

INFO 110 Human-Computer Interaction

Spring 2008, Gerry Stahl, Murat Cakir & Nan Zhou

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Course wiki site: http://vmt.mathforum.org/vmtwiki/index.php/Designing_for_CSCL

Course Description

INFO 110 focuses on *the design and evaluation of interactive systems* from a user-centered perspective. You will explore and learn about how people and groups of people perceive, use, share and communicate about information, and how interaction technologies can take these human issues into account. You will become familiar with basic design principles and evaluation techniques in the field of human-computer interaction (HCI). When you have completed this course, you should be able to:

- Describe the general areas of study within the field of *human-computer interaction*.
- Describe the *interaction* between people, the work they do, the information systems they use, and the environments in which they work and learn.
- Describe a user-oriented approach to the *design* of interactive computer systems.
- Describe a user-oriented approach to the *evaluation* of interactive computer systems.

Beyond these standard HCI goals, this course is intended to give you hands-on experience in actually designing and evaluating human-computer interaction and computer-mediated human-human interaction. This will be done through a course design project that will take you through a design and evaluation cycle.

The course should also give you a taste of leading-edge, future-oriented research in HCI, since HCI is a rapidly changing field. To do this, the course will address issues that are important for HCI today and in the future:

- *Social Computing*. How can you design software to support interaction among people in a community?
- *Collaborative Learning*. How can you design software to support learning in and by groups?
- *Knowledge Construction*. How can you design software to help groups of people access relevant information resources and build shared knowledge?
- *Community Building*. How can you design software to increase the sense of community among users?

The hands-on class project this quarter is to explore interaction design for a particular problem that illustrates these course issues. The problem for the weekly group design assignments is:

Researchers in the field of Computer-Supported Collaborative Learning (CSCL) share ideas and research findings in papers at biannual CSCL conferences, in a quarterly CSCL journal and in a CSCL book series. CSCL research labs are scattered around the world. Ironically given the focus of this field, there are few computer-based media to support collaborative learning about themes in CSCL at a distance. Students and researchers get together face-to-face in conferences, workshops and labs, but the technologies of the Internet and online social networking are rarely used effectively to promote the spread of discussion and the growth of the field.

Students in the course will be divided into project groups working on the following design project for providing a social and technological CSCL infrastructure for the research field of CSCL:

Design new functionality for the use of the CSCL research community to supplement knowledge building, the sharing of ideas and the critical evaluation of theoretical positions. This can include features of a digital library for CSCL research; mechanisms to support social networking among students and others interested in discussing topics in CSCL of mutual interest; media for online interaction among students and researchers around the world; technologies for organizing or analyzing proposed positions; etc. This may include how CSCL students and researchers can define their own profiles, search for profiles of people they might want to interact with, invite people to join debates, to critique and rank published ideas, etc. In other words, design ways to help create and maintain a lively online CSCL research community in which people will want to interact, invite others, meet new people, and build shared knowledge throughout the year and around the world.

This design problem is typical of leading-edge research. It is also a real-world challenge: your ideas in this course may be adopted within the CSCL community.

We will approach this problem systematically using HCI methods of task analysis, system design and user-centered evaluation. During the quarter, teams of students in the course will develop interface design concepts and present and document their solutions to these design problems.

A goal of the course is the creation of a wiki page on “A Vision of CSCL support for the CSCL research community.” The wiki page should be designed to appeal to members of the current CSCL community and to stimulate them to refine the page and to implement some of the ideas described on the page.

Course Approach to Learning

This course will engage in *problem-based collaborative learning*. You will learn primarily by applying HCI methods in projects conducted by small groups of students. There will be weekly activities for hands-on engagement with the topics of interaction design. After you form into small project groups, you will have assignments to try out the ideas you are studying by sharing, discussing and negotiating your creative ideas with the other members of your group. Your group will decide on presentations of the work you do to share with the rest of the class—both in class and in the course wiki. By the end of the course, your group will have a tested prototype and scenarios for the design of new functionality.

You will meet online with your group several times a week in a special chat room. You will produce two group presentations most weeks: (1) a presentation of a phase of design work on your group

design project and (2) an analysis of a related reading or small set of readings. Most course work will be closely tied to the group projects, which will require good group collaboration. You will work with a group of other students who can meet online at mutually convenient times.

