*** Course Overview ***
INFO 616: Social and Collaborative Computing
Spring 2012 – online
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Course Description

This course has been renamed, revised and updated to present a more contemporary view of the field.

INFO 616 examines selected human, social and technical issues and concepts of computer-supported cooperative work, computer-supported collaborative learning and social networking. Topics include: the ways that groups work in the networked organization; analysis and design of group-support systems; the theory, user-centered analysis and design of groupware; social-networking and community-learning technologies; and future directions of these technologies. The course includes theoretical and research literature on the design of social and collaborative systems.

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

- Apply collaborative, cooperative and social computing concepts and techniques to analyze potential organizational requirements.

- Apply selected collaboration and social computing systems to meet specific application requirements.

- Evaluate behavioral aspects of collaborative work environments.

- Discuss research literature on social and collaboration computing.

Groupware systems are socio-technical systems, so their design must be driven by the human and social needs of users and user communities. Accordingly, this course looks at various approaches for studying, analyzing and evaluating system requirements—particularly, for cooperative, collaborative and social-computing systems. Course readings cover classic papers defining the CSCW field, examples of groupware applications for cooperation in the workplace and for collaborative learning, and considerations for groupware evaluation.

This course is designed and organized to support collaborative learning; work in small groups is the primary learning activity; the instructor's role is primarily to structure, assess and guide the experience. The instructor's knowledge, experience and perspective are well represented through the readings. Students will prepare presentations on the readings, working in online small groups. Critical, creative, well-grounded views on the readings are encouraged. The course will focus on a group design project that explores the leading edge of research on social and collaborative computing, allowing the selection of current topics to follow student interests.

The course requires careful reading of 50-75 pages a week. It requires writing critical reviews of the readings, collaboration on a group project with group reports (including about an hour per week of synchronous small-group chat), and participation in online class discussion.

This one-time course offering may not be repeated in the future. The content and instructor of this course change each time it is offered. This is an opportunity to benefit from the instructor's own perspective on groupware design and research.

Course Readings

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. You can download the course readings as Course Materials in Blackboard. Note that a number of the readings are chapters in two e-books, which are downloadable from the Course Materials. Here are the reading assignments:

1. Stahl, G. (2006). Introduction: Essays on technology, interaction and cognition. In Stahl, G. (2006) *Group Cognition: Computer Support for Building Collaborative Knowledge.* Cambridge, MA: MIT Press. p. 1-21.

2. Stahl, G. (2009). Chapter 1. A chat about chat. In G. Stahl (Ed.), *Studying virtual math teams.* New York, NY: Springer. p. 7-16.

3. Stahl, G. (2009). Chapter 2. The VMT vision. In G. Stahl (Ed.), *Studying virtual math teams.* New York, NY: Springer. p. 17-29.

4. Lampe, C., Wohn, D. Y., Vitak, J., Ellison, E. E., Wash, R. (2011). Student use of Facebook for organizing collaborative classroom activities. *International Journal of Computer-Supported Collaborative Learning. 6*(1), 93-112.

5. Ellison, N., Steinfield, C., Lampe, C. (2011). Connection strategies: Social capital implications of Facebook-enabled communication practices. *New Media Society*. https://www.msu.edu/~nellison/EllisonSteinfieldLampe2011ConnectionStrategies.pdf.

6. Glassman, M., & Kang, M. J. (2011). The logic of wikis: The possibilities of the Web 2.0 classroom. *International Journal of Computer-Supported Collaborative Learning. 6*(3), 329–347.

7. Nardi, B., Schiano, D., Gumbrecht, M. (2004). Blogging as social activity, or, Would you let 900 million people read your diary? *CSCW '04. Chi Letters*, 6(3) 222-231.

8. Bryant, S., Forte, A. and Bruckman, A. (2005). Becoming Wikipedian: Transformation of participation in a collaborative online encyclopedia. *Proceedings of GROUP International Conference on Supporting Group Work (GROUP 2005)*, Sanibel Island, FL, pp. 1-10. http://www.andreaforte.net/BryantForteBruckBecomingWikipedian.pdf.

9. Panciera, K., Halfaker, A., and Terveen, L. (2009). Wikipedians are born, not made: A study of power editors on Wikipedia. In *Proceedings of the GROUP International Conference on Supporting Group Work (GROUP '09).* ACM, New York, NY. p. 51-60. http://katie.panciera.net/publications/PancieraGROUP2009.pdf.

