

instructor

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texts & software

required texts

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

Jenny Preece, Yvonne Rogers, Helen Sharp. *Interaction Design: Beyond Human-Computer Interaction, 4th Edition*. Wiley. 2015.

required online texts

Many texts are provided online and/or via the ACM Digital Library (<http://dl.acm.org>). To access the DL, you must be on campus, proxied through NMSU (via <http://lib.nmsu.edu>), or have a paid subscription to the DL. **You are responsible for access.**

optional texts

Edward R. Tufte. *Envisioning Information*. Graphics Press. 1990. (available at library)

Jonathan Lazar, Jinjuan Heidi Feng, Harry Hochheiser. *Research Methods in Human-Computer Interaction, 1st Edition*. Wiley. 2010. (needed chapters available via Canvas)

software

No language is specified for your project, but you will need to identify one and set up your own development environment.

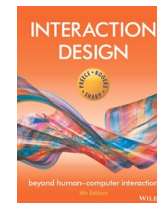
You are required to use GitHub to manage your team project files. The core of Git is available here (you may have it, or it may be bundled with a graphical user interface):

Git 2.9.2 or higher. Online: <https://git-scm.com>

It is recommended that you have a GUI available; the following are suggested:

SourceTree 2.1.3 or higher. Online: <https://www.sourcetreeapp.com>. Available for OS X and Windows.

SmartGit 7.1.4 or higher. Online: <http://www.syntevo.com/smartgit/>. Available for all platforms.



course description

In this course, we will learn human-centered techniques for designing, building, and evaluating computer (and artifact) interfaces. 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 large team project with individual components. Throughout the semester, graduate students supplement the course

material by reading and presenting special topics of interest to them. Coding and version control are required, but are not expressly taught as part of this class; our focus is on the interaction design process. Students must identify the language for their projects and develop their coding skills in that language independently.

course outcomes

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: gather data; develop a data-driven design; iterate design through testing; and evaluate 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.

course topics

1. User Interface Vocabulary
2. Cognitive Aspects of User Interfaces
3. Interface and Interaction Types
4. Understanding & Conceptualizing Interaction
5. Graphic Design and Color
6. The Process of Interaction Design

- a. Data Gathering, Analysis, Interpretation, and Presentation
- b. Establishing Requirements
- c. Design, Prototyping, and Construction
- d. Evaluating User Interfaces

prerequisites

You are **expected to be a competent coder** in at least one language. 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 work.
- There will be a team project, with deliverables throughout the semester.

TENTATIVE schedule

date	topic	reading	activity	due 485	due 515
8/18	Th	Introduction	-	brainstorm micro proposal	
8/23	Tu	UI Vocabulary (1.)	Norman (2013): ch1, PRS ch1		reading++ choices* →
8/25	Th	Cognitive Aspects (2.)	Norman (2013): ch3, PRS ch3		← setup accounts*† →
8/30	Tu	Interface Types (3.)	PRS ch6	assign Reading++ dates	← human subjects training*† →
9/1	Th	Version Control	team formation		← TPS: micro proposal* →
9/6	Tu	Understanding & Conceptualizing Interaction (4.)	Tognazinni (2014), PRS ch2		← setup repository† →
9/8	Th	present DID	515 only: personal reading++		← disconnected interaction design* → reading++ quiz question* →
9/13	Tu	Data Gathering (6.a.)	PRS ch7		
9/15	Th	present XAD	-		← xeno affordance design* →
9/20	Tu	Data Analysis, Interpretation, & Presentation (6.a.)	PRS ch8		
9/22	Th	present TPS: concept	-		← TPS: concept →
9/27	Tu	The Process of Interaction Design (6.)	PRS ch9		← TPS: data gathering preparation† →
9/29	Th	Establishing Requirements (6.b.)	PRS ch10	approval of TPS: data gathering prep.	

date	topic	reading	activity	due 485	due 515
10/4	Tu	Social Interaction (3.)	PRS ch4		
10/6	Th	Graphic Design and Color (5.)	Tufte (1990): ch2–5; Arditi (2002); Ekperigin (2013a, b)	← TPS: collected data* →	
10/11	Tu	Design, Prototyping, Construction (6.c.)	PRS ch11	← TPS: needs & requirements →	
10/13	Th	Interaction Design in Practice (6.)	PRS ch12	← TPS: initial proposal →	
10/18	Tu	Finding Scholarly Materials [prof. @ CHI PLAY]	literature review	feedback on TPS: initial prop.	
10/20	Th	[prof. @ CHI PLAY]	literature review	class held in library classroom (Zuhl 123)	
10/25	Tu	Introducing Evaluation (6.d.)	PRS ch13	work on literature review and final prop.	← TPS: literature review →
10/27	Th	HCI Experimentation: Quant. / Qual. (6.d.)	Lazar et al. (2010): ch4, 11		← TPS: final prop. →
11/1	Tu	Evaluation Studies (6.d.)	PRS ch14		
11/3	Th	Evaluation (6.d.)	PRS ch15		← TPS: experiment prep.† →
11/8	Tu	present: low-fi prototypes	-	approval of TPS: experiment prep.	← TPS: low-fi prototype →
11/10	Th	present: low-fi prototypes	-		
11/15	Tu	present: US 1	-		← TPS: user study 1 →
11/17	Th	present: US 1	-		
11/22	Tu		Thanksgiving Holiday		
11/24	Th				
11/29	Tu	Emotional Interaction (3.)	PRS ch5		
12/1	Th	demo: functional prototype	-		← TPS: functional prototype →
12/6	Tu	Final Exam Slot (10:30am–12:30pm) final presentation (US 2 results)	-		← TPS: proj. pres. (US 2 results) →
12/11	Su	[final due date; no class meeting]			← TPS: final report, TPS: peer rev. →

references

[Arditi 2002] Aries Arditi. 2002. Effective Color Contrast: Designing for people with partial sight and color deficiencies. Lighthouse International. Available in Canvas.