The course is conducted collaboratively: most of your learning will be from interaction with other students in the class. The group work will be organized and conducted by you and the other students. The readings will be discussed by you; they will take the place of lectures. By participating actively in the course, you will learn much more than by passively observing PowerPoint lectures.

The course is interdisciplinary and multi-modal. People with different backgrounds, specialties and skills will work together in teams. The course will mix face-to-face and online; synchronous and asynchronous; computer science and library science; undergraduate and graduate; novice and expert; reading, designing and writing; individual, small-group and class—like 21st century learning and work.

The course is structured and collaboratively facilitated by Gerry Stahl, Nan Zhou and Murat Cakir. Gerry Stahl is a Professor at IST and a leading CSCL researcher. Nan Zhou and Murat Cakir are completing their PhD dissertations at IST on aspects of CSCL.

As part of studying computer support for online social networking, you will review your own networking activities in this course. Therefore, it is important that all your contact with other students on the class about the course take place through the special online environment (chat, whiteboard, wiki, messaging system) used for the course, where your interactions will be persistent and visible. Do not discuss the projects or make meeting arrangements using IM, email, telephone or face-to-face.

Please note: This course requires extensive synchronous online work in small-group sessions—scheduled to be as convenient as possible for all participants. The course is about interaction via networked computers and you will have to experience quite a bit of this yourself. You will have to meet online with your group throughout the week. You will work hard and learn a lot. This course is taught differently from what you might be used to. Taking this course means you have agreed to try the approach of this course as described in this Course Overview. If you want to take this section of this course but there is no time during the day or evening to meet with your group online, then please contact the instructor to arrange for asynchronous interaction – recognizing that this will make it harder for you to complete the work of the course successfully because asynchronous interaction is much slower and less productive.

A special collaboration in blended learning: This quarter will feature collaboration between an undergraduate and a graduate section of HCI. Each section will read textbooks at its level, but both sections will read the same other readings and work together on the course project. The undergraduate section will meet in class each week; the graduate section will meet only online. Project groups will meet online and will mix undergraduates and graduate students as well as mixing computer science and library science majors. All students will contribute to the group work based on their individual skill levels. The undergraduates will report on the group work in class and bring feedback from that back to their groups. Because all students are expected to spend at least six hours a week on work related to the HCI course and because the undergraduates will spend some of that time in class, it is expected that the graduate students will contribute more to the online assignments and wiki postings.

Course Textbook

The course content—HCI theory, methods, key concepts and background knowledge—is presented by the textbooks and other readings. You are expected to read them carefully, take notes and be critical.

The reading assignments are listed in the Course Assignments table below (Textbooks and Readings).
The textbooks are:

Norman, D. (1988) *The Design of Everyday Things*. New York: Doubleday. Available at:
http://www.amazon.com/Design-Everyday-Things-Donald-Norman/dp/0465067107/ref=sr_1_1?ie=UTF8&s=books&qid=1206569453&sr=8-1

Lewis, C. & Rieman, J. (1993) *Task-Centered User Interface Design*. Available at:
<http://GerryStahl.net/hci/tcuid.pdf>.

Course Assignments

The main reading assignments are from the textbooks and online readings listed below. There will be weekly project assignments—mostly group projects.

The readings are carefully coordinated with the projects; if you fall behind in the readings, you will not understand how to do the weekly projects correctly.

All group assignments are due online by midnight Monday night. All individual assignments are due by email by midnight Monday night.

Wk	Due date	Textbooks	Readings	Project
1	April 7	DOET 1, 2, 3	“Computer support for knowledge-building communities”	Literature search on CSCL key terms
2	April 14	DOET 4, 5	CSCL 2002 proceedings intro, ijCSCL 1:1 intro, “Computer-supported collaborative learning: An historical perspective”,	Analysis of literature search group process
3	April 21	DOET 6, 7	“Share globally, adapt locally”, Research CyberStudio	Problem statement and task analysis
4	April 28	TCUI 1, 2	“As We May Think”, hypertext readings	Establish requirements with scenarios, task analysis, use cases
5	May 5	TCUI 3, 4	“Five reasons for scenario-based design”, Ariadne	[<i>Individual assignment</i>] Conceptual design paper
6	May 12	TCUI 5	Heuristic evaluation readings	Interactive prototype and scenario
7	May 19		Cognitive walkthrough readings, Engelbart	Heuristic evaluation of prototype
8	May 26		“Chat on Collaborative Knowledge Building”	Cognitive walkthrough of scenario [<i>Individual assignment</i>] Textbook Journal
9	June 2		Introduction to Group Cognition	Final design for CSCL support; final edits of class wiki pages
10	June 9			[<i>Individual assignments</i>] Reflection Paper