10. Debeauvais, T., Nardi, B., Schiano, D., Ducheneaut, N., Yee, N. (2011). If you build it they might stay: Retention mechanisms in World of Warcraft. *Proceedings Foundations of Digital Games* 2011.

11. Schiano, D., Nardi, B., Debeauvais, T., Ducheneaut, N., Yee, N. (2011). A new look at World of Warcraft's social landscape. *Proceedings Foundations of Digital Games* 2011.

12. Zimmerman, A., Nardi, B. (2006). Whither or whether HCI: Requirements analysis for multi-sited, multi-user cyberinfrastructures. *CHI 2006*.

13. Mühlpfordt, M., Wessner, M. (2009). Chapter 15: The Integration of dual-interaction spaces. In Stahl, G. (2009) *Studying Virtual Math Teams*. New York, NY: Springer. p. 281-294.

14. Stahl, G. (2009). Chapter 16: Designing a mix of synchronous and asynchronous media for VMT. In Stahl, G. (2009) *Studying Virtual Math Teams*. New York, NY: Springer. p. 295-310.

15. Stahl, G. (2009). Chapter 17: Deictic referencing in VMT. In Stahl, G. (2009) *Studying Virtual Math Teams*. New York, NY: Springer. p. 311-326.

16. Ellis, C. A., Gibbs, S. J., Rein, G. L. (1991). Groupware: Some issues and experiences. *Communications of the ACM*. 34(1) 39-58.

17. Grudin, J. (1988). Why CSCW applications fail: Problems in the design and evaluation of organizational interfaces. *CSCW '88 Proceedings*. 85-93.

18. Grudin, J. (1994). Eight challenges for developers. *Communications of the ACM*. 37(1) 93-105.

19. Nardi, B., Whittaker, S., Schwarz, H. (2002). NewWORKers and their activity in intensional networks. *International Journal of CSCW*. 11: 205-242.

20. Schmidt, K., Bannon, L. (1992). Taking CSCW seriously: Supporting articulation work. *CSCW* 1(1) 7-40.

21. Orlikowski, W. (1992) Learning from Notes: Organizational issues in groupware implementation. *CSCW '92 Proceedings*. 362-369.

22. Stahl, G. (2006). Chapter 5: Collaboration technology for communities. In Stahl, G. (2006) *Group Cognition: Computer Support for Building Collaborative Knowledge*. Cambridge, MA: MIT Press. p. 93-118.

23. Stahl, G. (2006). Chapter 6: Perspectives on collaborative learning. In Stahl, G. (2006) *Group Cognition: Computer Support for Building Collaborative Knowledge*. Cambridge, MA: MIT Press. p. 119-154.

24. Stahl, G. (2006). Chapter 7: Groupware goes to school. In Stahl, G. (2006) *Group Cognition: Computer Support for Building Collaborative Knowledge*. Cambridge, MA: MIT Press. p. 155-176.

25. Stahl, G. (2006). Chapter 21: Thinking at the small-group unit of analysis. In Stahl, G. (2006) *Group Cognition: Computer Support for Building Collaborative Knowledge*. Cambridge, MA: MIT Press. p. 431-468.

26. Stahl, G. (2012). Theories of collaborative cognition: Foundations for CSCL and CSCW together. In S. Goggins & I. Jahnke (Eds.), *CSCL@Work*. (Vol. #13 Springer CSCL Book Series). New York, NY: Springer. 20 pages.

27. Stahl, G. (2012). A view of computer-supported collaborative-learning research and its lessons for future-generation collaboration systems. *Future Generation Computer Systems*. 15 pages.

Course Assignments

Wk	Dates	Readings	Group Review	Comments	Weekly Assignments
1	April 2-8	Intro to collaborative learning	1, 2, 3		
2	April 9-15	Web 2.0	4, 5, 6	1, 2, 3	
3	April 16-22	Social computing	7, 8, 9	4, 5, 6	Design literature review
4	April 23-29	Collaborative computing	10, 11, 12	7, 8, 9	Design proposal
5	April 30-May 6	VMT	13, 14, 15	10, 11, 12	VMT trial
6	May 7-13	Groupware	16, 17, 18	13, 14, 15	Design requirements
7	May 14-20	CSCW	19, 20, 21	16, 17, 18	Design alternatives
8	May 21-27	CSCL	22, 23, 24	19, 20, 21	Feedback on projects
9	May 28-June 3	Theory	25, 26, 27	22, 23, 24	
10	June 4-10	Conclusion		25, 26, 27	Final design documentation
11					(No exam)

Due dates: All assignments are due by midnight (East Coast time) on Sunday at the end of the week shown on the table of Course Assignments above.

