

*** Course Overview ***

INFO 782: Issues in Informatics

Spring 2009 (March 31-June 2) T 6:00-8:45 pm

Professor Gerry Stahl

Gerry.Stahl@drexel.edu

Course Description

INFO 782 examines recent developments in a selected informatics area as a case study. It focuses on research results and leading edge application of information technology in practice. It helps students prepare for success in information science and technology fields. It addresses issues and methods for maintaining technical knowledge throughout a professional career.

When you have completed this course, you should be able to:

- Understand the rate and nature of change in the informatics field.
- Maintain technical knowledge throughout a professional career in an informatics field.
- Understand and discuss recent developments in the case-study topic.

The course this quarter will focus on:

***“Social theories of information systems relevant to
computer support for collaborative information behavior”***

This seminar will introduce current *theories* of informatics. It will draw on three recent books on theory in CSCW (computer-supported cooperative work) and CSCL (computer-supported collaborative learning):

- Ackerman, M., Halverson, C., Erickson, T., & Kellogg, W. (2008). *Resources, co-evolution and artifacts: Theory in CSCW*. London, UK: Springer.
- Stahl, G. (2006). *Group cognition: Computer support for building collaborative knowledge*. Cambridge, MA: MIT Press.
- Stahl, G. (Ed.). (2009). *Studying virtual math teams*. New York, NY: Springer.

The course will look at information systems for group use as *computational artifacts* and as *informational resources*. It will consider how they are designed, enacted, diffused, adopted and evolved within social settings. Emphasis will be on post-cognitivist theories, such as *social constructivism, activity theory, situated cognition, distributed cognition, actor-network theory,*

ethnomethodology and group cognition. No previous knowledge about these theories will be presumed.

The course will be organized in seminar style. Students will prepare presentations on the readings, working in online small groups.

This one-time course offering will not be repeated in the future. The content and instructor of this course change each time it is offered. This is an opportunity to discuss the instructor’s own perspective on informatics theory.

Course Textbooks

The course content is presented by the readings. Students are expected to read them carefully, take notes and be critical. The reading assignments are listed in the Course Assignments table below. Papers from the informatics research literature are available for download in Blackboard. The textbooks that you must purchase or download are:

[RCA] Ackerman, M., Halverson, C., Erickson, T., & Kellogg, W. (2008). *Resources, co-evolution and artifacts: Theory in CSCW*. London, UK: Springer. **[This book must be purchased.]**

[GC] Stahl, G. (2006). *Group cognition: Computer support for building collaborative knowledge*. Cambridge, MA: MIT Press. Series on Acting with Technology. Available from <http://GerryStahl.net/mit/>. **[Book may be purchased or chapters downloaded.]**

[SVMT] Stahl, G. (Ed.). (in press). *Studying virtual math teams*. New York, NY: Springer. Computer-supported collaborative learning book series, vol. 11. Available from <http://GerryStahl.net/vmt/book>. **[Chapters must be downloaded.]**

[Other readings listed below must be downloaded through Blackboard.]

Course Assignments

Wk	Dates	Readings	Assignments
1	March 31 - April 6	<p><i>Intro to social informatics, CSCW & CSCL</i></p> <p>Stahl et al., “Intro to CSCL”</p> <p>GC 7, Stahl “Groupware goes to school”</p> <p>Kling, “What is social informatics and why does it matter”</p> <p>Grudin, “Why CSCW applications fail”</p> <p>Orlikowski, “Learning from Notes”</p> <p>SVMT 1, Stahl, “A chat about chat”</p>	
2	April 7 - 13	<p><i>Designed artifacts, ethnomethodology & activity theory</i></p> <p>Kuuti, “Activity theory as a framework for HCI research”</p> <p>Kaptelinin, “Activity theory: Implications for HCI”</p> <p>Engestrom et al., “The change laboratory”</p> <p>Nardi, “A comparison of activity theory, situated action models, and distributed cognition”</p> <p>RCA 1, Halverson & Ackerman, “Cheat sheet”</p>	

