

CS 342: Introduction to Human Computer Interaction
College of Arts & Sciences Syllabus

COURSE INFORMATION

Credit Hours: 3

Course Description: A good understanding of how a system/device interacts with its users is what differentiates a product that is technically sound from a usable one. HCI is the science that explores these interactions. HCI is at the intersection of many disciplines including cognitive psychology, linguistics, design and engineering. HCI considerations are increasingly cited as key factors in product design. In this course we will explore the science behind HCI and we will put parts of it into practice.

Course Prerequisites: none

FACULTY INFORMATION

Instructor: Rachel Adler

Office Location: LWH 3047

Office Hours: Wednesdays 11:30am – 1:30pm and Thursdays 9:30am – 11:30am or by appointment

Phone Extension: x4710 (email is the best way to reach me!)

E-mail: r-adler@neiu.edu

COURSE MATERIALS

List of Required Texts / Materials:

Course Website: <http://cs.neiu.edu/~radler/cs342>

Required Textbook: None. Readings will be accessible through the course website (see Appendix for full listing).

Optional book: Norman, Donald A. 1988. *The design of everyday things*. New York: Doubleday.

MAJOR COURSE TOPICS

- Introduction to HCI
- Design principles (affordances, conventions)

- Needfinding methods
- Prototyping
- Evaluation
- Usability Testing
- Experimental design

COURSE OBJECTIVES / STUDENT LEARNING OUTCOMES

At the end of this course students should be able to

- Think critically about human computer interaction.
- Incorporate interaction design theory as well as elements of cognitive psychology when designing, critiquing or talking about software and/or hardware.
- Design mock-ups and carry out user and expert evaluation of interfaces.
- Formulate general ways in which to test hypotheses about human computer interaction.

STUDENT TASKS / ASSIGNMENTS / REQUIREMENTS

Assignments:

Virtual Discussions: Critically think about current HCI articles.

Assignments: Critically think about good and bad designs of products and websites, conduct an Ethnography, understand how to design experiments and intercoder reliability, and research assistive technology.

Final project: Needfinding, Storyboard, Paper Prototype, User Testing, and Video Prototype

Grading Policies and Formulae:

Virtual Discussions/Readings – 20%

Assignments – 25%

Midterm Exam – 25%

Final Project – 30%

90-100%	A
80-89%	B
70-79%	C
60-69%	D
0-59%	F

Course Outline:

List of Topics: Readings will be assigned for each topic covered in the course.

Week	Topics
1	Introduction
2	Good and Bad Design
3	Visual Design
4	Qualitative Research / Needfinding
5	Storyboard
6	Prototypes
7	Heuristic Evaluation
8	Usability Testing
9	Evaluating our Prototypes
10	Midterm Exam
11	Accessibility
12	Designing Experiments
13	Thanksgiving – No Class
14	Research Experiment
15	Work on Final Presentations
	Final Project Presentations

COURSE POLICIES AND STATEMENTS

Absence Policy:

Students should attend all scheduled classes on time.

Academic Integrity Policy:

By enrolling in this course, you are bound by the NEIU Student Code of Conduct: <http://www.neiu.edu/university-life/student-rights-and-responsibilities/student-code-conduct>. You will be informed by your instructor of any additional policy specific to your course regarding plagiarism, class disruptions, etc.

ADA Statement:

Northeastern Illinois University (NEIU) complies with the Americans with Disabilities Act (ADA) in making reasonable accommodations for qualified students with disabilities. To request accommodations, students with special needs should make arrangements with the Student Disability Services (SDS) office, located on the main campus in room D104. Contact SDS via (773) 442-4595 or <http://www.neiu.edu/university-life/student-disability-services>.

Campus Safety:

Web links to Campus Safety: Emergency Procedures and Safety Information can be found on NEIUport on the MyNEIU tab or as follows:
http://homepages.neiu.edu/~neutemp/Emergency_Procedures/MainCampus/.

Late Work

No late homework will be accepted.