Course Requirements

CLASS WIKI: Contribute to the class wiki pages on “A Vision of CSCL support for the CSCL research community.” This should be done on a continuing weekly basis so that the pages evolve in structure and content through the interaction of contributions and edits by all class members. Sign your contributions (with four tildes, ~).

READINGS: Read the textbook chapters and other readings carefully. Take notes in a weekly journal form. For each reading, comment on what you find most interesting and what you find most helpful for the group project. Your readings journal will be submitted as a final paper before the end of the course.

GROUP DESIGN PROJECTS: Collaborate actively in your project group. Participate fully in all group projects. You are responsible for making your group a successful collaborative experience in which everyone participates, contributes and learns. Each week, work on that week’s phase of the course project and post a group report. A group report on the week’s assignment must be posted by the due date. You may come back later to revise your statement and to comment on the statements of other groups.

MIDTERM CONCEPTUAL DESIGN PAPER: Submit a written document of about 5 single-spaced pages containing your conceptual design for the course project. Follow the detailed instructions. This is an individual assignment and should be emailed to the instructor.

READINGS JOURNAL: Submit a written document of about 5-10 single-spaced pages containing your critical reflections on the course readings. How did the chapters and other readings help you to understand the course issues and the group projects? What other topics would have helped to have readings about them? Can you suggest some readings that might be helpful? Which chapters or papers did you enjoy the most or the least? Which were the most or least appropriate for the course in terms of the content, style, relevance, etc.? Follow the detailed instructions. This is an individual assignment and should be emailed to the instructor.

FINAL REFLECTION PAPER: Submit a paper of about 5 single-spaced pages containing your reflections on the course. This should be a reflection from your personal, individual perspective on how you felt the course met your needs or fell short. You should demonstrate what you have actually done in the course and what you have learned. For instance, use the concepts and principles from the textbook and readings to analyze your work on the group design projects and to reflect on the issues that your project confronted. Discuss what you would want your group to do if it had another 10 weeks to work on the project. Follow the detailed instructions. This is an individual assignment and should be emailed to the instructor. It is an opportunity to provide meaningful feedback to the instructor.

Course Grading

There are no tests in this course. We are not interested in your test taking skills, but in your ability to design and critically analyze interactive systems, to build innovative ideas and to do share your skills by working with other people. You should be able to assess your own accomplishments and those of your team by comparing them with other team efforts.

The course work will involve readings, weekly group projects and individual papers. Grading will be based:

- Partially on your individual participation in the course and in your group,
- Partially on the work of your project group and
- Partially on the work of the class as a whole on the class wiki pages.

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 or to write an adequate midterm design paper, final reflection paper or final textbook journal will lower your grade. Because groups all report their work frequently, you can evaluate for yourself how your group is doing compared to the other groups. Your submitted papers will clearly reflect how well you have worked and learned individually. Assume that your grade will be an accurate measure of what your group and you have accomplished in this course.

40%	Individual		A+	98	100
	10%	Participation in group and class work	A	92	97
	10%	Midterm conceptual design paper	A-	90	91
	10%	Final reflection paper	B+	88	89
	10%	Final textbook journal paper	B	82	87
40%	Group		B-	80	81
	10%	Quality of group collaboration	C+	78	79
	10%	Use of techniques from the readings	C	72	77
	10%	Quality of readings discussions	C-	70	71
	10%	Quality of group design projects	D+	68	69
20%	Class		D	62	67
	10%	Class wiki page	D-	60	61
	10%	Class discussion of readings and designs	F	0	59

Generic Information

Problems & Questions. There is space on the course wiki for raising questions about the course. 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.

It is often better to ask questions about the texts, weekly assignments or other aspects of the course through the wiki, so that everyone in the class can see and respond to your questions and their answers.

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>.