *Child Development, 52*, 306-316.

What Will Be, Appendix 1 & 2 (pp. 350-354).

Decker, R., & Hirshfield, S. (1994). *The analytic engine* (pp. 172-184). (2nd edition). Boston: PWS Publishing Company.

4. Manipulation

Decker, R., & Hirshfield, S. (1994). *The analytic engine* (pp. 277-280). (2nd edition). Boston: PWS Publishing Company.

Turing, A. M. (1981). Computing machinery and intelligence. In D. R. Hofstader & D. C. Dennett, (Eds.), *The mind's I* (pp. 53-68). New York, NY: Basic Books, Inc. (Excerpted from Computing machinery and intelligence, *Mind*, 1950, *59*)

Searle, J. (1981). Minds, brains and programs. In D. R. Hofstader & D. C. Dennett, (Eds.), *The mind's I* (pp. 353-373). New York, NY: Basic Books, Inc. (Reprinted from *The Behavioral and Brain Sciences* [Vol. 3]. Cambridge University Press, 1980)

5. Classification

Bailey, K. D. (1994). Chapter 1: Typologies and taxonomies in social science (pp. 1-16). *Typologies and Taxonomies: An Introduction to Classification Techniques*. Thousand Oaks, CA: Sage Publications.

Gould, S. (1983). Chapter 28: What, if anything, is a zebra? (pp. 355-365) Hen's Teeth and Horses Toes: Further Reflections on Natural History. New York, NY: Norton.

Dumais, S. T., & Landauer, T. K. (1984). Describing categories of objects for menu retrieval systems. *Behavior Research Methods, Instruments, & Computers, 16,* 2 242-248.

Carlyle, A. (1999). User categorization of works: Toward improved organization of online catalogue displays. *Journal of Documentation, 55*(2), 184-208.

Suchman, L. (1994). Do categories have politics? The language/action perspective reconsidered. *Computer Supported Cooperative Work (CSCW) Journal, 2*, 3, 177-190.

Winograd, T. (1994). Categories, disciplines, and social coordination. *Computer Supported Cooperative Work (CSCW) Journal, 2*, 3, 191-197.

Malone, T. W.. (1994). Commentary on Suchman article and Winograd response. *Computer Supported Cooperative Work (CSCW) Journal, 3*, 37-38.

6. Interfaces and Interactive Design

Nielsen, J. (1993). Chapter 3: Generations of user interfaces (pp. 49-70). *Usability Engineering*. Cambridge, MA: Academic Press.

Winograd, T. (Ed.) (1996). Chapter 2: An interview with David Liddle: Design of the conceptual model, and Profile 2: The Alto and the Star (pp. 17-36). *Bringing Design to Software*. New York, NY: ACM Press.

Nass, C., Moon, Y., Morkes, J., Kim, E., & Fogg, B. J. (1997). Computers are social actors: A review of current research. In B. Friedman (Ed.), *Human Values and the Design of Computer Technology* (pp. 137-162). Cambridge: Cambridge University Press.

Eisenberg, A. (2000, October 20). Mars and Venus, online. *New York Times*, p. D1, D11.

Reeves, B., & Nass, C. (2000). Perceptual bandwidth. *Communications of the ACM, 43*, 3, 65-70.

What Will Be. Chapter 3: Where person meets machine (pp. 55-80).

Picard, R. W. (2000). Affective perception. *Communications of the ACM, 43*, 3, 50-51.

Kahn, P. H., Jr., Friedman, B., and Hagman, J. (2002). "I care about him as a pal": Conceptions of robotic pets in online AIBO discussion forums. *Extended Abstracts of CHI 2002* (p. 632 – 633).

7. Containers: Documents, Augmented Reality, and Ubiquitous Computing

Ishii, H. & Ullmer, B. (1997). Tangible bits: Towards seamless interfaces between people, bits and atoms. *Conference Proceedings of CHI 97: Human Factors in Computing Systems* (pp. 234-241). New York, NY: ACM Press.