[Ekperigin 2013a] Naomi Ekperigin. 2013. An Introduction to Color Theory. In *The Color Wheel and Beyond*, pages 2–7. Available in Canvas.

[Ekperigin 2013b] Naomi Ekperigin. 2013. Working with a Complementary Palette. In *The Color Wheel and Beyond*, pages 8–12. Available in Canvas.

[Lazar et al. 2010] Jonathan Lazar, Jinjuan Heidi Feng, Harry Hochheiser. *Research Methods in Human-Computer Interaction*, 1st Edition. Wiley. 2010. Available in Canvas.

[Norman 2013] Don Norman. *The Design of Everyday Things: Revised and Expanded Edition*. Basic Books. 2013.

[PRS] Jenny Preece, Yvonne Rogers, Helen Sharp. *Interaction Design: Beyond Human-Computer Interaction*, 4th Edition. Wiley. 2015.

[Tognazzini 2014] Bruce Tognazzini. 2014. First principles of interaction design (revised & expanded). <http://asktog.com/atc/principles-of-interaction-design/>.

[Tufte 1990] Edward R. Tufte. *Envisioning Information*. Graphics Press. 1990.

class 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 proposal 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.** Students are required to develop their skills in their team's chosen language for the final project; specific languages will not be taught in this class. 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. It is also required that teams make use of GitHub for storing their code.

reading / reading++ / readiness assurance

You are responsible for reading all materials prior to class. Graduate students are required to do additional 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 test based on the reading; graduate students' quizzes will include the reading++; undergraduates may answer the reading++ questions for extra credit on the**

individual quiz (but will then take a penalty for wrong answers). 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. Early in the 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 minimum). Short papers (often called “Notes” in conferences), workshop whitepapers, workshop position papers, and extended abstracts of any kind do not count. All reading++ selections must have been published in the last 3 years.**

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 **shortly after reading++ dates are assigned (see schedule).**

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, all students **must ask at least 2 questions** of the presenters over the course of the semester.

attendance

Attendance is expected at every class. Students should be present both physically and mentally, asking questions, discussing, and not otherwise engaged (in a device). Because there are readiness assurance tests everyday, these serve as a proxy for attendance. Two readiness assurance tests will be dropped, reflecting padding for accidental and excused absences. On days when we do not have a test, we will take attendance.

course →	479	579
total	103	100
readiness assurance tests*	5	5
team readiness assurance tests	5	5
grad reading++ presentations*	-	5
setup accounts*†	1	1
setup repository†	2	2
presentation questions / participation*	10	5
human subjects training*†	2	2
disconnected interaction design*	5	5
xeno affordance design*	5	5
bonus paper presentation*	3	-
team project sequence	65 ← 100%	65 ← 100%
micro proposal*	1.625 2.5%	1.625 2.5%
concept	1.625 2.5%	1.625 2.5%
data gathering preparation†	0.65 1.0%	0.65 1.0%
collected data*	3.25 5.0%	3.25 5.0%
needs and requirements	6.5 10.0%	6.5 10.0%
hello world*	4.875 7.5%	4.875 7.5%
literature review*	3.25 5.0%	3.25 5.0%
initial proposal / final proposal	6.5 10.0%	6.5 10.0%
experiment preparation†	0.65 1.0%	0.65 1.0%
low-fi prototype	6.5 10.0%	6.5 10.0%
user study 1	4.875 7.5%	4.875 7.5%
functional prototype	9.1 14.0%	9.1 14.0%
final presentation	3.25 5.0%	3.25 5.0%
final report (user study 2 results)	9.1 14.0%	9.1 14.0%
peer review	3.25 5.0%	3.25 5.0%

* Assessed individually; others are graded as a team.
 † Later assignments **require** this be completed satisfactorily before they can be turned in (late penalties apply).

assignments

Normally, assignments are due before class on the day of presentations, and by midnight for written work; Canvas will have the exact due date and time for assignments and will be used to assess late penalties. **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 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.

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%

university policies

academic misconduct

Academic and non-academic misconduct: The Student Code of Conduct defines academic misconduct, non-academic misconduct and the consequences or penalties for each. The Student Code of Conduct is available in the NMSU Student Handbook online:

<http://studenthandbook.nmsu.edu/>

Academic misconduct is explained here:

<http://studenthandbook.nmsu.edu/student-code-of-conduct/academic-misconduct/>

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 appropriately document and provide licenses. You must adhere to any licensing terms and are responsible for any fees for software you choose to license.

discrimination and disability accommodation

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:

Trudy Luken, Director

Student Accessibility Services (SAS)

Corbett Center Student Union, Rm. 208

Contact: (575) 646-6840, sas@nmsu.edu, <http://sas.nmsu.edu/>

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.

For more information on discrimination issues, Title IX, Campus SaVE Act, NMSU Policy Chapter 3.25, NMSU's complaint process, or to file a complaint contact:

Lauri Millot

Title IX Coordinator

Agustin Diaz

Title IX Deputy Coordinator

Office of Institutional Equity (OIE)

O'Loughlin House, 1130 University Avenue

Contact: (575) 646-3635, equity@nmsu.edu, <http://eeo.nmsu.edu/>

Other NMSU Resources:

NMSU Police Department: 575-646-3311, <http://www.nmsupolice.com>

NMSU Police Victim Services: 575-646-3424

NMSU Counseling Center: 575-646-2731

NMSU Dean of Students: 575-646-1722

For Any On-campus Emergencies: 911