instructor

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teaching assistant

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texts

required texts

Norman, D. *The Design of Everyday Things: Revised and Expanded Edition*. Basic Books. 2013.

Rogers, Y., Sharp, H., Preece, J. *Interaction Design: Beyond Human-Computer Interaction*, 3rd ed. Wiley. 2011.

optional texts

Tufte, E.R. Envisioning Information. Graphics Press. 1990. (Available at library)

Lazar, J., Feng, J.H., Hochheiser, H. *Research Methods in Human-Computer Interaction*, 1st ed. Wiley. 2010. (Available via Canvas)

required online texts

You will be expected to read a number of texts provided directly online and/or via the ACM Digital Library (http://dl.acm.org). Note that to access the ACM DL, you must be on campus, proxied through the NMSU network (via http://lib.nmsu.edu), or have a paid subscription to the DL. **You are responsible for access.**

course description

In this course, we will learn techniques for designing, building, and evaluating computer interfaces with a human-centered approach. We will learn best practices and known design principles. We cover many of the basics of HCI, engage in a few short design projects, and develop a larger individual project that includes a substantial coding component. Around mid-term, our attention focuses on a final team project. Throughout the semester, graduate students supplement the course material by reading and presenting special topics of interest to them.

objectives

Students completing this course will be able to:

- Describe, analyze, and/or critique a device interface using a design vocabulary.
- Enact a human-centered process of interaction design by gathering data; developing design based on data and employing best practices; iterating design through testing and further data gathering; and evaluating the results.
- Conduct human-computer interaction research by proposing, developing, and conducting experiments; analyzing data; and developing synthesized results.
- Communicate design and evaluation with presentations, demos, and reports.

prerequisites

This course involves reading, designing, and coding. You are **expected to be a competent coder** in at least one language that you can use to develop assignments. Requires a C or better in C S 371 or consent of instructor.

team-based learning

This course borrows materials from team-based learning, but does not implement it completely. You can expect that:

- You will be responsible for readings outside of class.
- There will be a quiz on every reading at the start of class; you will take it individually, then take it with your team.

- The lectures will be short. Students will present some work.
- There will be a team project, with deliverables throughout the semester, that will take you from concept to completed and evaluated system.

policies

working with human subjects

It is important to note that standard rules for handling human subjects apply to all assignments. When working with human subjects, you must be careful not to collect or store any identifying information about your participants. You may not record video of your interactions with them. You may record audio, but will be required to destroy the record once the assignment is complete. If you have any questions, please contact your instructor immediately.

team formation

Teams will be formed after students have identified their areas of interest through the Micro Proposals assignment. **Teams must consist entirely of either graduate students or undergraduates**; this segregation is necessary because the graduate curriculum is slightly accelerated from the undergraduate one. Teams are limited to 3 students, although teams of 2 or 4 will be considered when necessary.

code

This course does not have a required programming language. **It is assumed students are competent in at least one language.** Because your instructor and/or TA may not be proficient in your chosen language, you must make your code as clear as possible! It must be styled appropriately (use liberal whitespace, use appropriate indentation, etc.) and should be extensively, but not excessively, documented. Failure to do so is grounds for losing points.

reading / reading++ / quizzes

You are responsible for reading all materials prior to class. Graduate students are required to do additional reading (reading++) based on the papers selected by classmates. Undergraduates are encouraged, but not required to, read these papers as well. **Throughout the semester, students will take a readiness assurance quiz based on the reading; graduate students' quizzes will include the reading++; undergraduates may answer the reading++ questions for extra credit on the individual quiz.** Missed quizzes **cannot** be made up.

reading++ presentations / test questions

Graduate students will present reading++ papers from the current literature throughout the semester, as decided by themselves. At the beginning of class we will set aside time for the presentations. By the second week of class, we will assign a date to each grad student and have collected all of the reading++ assignments. **All graduate students are expected to make at least one presentation of a long paper (8–10 pages in ACM SIGCHI format). Short papers (often called "Notes" in conferences) count as ⅓ a presentation (usually 4 or fewer pages in ACM SIGCHI format). Workshop whitepapers, workshop position papers, and extended abstracts of any kind do not count.**

Based on the selected papers, the list of papers will be made available through the Canvas website. Graduate students are expected to read these additional papers, and will be tested on their contents.