		RCA 2, Ackerman & Palen, "Zephyr Help"	
3	April 14 - 20	Livingston, "Intro to Ethnomethodology" Livingston, "Ethnomethodological studies of mediated interaction" Dourish & Button, "On 'technomethodology'" RCA 3, Hartswood et al., "Co-realization"	
4	April 21 - 27	GS 11, Stahl, "Contributions" GS 15, Stahl, "Building collaborative knowing" RCA 4, Erickson et al., "Supporting expertise"	Midterm reflection paper
5	April 28 - May 4	<i>Situated Cognition & Distributed Cognition</i> Hutchins & Palen, "Constructing meaning" Hollan, Hutchins & Kirsh, "Distributed cognition" RCA 5, Becvar et al., "Representational gestures" RCA 6, Maglio et al., "Distributed cognition"	
6	May 5 - 11	Cakir, "Joint organization" SVMT 6, Sarmiento, "Joint problem space" RCA 7, Reddy & Dourish, "Medical work"	
7	May 12 - 18	<i>Actor-Network Theory & Group Cognition</i> Latour, "Drawing things together" Latour, "Where are the missing masses?" RCA 8, Gerson, "Challenges for CSCW" RCA 9, Anderson et al., "Configuration"	
8	May 19 - 25	GC 16, Stahl "Group meaning/individual interpretation" SVMT 26, Stahl, "Meaning making in CSCL" RCA 10, Orlikowski, "Practice lens"	
9	May 26 - June 1	GC 20, Stahl, "Opening new worlds for collaboration" GC 21, Stahl, "Thinking at the small group unit of analysis" RCA 11, "Reflections and conclusions"	Final reflection paper
10	June 2 - 9	Stahl "Toward a science of the group"	

Course Requirements

READINGS: Read the textbook chapters and other readings carefully. By **noon on Saturday**, post a **review** of two (2) of the readings for the week in the course Blackboard discussion. By **midnight on Monday**, post **evaluations** of three (3) reviews by other students; if possible, select reviews that do not already have two posted evaluations. Be concise and to the point: your reviews should each be 200-400 words long; they should state the main point or argument of the reading and should point out its value and its limitations; your evaluations should be 75-150 words long.

MIDTERM REFLECTION PAPER: Submit a written document of about 2 single-spaced pages containing your reflections on the course. This is an individual assignment and should be uploaded to the Dropbox by midnight on Monday, April 27. Save your paper in Word format, using your last name as the file name, e.g., *stahl-midterm-reflection.doc*.

GROUP PRESENTATIONS: The class will be divided up into several small groups. Each week, each group will present one of the readings for the week, incorporating the reviews and evaluations posted by class members.

FINAL REFLECTION PAPER: Submit a paper of about 7 single-spaced pages containing your reflections on the course. Include your personal assessment of the major theories covered in the course, including their relevance for your work or research interests. This should be a reflection from your personal, individual perspective on how you felt the course met your needs or fell short. It is an opportunity to provide meaningful feedback to the instructor. You should demonstrate what you have actually done in the course and what you have learned. This is an individual assignment and should be uploaded to the Dropbox by midnight on Monday, June 1. Save your paper in Word format, using your last name as the file name, e.g., *stahl-final-reflection.doc*.

PHD STUDENTS: Ph.D. students will be expected to take a lead in organizing the group presentations. They should post reviews of three (3) readings each week and five (5) evaluations.

Course Grading

Grading will be based:

- Partially on your individual participation in the course and in your group, including your posted reviews and evaluations;
- Partially on the presentations of your group; and
- Partially on the work of the class as a whole in critically understanding the readings.

Grading is *not* curved: it is possible for all groups and even all individuals to earn an A in this course. Most students who take an honest interest in the course and exert reasonable effort in *all* aspects of the course can receive an A. Failure to do your share in your group work, to do the reading reviews and evaluations or to write an adequate midterm or final reflection paper will lower your grade. Assume that your grade will be an accurate measure of what your group and you have accomplished in this course.