Course Requirements

READINGS: Read all three of the assigned chapters or papers carefully by the end of the week—do not fall behind the schedule of readings above. Take notes. Think about the main purpose of each reading and its central points. How does it make its argument to support its main points? What terms, concepts, ideas, techniques or arguments are unclear? Is the argument of the reading supported by analysis of data or examples? How could the reading be improved?

GROUP REVIEWS OF READINGS: This assignment is to promote collaborative learning (in your small group) about selected readings. Meet with your group online to draft a review of the one reading assigned to your group. *Do not simply divide the work up, but discuss together what you, as a group, think are the important points for your review*. You might want to each post ideas for the review to a group asynchronous space in advance of meeting; then meet synchronously for about an hour to discuss how to put the ideas together and to develop them further; then polish the review and agree on it as a group asynchronously; and finally post it to the Blackboard discussion forum by the end of the week listed above for the group review. Be concise and to the point: your group reviews should be 400-500 words long; they should state the main idea or argument of the reading and should point out its value and its limitations; suggest some ways the reading could be improved or its argument could be strengthened. What is the reading trying to accomplish—within its book or within the scientific community; how does its rhetorical and literary style help or hinder this? Do not simply state opinions; back up your claims or arguments with references to the cited data or to the detailed wording. At the top of your reviews (and all group products in the course), list the names of the people who actively participated in writing the review; at the bottom of your reviews (and all group products in the course) indicate where the instructor can find an archive of your synchronous group discussions (e.g., in the Blackboard Group section in a virtual classroom or chat archive or on a chat log uploaded to Blackboard and attached to the review).

INDIVIDUAL COMMENTS ON OTHER GROUPS' REVIEWS OF READINGS: This assignment is to *promote discussion and collaborative learning (in the whole class)* about all the readings. Read the reviews of the two readings that your group did *not* review last week. As an individual, post a comment on each of them of about 100-200 words long to the Blackboard discussion forum of the review by the end of the week. Do not simply agree or disagree with the review; do not simply give your personal opinion or talk about your personal experiences. Be specific and reference the claims you are disputing. Try to deepen the discussion by extending the argument of the reading, the review and other people's comments. Some of the readings are difficult and require background knowledge that not everyone will have; try to fill in some understanding that you think was missing in the other postings. Relate the reading to your understanding of the theme of the course, perhaps pointing out links between readings.

GROUP TRIAL OF VMT SOFTWARE. During class early in the course, you will have an opportunity to try a prototype of collaboration software under development at the iSchool. Your group should summarize its experience with the software and post the summary to Blackboard.

The other Course Requirements involve the collaborative design project:

GROUP DESIGN LITERATURE REVIEW. (See below.)

GROUP PROJECT PROPOSAL DOCUMENT. (See below.)

GROUP DESIGN NEEDS AND REQUIREMENTS DOCUMENT. (See below.)

GROUP EXPLORING DESIGN ALTERNATIVES DOCUMENT. (See below.)

INDIVIDUAL FEEDBACK ON OTHER GROUPS' DESIGNS. Post to Blackboard your individual feedback and suggestions on the design alternatives presented by four other groups. Try to help them produce the best designs possible.

GROUP DOCUMENTATION OF DESIGN DEVELOPMENT. (See below.)

Collaborative Design Project

The hands-on focus of this class is the design of a new feature of an interactive system. Toward this end, groups will identify an interesting problem space and will design and prototype an interactive system. Small groups can be rearranged, based on project interests as well as when they can get together online. Sample project ideas are:

- Extend blog technology to support community learning.

- Extend blog technology to support knowledge sharing in a company.

- Extend wiki technology to support community literature review.

- Extend wiki technology to support a company digital library.

- Adapt Facebook technology for classroom learning.

- Adapt Facebook technology for a company social network.