Mynatt, E. D. (2000). Co-opting everyday objects. In W. E. Mackay (Ed.) *Proceedings of DARE 2000* (pp. 145-146). New York, NY: ACM Press.

Kolata, G. (2000, April 4). Next up: Surgery by remote control. *The New York Times*. F1, F4.

Billinghurst, M., & Kato, H. (2002). Collaborative augmented reality. *Communications of the ACM, 45*(7), 64 – 70.

Hillis, W. D. (2002). The power to shape the world. *Communications of the ACM, 45*(7), 32 – 35.

Mackay, W. E. (2000). Augmented reality: Dangerous liaisons or the best of both worlds? In W. E. Mackay (Ed.) *Proceedings of DARE 2000* (pp. 170-171). New York, NY: ACM Press.

Borriello, G. & Want, R. (2000). Embedded computation meets the World Wide Web. *Communications of the ACM, 43,* 5, 59-66.

Brey, P. (1999). Ethics of representation and action in virtual reality. *Ethics and Information Technology, 1,* 1 5-14.

8. Human Values: Privacy, Security, and Property

Warren, S. D., & Brandeis, L. D. (1985). The right to privacy. In D. G. Johnson and J. W. Snapper, (Eds.), *Ethical Issues in the Use of Computers* (pp. 172-183). Belmont, CA: Wadsworth Publishing. (Originally published in *Harvard Educational Review, 4*, 5 [December 5, 1890], pp. 193-220.)

Nissenbaum, H. (1998). Protecting privacy in an information age: The problem with privacy in public. *Law and Philosophy, 17*, 559-596.

Gotlieb, C. C. (1996). Privacy: A Concept Whose Time Has Come and Gone. In D. Lyon and E. Zureik (Eds.), *Computers, Surveillance, and Privacy* (pp. 156-171). Minneapolis: University of Minnesota Press.

Sheehan, K. B. (2002). Toward a typology of Internet users and online privacy concerns. *The Information Society, 18*, 21 – 32.

What Will Be, Chapter 4: Computer security schemes (pp. 98-107).

Friedman, B., Felten, E., & Millett, L. I. (2000). Informed consent online: A conceptual model and design principles. *CSE Technical Report 2000-12-2*, University of Washington.

Becker, L. C. (1977). *Property Rights: Philosophic Foundations*. London: Routledge & Kegan Paul. (pp. 18-23)

Litman, J. (1999). Electronic commerce and free speech. *Ethics and Information Technology, 1*, 3, 213-225.

Friedman, B., Kahn, P. H., Jr., and Borning, A. (2002). Value sensitive design: Theory and methods. Unpublished manuscript. Seattle, WA: University of Washington.

9. Globalization, Community, and Cultural Diversity Online

What Will Be, Chapter 13: Electronic proximity (pp. 277-294).

Graves, M., Grisedale, S., and Grunsteidl, A. (1998). Unfamiliar ground: Designing technology to support rural healthcare workers in India. *SIGCHI Bulletin, 30, 2,* 134-143.

Van Tassel. (1991). Yakety-Yak, do talk back!: PEN, the nation's first publicly funded electronic network, makes a difference in Santa Monica. In R. Kling (Ed.) *Computerization and Controversy: Value Conflicts and Social Choices (2nd ed.)* (pp. 547-551). Boston: Academic Press.

What Will Be, Chapter 9: Business and Organizations (pp. 191-214).

10. Biology, Information and Computation

Devlin, K. (1995, April). Test tube computing with DNA. *Math Horizons*, pp. 14-21.

Jain, A., Hong, L., & Pankanti, S. (2000). Biometric identification. *Communications of the ACM, 43,* 2, 90-98.

Abelson, H., Allen, D., Coore, D., Hanson, C., Homsy, G., Knight, T. F. Jr., Nagpal, R., Rauch, E., Sussman, G. J., & Weiss, R. (2000). Amorphous computing. *Communications of the ACM, 43*, 5 74-82.

Moor, J. H. (1999). Using genetic information while protecting the privacy of the soul. *Ethics and Information Technology, 1*, 4, 257-263.