60%	Individual		A+	98	100
	18%	Posted reviews of readings	A	92	97
	27%	Posted evaluations of reviews	A-	90	91
	5%	Midterm reflection paper	B+	88	89
	10%	Final reflection paper	B	82	87
20%	Group		B-	80	81
	20%	Quality of group presentations	C+	78	79
20%	Class		C	72	77
	5%	Class discussion of postings	C-	70	71
	15%	Class discussion of readings	D+	68	69

D	62	67
D-	60	61
F	0	59

Course Bibliography

- Ackerman, M., Halverson, C., Erickson, T., & Kellogg, W. (2008a). *Resources, co-evolution and artifacts: Theory in CSCW*. London, UK: Springer.
- Ackerman, M. S., Halverson, C. A., Erickson, T., & Kellogg, W. A. (2008b). Reflections and conclusions: Toward a theory of resources. In M. S. Ackerman, C. A. Halverson, T. Erickson & W. A. Kellogg (Eds.), *Resources, co-evolution and artifacts* (pp. 307-324): Springer. Available at http://dx.doi.org/10.1007/978-1-84628-901-9_11.
- Ackerman, M. S., & Palen, L. (2008). The zephyr help instance as a CSCW resource. In M. S. Ackerman, C. A. Halverson, T. Erickson & W. A. Kellogg (Eds.), *Resources, co-evolution and artifacts* (pp. 37-57): Springer. Available at http://dx.doi.org/10.1007/978-1-84628-901-9_2.
- Anderson, S., Hardstone, G., Procter, R., & Williams, R. (2008). Down in the (data)base(ment): Supporting configuration in organizational information systems. In M. S. Ackerman, C. A. Halverson, T. Erickson & W. A. Kellogg (Eds.), *Resources, co-evolution and artifacts* (pp. 221-253): Springer. Available at http://dx.doi.org/10.1007/978-1-84628-901-9_9.
- Becvar, A., Hollan, J., & Hutchins, E. (2008). Representational gestures as cognitive artifacts for developing theories in a scientific laboratory. In M. S. Ackerman, C. A. Halverson, T. Erickson & W. A. Kellogg (Eds.), *Resources, co-evolution and artifacts* (pp. 117-143): Springer. Available at http://dx.doi.org/10.1007/978-1-84628-901-9_5.
- Dourish, P., & Button, G. (1998). On 'technomethodology': Foundational relationships between ethnomethodology and system design. *Human-Computer Interaction*, 13, 395-432.
- Engeström, Y., Virkkunen, J., Helle, M., Pihlaja, J., & Poikela, R. (1996). The change laboratory as a tool for transforming work. *Lifelong Learning in Europe*, 1(2), 10-17.
- Erickson, T., Halverson, C. A., & Kellogg, W. A. (2008). Figuring out how to figure out: Supporting expertise sharing in online systems. In M. S. Ackerman, C. A. Halverson, T. Erickson & W. A. Kellogg (Eds.), *Resources, co-evolution and artifacts* (pp. 95-114): Springer. Available at http://dx.doi.org/10.1007/978-1-84628-901-9_4.
- Gerson, E. M. (2008). Reach, bracket, and the limits of rationalized coordination: Some challenges for CSCW. In M. S. Ackerman, C. A. Halverson, T. Erickson & W. A. Kellogg (Eds.), *Resources, co-evolution and artifacts* (pp. 193-220): Springer. Available at http://dx.doi.org/10.1007/978-1-84628-901-9_8.
- Grudin, J. (1988). *Why CSCW applications fail: Problems in the design and evaluation of organizational interfaces*. Paper presented at the CSCW '88, Los Angeles, CA. pp. 85-93.
- Halverson, C. A., & Ackerman, M. S. (2008). The birth of an organizational resource: The surprising life of a cheat sheet. In M. S. Ackerman, C. A. Halverson, T. Erickson & W. A. Kellogg (Eds.),

Resources, co-evolution and artifacts (pp. 9-35): Springer. Available at http://dx.doi.org/10.1007/978-1-84628-901-9_1.