Virtual Discussion Requirements:

Posts: Each week you will have virtual discussions due. Please provide at least a few sentences answering the assigned question based on the readings. You will not be able to see your classmates' posts until you post first. Please write and save your post in a separate file before entering it into the discussion board. Some resources which may help are Grammarly (<https://www.grammarly.com/>) and VoiceNote II (<https://voicenote.in/>).

Replies: In addition to your posts you will be required to comment on two of your classmates' posts. Please note that these replies should be more in depth than "I agree."

Additional Academic Integrity Policy:

All assignments must be the student's own work. If you copy homework, you and the student whose homework you copied will receive a zero. Two students may not submit the same homework. If you are caught copying another student's exam, or allowing someone to copy your exam, you will fail the exam and face further academic discipline.

Notetaking

Students are encouraged to post any notes they take in class each week to the D2L Discussion Board titled Student Notes.

Appendix

Students will need to read two of the below articles from each topic:

Good and Bad Design

1. Gould, J.D. How to design usable systems. in R. Baecker, J. Grudin, W. Buxton and S. Greenberg (eds) Readings in Human Computer Interaction: Towards the Year 2000, Morgan-Kaufmann, (1996), 93-121.
 2. Schneiderman, B. Human Factor Experiments in Designing Interactive Systems, *IEEE*, 1979.
 3. Norman, D. Simplicity is not the Answer, http://jnd.org/dn.mss/simplicity_is_not_the_answer.html
 4. Myer, B. Challenges of HCI Design and Implementation, *Interactions*, 1994.
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Visual Design

1. Nielson Norman Group, Form Design Quick Fix: Group Form Elements Effectively Using White Space, <https://www.nngroup.com/articles/form-design-white-space/>
 2. Norman D., Affordances and Design, Nielsen Norman Group http://jnd.org/dn.mss/affordances_and_design.html
 3. Norman D. Affordance, conventions, and design, *Interactions*, 1999, pp 38-43.
 4. Principles of Interaction Design, <http://asktog.com/atc/principles-of-interaction-design/>
 5. Smyth, J. D., Dillman, D. A., Christian, L. M., and Stern, M. J. "Effects of Using Visual Design Principles to Group Response Options in Web Surveys" *International Journal of Internet Science* 2006, 1 (1), 6-16.
 6. Tognazzini (2014) First Principles of Interaction Design [\[URL\]](#)
 7. Visual Mess, <http://www.visualmess.com/>
 8. Learning from Bad Web Design, <http://webmarketingtoday.com/articles/learning-from-bad-web-design/>
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Qualitative Research/Ethnography

1. Millen, D. (2000), Rapid Ethnography: Time Deepening Strategies for HCI Field Research, DIS 2000.
 2. Rose M. (2002) The working life of a waitress. MIND, CULTURE, AND ACTIVITY, 8(1), 3–27.
 3. Paul, S.A., and Reddy, M. (2010). Understanding Together: Sensemaking in Collaborative Information Seeking. In Proceedings of the ACM Conference on Computer Supported Cooperative Work (CSCW 2010).
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Prototyping and More

1. Tohidi, M., Buxton, W., Baecker, R. & Sellen, A. (2006). User Sketches: A Quick, Inexpensive, and Effective way to Elicit More reflective User Feedback. Proceedings of NordiCHI 2006, 105- 114
 2. Tohidi, M., Buxton, W., Baecker, R. & Sellen, A. (2006). Getting the Right Design and the Design Right: Testing Many Is Better Than One. CHI 2006, 1243- 1252
 3. Landay, J. A. and Myers, B. A. (1995). Interactive Sketching for the Early Stages of User Interface Design. CHI 1995.
 4. Nielsen, J. (2003) Paper Prototyping: Getting User Data Before You Code, <https://www.nngroup.com/articles/paper-prototyping/>
 5. Medero, S. Paper Prototyping. (2007), <http://alistapart.com/article/paperprototyping>
 6. Mifsud, J. Paper Prototyping As A Usability Testing Technique, <http://usabilitygeek.com/paper-prototyping-as-a-usability-testing-technique/>
 7. Farrell, S. Test Paper Prototypes to Save Time and Money: The Mozilla Case Study, <https://www.nngroup.com/articles/mozilla-paper-prototype/>
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Heuristic Evaluation