- Extend VMT for sharing summaries from the chat and drawing in the wiki.

- Extend VMT to support forming groups online outside of schools.

Document 1: Literature review

Conduct a collaborative group literature search on topics that members of your group are considering for a design project. This is to avoid re-inventing something that already exists or already failed. You want to design at the forefront. For instance, if someone is thinking of proposing a new feature, search to see if there is any literature related to such a feature: has someone already implemented and tested something along those lines? Prepare an annotated bibliography including several of the best sources the group found. For each source, list its bibliographic information, including a URL where it can be downloaded if available. Include a paragraph summarizing the relevant information in the source and the group's assessment of the usefulness of that information for a design project. Prepare a document using the Course Paper Template (available from Course Documents) and attach the group's document to the Blackboard item for Literature Review. At the top of your review (and all group products in the course), list the names of the people who actively participated in writing the review; at the bottom of your review (and all group products in the course) indicate where the instructor can find an archive of your synchronous group discussions (e.g., in the Blackboard Group section in a virtual classroom or chat archive or on a chat log uploaded to Blackboard and attached to the review).

Document 2: Project proposal

Post a brief statement to the Blackboard item for Project Proposal proposing a project design space and listing the members of the design group. State the problem you want to address from a user perspective—do not simply propose adding a specific technological function. Describe the goal without prejudging the solution design. Include a link to the log of the chat where your group discussed the proposal.

Document 3: Design needs and requirements

In this document, your group will describe the goals for your design project and the initial design work you have undertaken. This includes both your process for conducting a needs analysis and gathering requirements as well as what you found.

This document should include:

- An overview of what the proposed system functionality will do and a rationale for building it. (Who cares about this design problem? Who might find it useful/fun/helpful?)

- A brief review of several papers from the research literature that discuss design issues relevant to your project. This should only include sources directly relevant to the proposed functionality, and should go beyond the original literature search. Just include the several sources that you feel are most important.

- A description of the anticipated users of the system.

- A task analysis consisting of

    o A description of the important characteristics of the tasks performed by users.

    o A description of important characteristics of the task environment.

    o A simple structured task analysis of the problem.

- An analysis of an existing system that you might build onto, including its strong points and deficiencies (e.g., a simple blog without your extension).

- A description of the larger social and technical system that your technological design will intersect, including data gathered using one or more contextual-inquiry methods.

- An initial set of criteria for success that would be used in the eventual evaluation of your design.

- A description and justification of how the above information was gathered.

- As you address each of these topics, engage in a discussion of the implications of what you learned above for the design of your system. I.e., do not just describe the users, environment, etc., but also explain how these attributes should/will influence your design.

Document 4: Exploring Design Alternatives

The goal of this document is to use what you learned in preparing Document 3 to develop a set of design alternatives for your problem space. This is the stage of "informed brainstorming"; multiple design alternatives should explore the potential design space for the problem. Each group should develop mock-ups, storyboards, and sketches of three (3) interface designs. That is, you should provide pencil-and-paper or electronic images of the interfaces at various stages; you do not need to build working prototypes, but your design sketches should be sufficiently detailed for a potential user to provide useful feedback about the design. Along with each of your design mock-ups, you should provide a brief narrative walk-through of how the system would work. Most importantly, you should include justifications for why design decisions were made, and what you consider to be the relative strengths and weaknesses of your different designs.

The design process you follow here is important. Don't do the following: The group splits up and everyone creates one design, then these are all your alternatives to be turned in. This is not how a good, creative design process should work. It should be more like a brainstorming session with all team members present. You should seek to create multiple, fundamentally different design ideas, ideas that represent different corners of the potential design space for the problem you have chosen. The key is to push the boundaries of what's possible. The key in this part of the project is to come up with at least three substantially different design ideas, not just variations on one basic design. Your document should include all the explanatory material mentioned above as well as all the design sketches, drafts, storyboards, etc., that you generated. Make sure that your report adequately reflects the design process that your group undertook.

You should develop the following items in this part, and you should communicate them through your report:

- At the beginning of this document, write an updated one-paragraph description of your project and less than one page summarizing the key points of your requirements. Your understanding may have changed slightly as you thought through designs.