- Hartswood, M., Procter, R., Slack, R., Voß, A., Büscher, M., Rouncefield, M., & Rouchy, P. (2008). Co-realization: Toward a principled synthesis of ethnomethodology and participatory design. In M. S. Ackerman, C. A. Halverson, T. Erickson & W. A. Kellogg (Eds.), *Resources, co-evolution and artifacts* (pp. 59-94): Springer. Available at http://dx.doi.org/10.1007/978-1-84628-901-9_3.
- Hollan, J., Hutchins, E., & Kirsh, D. (2000). Distributed cognition: Toward a new foundation of human-computer interaction research. *ACM Transactions on Computer-Human Interaction*, 7(2), 174-196.
- Hutchins, E., & Palen, L. (1998). Constructing meaning from space, gesture and speech. In L. B. Resnick, R. Saljo, C. Pontecorvo & B. Burge (Eds.), *Discourse, tools, and reasoning: Situated cognition and technologically supported environments*. Heidelberg, Germany: Springer Verlag.
- Kaptelinin, V. (1996). Activity theory: Implications for HCI. In B. Nardi (Ed.), *Context and consciousness: Activity theory and human-computer interaction* (pp. 103-115). Cambridge, MA: MIT Press.
- Kling, R. (1999). What is social informatics and why does it matter? *D-Lib Magazine*, 5(1). Available at www.dlib.org/dlib/january99/kling/01kling.html.
- Kuuti, K. (1995). Activity theory as a potential framework for human-computer interaction research. In B. Nardi (Ed.), *Context and consciousness: Activity theory and human computer interaction* (pp. 17-44). Cambridge, MA: MIT Press.
- Latour, B. (1992). Where are the missing masses? The sociology of a few mundane artifacts. In W. E. Bijker & J. Law (Eds.), *Shaping technology/building society* (pp. 225-227). Cambridge, MA: MIT Press.
- Latour, B. (1990). Drawing things together. In M. Lynch & S. Woolgar (Eds.), *Representation in scientific practice*. Cambridge, MA: MIT Press.
- Livingston, E. (1987). *Making sense of ethnomethodology*. London, UK: Routledge & Kegan Paul.
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- Orlikowski, W. J. (2008). Using technology and constituting structures: A practice lens for studying technology in organizations. In M. S. Ackerman, C. A. Halverson, T. Erickson & W. A. Kellogg

(Eds.), *Resources, co-evolution and artifacts* (pp. 255-305): Springer. Available at http://dx.doi.org/10.1007/978-1-84628-901-9_10.

Reddy, M., & Dourish, P. (2008). Representation, coordination, and information artifacts in medical work. In M. S. Ackerman, C. A. Halverson, T. Erickson & W. A. Kellogg (Eds.), *Resources, co-evolution and artifacts* (pp. 167-190): Springer. Available at http://dx.doi.org/10.1007/978-1-84628-901-9_7.

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Stahl, G. (Ed.). (2009). *Studying virtual math teams*. New York, NY: Springer. Available at <http://GerryStahl.net/vmt/book>.

Stahl, G. (2009). *For a science of group interaction*. Paper presented at the Conference for Groupware (GROUP 2009), Sanibel Island, FL. Available at <http://GerryStahl.net/pub/group2009.pdf>
<http://GerryStahl.net/pub/group2009ppt.pdf>.

Stahl, G., Koschmann, T., & Suthers, D. (2006). Computer-supported collaborative learning: An historical perspective. In R. K. Sawyer (Ed.), *Cambridge handbook of the learning sciences* (pp. 409-426). Cambridge, UK: Cambridge University Press. Available at http://GerryStahl.net/cscl/CSCL_English.pdf in English,
http://GerryStahl.net/cscl/CSCL_Chinese_simplified.pdf in simplified Chinese,
http://GerryStahl.net/cscl/CSCL_Chinese_traditional.pdf in traditional Chinese,
http://GerryStahl.net/cscl/CSCL_Spanish.pdf in Spanish,
http://GerryStahl.net/cscl/CSCL_Portuguese.pdf in Portuguese,
http://GerryStahl.net/cscl/CSCL_German.pdf in German,
http://GerryStahl.net/cscl/CSCL_Romanian.pdf in Romanian.

Further In-Depth Readings

Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*. Helsinki, Finland: Orienta-Kosultit Oy. Available at: <http://communication.ucsd.edu/LCHC/MCA/Paper/Engestrom/expanding/toc.htm>

Garfinkel, H. (1967). *Studies in ethnomethodology*. Englewood Cliffs, NJ: Prentice-Hall.

Hutchins, E. (1996). *Cognition in the wild*. Cambridge, MA: MIT Press.

Latour, B. (2007). *Reassembling the social: An introduction to actor-network-theory*. Cambridge, UK: Cambridge University Press.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.