1. Nielsen, J. and Molich, R.. 1990. Heuristic evaluation of user interfaces. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '90).
 2. Nielsen, J. 1992. Finding usability problems through heuristic evaluation. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '92).
 3. Nielsen, J. 1994. Usability inspection methods. In Conference Companion on Human Factors in Computing Systems (CHI '94).
 4. Nielsen, J. 1994. Enhancing the explanatory power of usability heuristics. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '94).
 5. Kantner, L. and Rosenbaum, S. 1997. Usability studies of WWW sites: heuristic evaluation vs. laboratory testing. In Proceedings of the 15th annual international conference on Computer documentation (SIGDOC '97).
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Usability Testing

Choose one from the first group and one from the second

First List

1. Corry, M. D., Frick, T. W., Hansen, L. User-Centered Design and Usability Testing of a Web Site: An Illustrative Case Study. (1997) *Educational Technology Research and Development*. Volume 45, Issue 4, pp 65-76.
2. Greenberg, S. & Buxton, B. (2008). Usability Evaluation Considered Harmful (Some of the Time). *Proceedings of the 2008 ACM Conference on Human Factors in Computing Systems, CHI'08, 111-120*.

Second List

3. Usability Testing. *usability.gov*, <http://www.usability.gov/how-to-and-tools/methods/usability-testing.html>
 4. Usability Testing. *Usability First*, <http://www.usabilityfirst.com/usability-methods/usability-testing/>
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Accessibility

1. Petrie, H., Hamilton, F., and King, N. (2004). Tension, what tension?: Website accessibility and visual design. In *Proceedings of the 2004 international cross-disciplinary workshop on Web accessibility (W4A) (W4A '04)*.
 2. Stiehl, W. D., Lieberman, J., Breazeal, C., Basel, L., Cooper, R., Knight, H., Lalla, L., Maymin, A., and Purchase, S. (2006). The Huggable: A therapeutic robotic companion for relational, affective touch. In *Proceedings of the IEEE Consumer Communications and Networking Conference* Jan. 8-10, 2006.
 3. Huenerfauth, M. Zhou, L., Gu, E., and Allbeck, J. 2008. "Evaluation of American Sign Language Generation by Native ASL Signers." *ACM Transactions on Accessible Computing*. Volume 1, Number 1 Article 3, New York: ACM Press, pp. 1-27.
 4. Adler, R. F., Friedman, L. W. and Friedman, H. H., "The Use of Information Technology to Create a Better Workplace for Individuals with Disabilities," *Management Online Review*, August 2008.
 5. Web Accessibility, <https://www.w3.org/standards/webdesign/accessibility>
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Designing Experiments

1. Klein, J., Moon, Y., and Picard, R. W. (2002). This computer responds to user frustration: Theory, design, and results. *Interacting with Computers*, 14(2)
2. Martin D. (2007) Doing Psychology Experiments.[On D2L - Chapters 1-4]
3. Blandford, A., Cox, A. & Cairns, P. Controlled Experiments. (2008).
4. Adler, R. and Benbunan-Fich, R. The Effects of Task Difficulty and Multitasking on Performance," *Interacting With Computers*, 2014.
5. Butts, L. and Cockburn, L. An Evaluation of Mobile Phone Text Input Methods. (2002).
6. Lew, L., Nguyen, T, Messing, S., and Westwood, S. 2011. Of course I wouldn't do that in real life: advancing the arguments for increasing realism in HCI experiments. In CHI '11 Extended Abstracts on Human Factors in Computing Systems (CHI EA '11).
7. Hembrooke, H. & Gay, G. (2003). The laptop and the lecture: The effects of multitasking in learning environments. *Journal of Computing in Higher Education*, (15:1), 46-64.