In addition to reading and presenting the paper, the graduate student should produce a single, multiple-choice test question based on her/his reading++. This question should address the **contribution** of the paper: that is, what is the core piece of information that the paper provides to the community? Typically, in HCI papers, this takes the form of design implications, but might also be insight into a particular community, details on how to execute a technique, etc. Questions are due **three days before** the date on which the student will present (so students presenting on Monday should submit a question by Friday; those presenting Wednesday should submit a question by Sunday).

Undergraduates may contact the professor to present a paper and receive bonus points on his/her final average. These presentations are graded the same as graduate paper presentations. If there is more interest than dates available, we will attempt to accommodate students, assuming there is time left in the semester to provide adequate time for the class to read the paper and for the student to present. (For example, if 5 undergraduates ask to present papers on the last day, most likely only the first one or two will get the opportunity; it is recommended you elect to do this in advance.)

presentation questions

During the semester, students are expected to ask questions of the presenters (in addition to generally engaging in class discussion). To achieve full credit for the Presentation Questions / Participation portion of the class, all students **must ask at least 2 questions** of the presenters over the course of the semester.

attendance / class participation

Attendance is expected at every class. Students should be present both physically and mentally, asking questions, discussing, and not otherwise engaged (in a device). A student with more than one unexcused absences will lose points from the Presentation Questions / Class Participation component of his/her grade.

assignments

Normally, assignments are due before class on the day of presentations, and by midnight for written work. **Late work will be accepted, but with a 10% penalty per day late (or 20% per class day, if the work is to be presented).**

Graduate student assignments normally require more work than the undergraduate equivalent.

You will be working with a team most of the semester, and team activities will make up most of your grade. **Students are only eligible for the team portion of the grade if they earn at least 70% of their individual grade.**

grading

Your rubric depends on whether you are taking the graduate version of the course (C S 515) or the undergraduate one (C S 485). The graduate rubric includes an additional assignment of reading and presenting current HCI papers in class (Reading++), in addition to having a slightly different weighting scheme. Undergraduates have the opportunity to earn up to an additional 3% by opting in to reading and presenting a current paper.

Below the project sequence row, within your course, the left-hand column shows how the component's grade affects your overall score, the right-hand column shows the percentage of the project sequence.

Most activities are graded on a team basis; individually assessed items are starred.

course	485		515	
total	103		100	
readiness assurance tests*	2.5		2.5	
team readiness assurance tests	2.5		2.5	
grad reading++ presentations*	-		10	
presentation questions / participation*	20		10	
NIH human subjects certification	5		5	
disconnected interaction design	5		5	
xeno affordance design	5		5	
bonus paper presentation*	3		-	
individual project sequence	15	← 100%	15	← 100%
preparation	4.5	30%	4.5%	30%
needs and requirements	4.5	30%	4.5%	30%
design briefing	6	40%	6%	40%
final project sequence	45	← 100%	45	← 100%
micro proposal*	2.25	5%	2.25	5%
project proposal	4.50	10%	4.5	10%
literature review*	4.50	10%	4.5	10%
low-fi prototype	5.40	12%	5.4	12%
user study 1	3.60	8%	3.6	8%
functional prototype / demo	6.75	15%	6.75	15%
user study 2 design	4.50	10%	4.5	10%
final presentation	4.50	10%	4.5	10%
final report (user study 2 results)	6.75	15%	6.75	15%
peer review	2.25	5%	2.25	5%

grade	%	grade	%
A	93.5–100%	C+	76.5–79.4%
A-	89.5–93.4%	C	73.5–76.4%
B+	86.5–89.4%	C-	69.5–73.4%
B	83.5–86.4%	D	59.5–69.4%
B-	79.5–83.4%	F	<59.4%