- Design Space: Describe the design space of the potential interfaces for your system. What requirements may be difficult to realize? What are some tradeoffs that you should explore? How could your interface support some tasks easier than others? Describe the design alternatives that you considered exploring and then give a brief description and justification of the three (or more) alternatives that you did explore.

- Present at least three interface designs (prototypes) illustrating some portion of your product. With each design you should include:

  o A rationale for this design.

  o Some illustrations of the design (sketches, storyboards, ….)

  o At least one scenario from an end-user's perspective.

  o An assessment of the design. This assessment should include feedback from potential users.

- A summary of your modifications to your requirements specification and your usability criteria.

Document 5 – Documenting design development

Your group should construct a detailed prototype of an interface that can be used to demonstrate the completion of two or more tasks using your new functionality to accomplish something meaningful. You can use any prototyping tools that you would like to assist this process. You should be able to represent the form and functionality for some tasks in enough detail that you could do basic user testing with your prototype.

The document that accompanies your prototype should include a text description of your system prototype. The key idea is to justify why you settled on the design that you chose. What's special about this particular design with respect to your problem?

The document that accompanies your prototype should include an initial evaluation plan for the system and a description of what you believe most needs to be tested with users in order to refine your design. Reflect on ideas and concerns from the course readings: Will users really want to use your system or will they resist it? Who will have to do extra work and who will benefit from it?

What kinds of benchmark tasks would you have users perform to help further the design of the interface? Some of these should be performable in your prototype. How critical would it be to observe the deployment of your system in a real operational context? How would you do it? The key here is not to do some exhaustive description of an evaluation plan, but to motivate why the particular plan you propose is appropriate for this interface.

Specifically, you should develop the following items in this part, and you should communicate them through your report:

- Include an updated one-paragraph description of your project and a revised one-page summary of key requirements for your system. (Everything should change during a design process.)

- Design Summary: Project an overall description of your final design.

- Prototype(s): You will communicate your design through prototypes that all are part of one, hopefully coherent, design.

- A detailed textual description of the prototype(s) and sufficient visual material to explain it in the document.

- At least one scenario from an end-user's perspective.

- Your rationale for why you created this prototype

- A preliminary assessment of this prototype. This assessment should include some feedback from potential users.

- Your evaluation plan detailing the requirements and usability criteria that it addresses. The plan should reference the use of the individual prototypes and any others you might not have built.

- A final summary including any modifications to your requirements specification and your usability criteria and a description of your design and implementation process.

Course Grading

Grading will be based partially on your individual participation in the course and in your group; partially on the work of you and your group.

Because your class mates will be building on your ideas, it is essential that you post all your assignments on time and that you participate actively in all group activities (both asynchronous and synchronous). Grades will be reduced at least in half for assignments submitted after the deadlines.

Grading is *not* curved: We are trying to build knowledge collaboratively. It is possible for all groups and even all individuals to earn an A in this course. The grading is not competitive, but simply acknowledges the work that you have done on schedule. 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, or to meet deadlines for postings and assignments will lower your grade. Your grade should be a measure of what your group and you have accomplished in this course.

#	points	max				
9	3	27	Group reviews of readings	A+	99	100
18	2	36	Individual comments on group reviews	A	92	98
4	2	8	Individual reviews of other groups' designs	A-	90	91
1	5	5	Group final design documentation	B+	88	89
5	4	20	Other group assignments	B	82	87
1	4	4	Extra credit	B-	80	81
		100				
				C+	78	79
				C	72	77
				C-	70	71
				D+	68	69
				D	62	67
				D-	60	61
				F	0	59

Generic Information

Problems & Questions. Please raise questions in the class discussion board 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 by email. 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, notify the instructor and 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 individual and group assignments are due online by midnight (East Coast time) of the due date. Group presentations cannot be rescheduled. Grades for late 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.

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 Stahl. I am available every day 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.

In 2006 I published a book on CSCL entitled *Group Cognition: Computer Support for Building Collaborative Knowledge* and launched the *International Journal of Computer-Supported Collaborative Learning*. In 2009 I published a book on the VMT Project that I direct at the iSchool @ Drexel. I have published over 200 conference papers, journal articles, book chapters and essays. 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; I was a Program co-Chair for CSCL 2011 in Hong Kong.

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://GerryStahl.net. You can download my reflections on "A Career in Informatics" at: http://GerryStahl.net/personal/career.pdf.