Vygotsky, L. (1930/1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Generic Information

Problems & Questions. Please raise questions in class if possible. This is the best place to raise questions because other students may have the same question and they can benefit from seeing the answer; also, other students can respond with their views on the issue. If it is an urgent or personal

problem, email the instructor. If you believe that your group assignment is not going to work out, discuss it with the instructor. Email with the instructor is the best medium for confidential concerns, such as concerns about other students in your group or personal events that will interfere with your course work.

No Excuses. No one is interested in excuses. If you need to miss any group activity, such as a team meeting, notify the other members of your group as soon as possible and explain how you will contribute to the group. You are responsible for doing your share of the group work during the term; when you ask others to cover for you, let them know how you will make up for it. Everyone knows that things come up, sometimes unexpectedly, but that does not relieve you of your responsibilities. Your group is your support system in the course – let them know what is going on so they can help you.

Plagiarism. Obviously, plagiarism is not tolerated at Drexel and can result in failure. Plagiarism is passing off someone else's ideas, work or words as your own. Collaboration is encouraged, but always give credit to individuals or groups whose ideas, work or words you are reporting, quoting or summarizing.

Academic Honesty. Cheating, academic misconduct, plagiarism and fabrication are serious breaches of academic integrity and will be dealt with according to University Policy (Section 10 of the Student Handbook.) Students are responsible for their own finished work. Penalties for first offenses range from 0 on an assignment to an F in the course. All offenses are reported to the University Office of Judicial Affairs.

Late Policy. All group assignments are due online by midnight of the due date. Group presentations cannot be rescheduled. Individual written work is due by email to the instructor midnight of the due date. Grades for late written work will be lowered substantially.

Student Advisors and Resources. Take advantage of the academic advisors who are available on the third floor of Rush. Appointments with advisors can be scheduled by calling 215-895-2474. Appointments with co-op coordinators can be scheduled by calling 215-895-2185. The Drexel Learning Center is available at <http://www.dlc.drexel.edu>. The Writing Center is available at <http://www.drexel.edu/writingcenter>. The Hagerty Library is available at <http://www.library.drexel.edu>.

Special Needs Students. If you have any special need that must be accommodated, please let the instructor know the first week of class. Contact with the Office of Disability Services (215-895-2506/7) is strictly confidential.

Privacy Notice

In general, all work and communication in this course should be treated as *public*:

- Your work in this course may be studied by other students in the course.
- Any communication on the Internet may end up being seen by people for whom it was not originally intended.
- The web spaces for this course can be viewed by anyone in the world through the Web.

- ISchool courses may be recorded and streamed for educational purposes. Presentations and other activities in class may be videotaped and made available in the future.
- The instructor and other Drexel faculty, students and staff may have access to anything in Blackboard or the web spaces.
- Future researchers may have access to these materials as data. Although they do not have permission to publish any data about you and although they should ensure anonymity and confidentiality of all personal data, you should assume that activities taking place in this course may be subject to viewing.
- Students in future courses may have access to your work, particularly the group portfolios.

Please let the instructor know if you have an objection to your work being made available to others.

Instructor's Background

Hi. My name is Gerry (pronounced like "Jerry"). I am always available by email at Gerry.Stahl@drexel.edu. Send me an email if you want to meet with me in person or to inquire about urgent or personal questions.

My professional research area is the field of CSCL (Computer-Supported Collaborative Learning). I think that collaborative learning is an exciting and especially effective way to learn. I believe that there is great potential to design good computer support for it. I have been experimenting with a number of CSCL prototypes and have written many papers on the theory, design and evaluation of interactive systems to support collaborative learning. We will be taking advantage of what I have learned from my research in this course, and I hope you will benefit from this.

I have recently published a book on CSCL entitled *Group Cognition: Computer Support for Building Collaborative Knowledge* and have launched the *International Journal of Computer-Supported Collaborative Learning*. My background is in computer science and philosophy. At Drexel, I teach mainly HCI courses; before coming to Drexel, I worked at a large research organization in Germany; before that I was a Research Professor at the University of Colorado in Boulder. The 2002 international CSCL conference was at Boulder and I was the Program Chair for it; I have been in charge of workshops at CSCL 2003 in Norway, CSCL 2005 in Taiwan, ICCE 2006 in Beijing, CSCL 2007 in New Brunswick and CSCL 2009 in Greece.

Let me know if you have any questions about my background or check out my home page, where you can see more details and read my papers: <http://www.ischool.drexel.edu/faculty/gerry>.