TENTATIVE schedule

date		topic	reading	activity	due 485	due 515
8/25	M	Intro	-	-		
8/27	W	-	-	team formation	← micro proposal* →	
9/1	M			Labor Day Holiday		
9/3	W	UI Vocabulary	Norman (2013): ch1, ch3			reading++ choices*
9/8	M	[presentations]	-	assign Reading++ dates, present DID	← disconnected interaction design* →	
9/10	W	Understanding and Conceptualizing Interaction, 1st Principles	Tognazinni (2014), RSP ch2			
9/15	M	[presentations]		present XAD	← xeno affordance design* →	
9/17	W	Cognitive Aspects	RSP ch3		← NIH protecting human research participants training* →	
9/22	M	Data Gathering	RSP ch7		← IPS: preparation* →	
9/24	W	Data Analysis, Interpretation, and Presentation	RSP ch8			
9/29	M	Establishing Requirements	RSP ch10			
10/1	W	The Process of Interaction Design	RSP ch9		← IPS: needs and requirements* →	
10/6	M	Interfaces	RSP ch6, pt1			
10/8	W	Interfaces	RSP ch6, pt2		← IPS: deign briefing* →	
10/13	M	Graphic Design and Color	Tufte (1990): ch2–5; Arditi (2013); Ekperigin (2013)			
10/15	W	[presentations]		presenting IPS: DB	← Final Project Sequence: draft proposal [optional] →	
10/20	M	Library Resources [Z @CHI PLAY]	[literature review]	library class		

date		topic	reading	activity	due 485	due 515
10/22	W	[Z @CHI PLAY]	[literature review]	work on low-fi prototype	← FPS: final proposal →	
10/27	M	[presentations]		present FPS: concept		
10/29	W	Design, Prototyping, Construction	RSP ch11		← FPS: literature review →	
11/3	M	Introducing Evaluation	RSP ch12			
11/5	W	[presentations]		present: low-fi prototypes	← FPS: preparation, FPS: low-fi prototype →	
11/10	M	[presentations]		present: low-fi prototypes		
11/12	W	HCI Experimentation: Quant. / Qual.	Lazar et al. (2010): ch4, 11		← FPS: user study 1 →	
11/17	M	Evaluation Studies	RSP ch14			
11/19	W	Evaluation	RSP ch15		← FPS: functional prototype →	
11/24	M	Thanksgiving Holiday				
11/26	W					
12/1	M	Social Interaction	RSP ch4			
12/3	W	Emotional Interaction	RSP ch5		← FPS: user study 2 design →	
12/8	M	Final Exam Slot (12/8, 10:30am–12:30am)			← FPS: project presentations (incl. US2 results) →	
12/12	F				← FPS: final report, FPS: peer review* →	

additional references

Arditi, A. 2013. Designing for people with partial sight and color deficiencies. http://www.lighthouse.org/accessibility/design/accessible-print-design/effective-color-contrast.

Ekperigin, N. 2013. Itten's color wheel. http://colorwheelco.com/colortheory/ittenscolorwheel.php.

Lazar, J., Feng, J. H., & Hochheiser, H. 2010. *Research Methods in Human-Computer Interaction*. Wiley.

Tognazzini, B. 2014. First principles of interaction design (revised & expanded). http://asktog.com/atc/principles-of-interaction-design/.

university policies

academic honesty

Plagiarism is using another person's work without acknowledgment, making it appear to be one's own. Intentional and unintentional instances of plagiarism are considered instances of academic misconduct and are subject to disciplinary action such as failure on the assignment, failure of the course or dismissal from the university. The NMSU Library has more information and help on how to avoid plagiarism at http://lib.nmsu.edu/plagiarism/.

As programmers, reuse is an essential part of our work. You are welcome to use existing libraries and reuse your own code, but must make certain to appropriate document and provide licenses. You must adhere to any licensing terms and are responsible for any fees for software you choose to license.

disability notice

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act Amendments Act (ADAAA) covers issues relating to disability and accommodations. If a student has questions or needs an accommodation in the classroom (all medical information is treated confidentially), contact:

Student Accessibility Services (SAS), Corbett Center, Rm. 244
sas@nmsu.edu; (575) 646-6840; website: http://sas.nmsu.edu.

discrimination policy

NMSU policy prohibits discrimination on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex, sexual orientation, spousal affiliation and protected veterans status.

Furthermore, Title IX prohibits sex discrimination to include sexual misconduct: sexual violence (sexual assault, rape), sexual harassment and retaliation.

Office of Institutional Equity (OIE), O'Loughlin House, 1130 University Ave.
equity@nmsu.edu; (575) 646-3635; website: http://www.nmsu.edu/~eeo.