User Interface Systems and Techniques

aka, Human-Computer Interaction Design CSE 331

Class Meetings	TR 2:05 p.m. - 3:20 p.m.
Office Hours	https://ericpsb.youcanbook.me
Location	https://lehigh.zoom.us/j/96580987844
Semester	Fall 2020
Professor	Eric P. S. Baumer {ericpsb@lehigh.edu}

> "*Human-computer interaction is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them.*" – Association for Computing Machinery, Special Interest Group on Computer-Human Interaction, Curricula for Human-Computer Interaction

This course deals with the design and implementation of interfaces for human interaction with computing systems. The materials and activities cover four main focus areas:

- Design – Given a functionality specification for a system, how does one generate concepts for the way that users should interact with the system?
- Usability – What makes a system or an interface usable? How would you evaluate a design's usability?
- Implementation – Given an interface design, how does one translate that into an implemented, functioning system?
- Critique – Given an implemented interface, how can one assess its strengths and weaknesses without carrying out an empirical evaluation?

The above constitute the *learning objectives* for this course. That is, by the completion of this course, you should the skills necessary to answer each of the above questions.

Course Philosophy

"*I hear and I forget. I see and I remember. I do and I understand.*" – mixed origin

You cannot learn, let alone understand, interface design without doing it. This class will provide you with hands-on experience in designing, implementing, and evaluating an interface for a computational system. Almost every class meeting will involve significant interaction.

ASSIGNMENTS

All typed written assignments should be submitted in 10-12 point font, single column, single spaced, with 1” to 1.5” margins, in a legible and appropriate typeface of your choosing. Any references should be cited using a consistent author-date format. Assignment lengths specified in word count are exclusive of figures, references, tables, captions, footnotes, etc. Assignment lengths specified in page count are all inclusive. These formatting requirements do not apply to hand-written assignments or to coding assignments.

DESIGN WORKBOOKS

Many class days will include a pre-class and a post-class activity. Pre-class activities usually pertain directly to the assigned readings for the day, and they are meant to provide a scaffold for our in-class interactions. Similarly, post-class activities will usually build on the in-class interactions and offer further exploration of in-class material.

While completing the exercises, you may consult any notes you have taken. Some of these assignments will involve writing, some of them will involve concept sketching. Written portions should be **200 words maximum** in length.

Over the course of the semester, there will be ~17 class days that include a pre-class and a post-class activity. Students will need to choose **at least eight (8) of each** to submit for a letter grade. If a student chooses to submit a 9th design workbook assignment, the lowest grade will be dropped, and only 8 will be counted. If a student submits more than 9, only the first 9 will be graded. The pre-class and post-class activities submitted for a grade may be selected from different days as each other. These workbook activities will be graded according to the following rubric:

- A (95%): Thorough comprehension of material, strongly-motivated and clever design, and thorough use of readings.
- B (85%): Sufficient comprehension of the material and thoughtful design grounded in readings.
- C (75%): May be missing one or two minor points, use of readings may show misunderstanding and/or design may lack motivation.
- D (65%): Misses the central point of the prompt/activity, little to no use of readings in the design.
- F (50%): Off-topic, no response, or similar issues.
- A+ (100%): Truly outstanding, novel insights or designs that go beyond the material and exercises from class.

Pre-class activities will be due via CourseSite by the start of class time on that day. Post-class

activities will be due either 72 hours after the end of class or at the beginning of the next class, whichever provides more time to complete the activity.

Students who choose not to submit the design workbook activity for a given day do not need to complete the activity. However, all students **must complete all readings** before the class day on which they appear on the syllabus, regardless of whether or not they choose to complete the relevant pre-class activity.

Semester Project and Labs

You will complete a semester-long group project to design, implement, and evaluate an interactive system. The default is to design an interface for a web-based photo-sharing application, though your group may choose to pursue a different focus. Work on this project will be completed throughout the semester and submitted as a series of three separate milestones. The first milestone will involve engaging with users and require you to submit a design specification. The second milestone will involve you implementing that design. The third milestone will involve you running an evaluation of your implemented system. This will ensure that your work on the project is iterative, that each stage builds on the next, and that the work spreads out over the course of the semester.

Groups for this project will be self-selected using, in-part, an in-class speed networking exercise. Your group will collectively identify the particular users for whom you will design and the specific design methods you will use. You will have the option of using an existing backend that provides minimal photo-sharing functionality, or you may choose to implement your own backend.

For each of the first and third milestones, you and your group will submit a written report. For the second milestone, you and your group will present your codebase for individual review with the instructor. Finally, the results of your project will be presented during a Zoom poster session on the last scheduled class meeting day. More details about the project, the milestones, and the grading rubrics for each will be available on CourseSite.

Attendance

Attendance is **optional but strongly encouraged**. Class time will be spent engaging in a series of activities, discussions, critiques, and other exercises. As such, in-class activities are integral, both to your own and to others' learning, as well as fulfill a non-negligible portion of your grade. We will try, as much as possible, to facilitate this kind of an engaged learning environment on Zoom. Furthermore, the in-class material will provide scaffolding to respond to the post-class activity. If you are unable to attend class meetings, you will likely need to watch the recorded video to be able to complete the post-class design workbook activity.

Statement on COVID-19 Pandemic

To meet the challenge of teaching and learning during the COVID-19 pandemic, Lehigh instructors and students will be adopting new forms of instruction and interaction; following new guidelines around classroom behaviors; enhancing communications; and doing our best to be patient, flexible, and accommodating with each other. In remote synchronous meetings, students are expected to attend just as they would any other Lehigh class. Zoom classes work best when all students come to class ready to participate and follow the instructor's guidelines regarding use of web-cameras. You may be asked to turn your camera on during active learning sessions in Zoom. If you have a strong preference not to do so, please contact your instructor to let them know. Students should respect the in-classroom privacy of their instructors and fellow students by not taking screenshots or recording class sessions. Some instructors will record Zoom sessions; however, any recorded live sessions will be shared only with students in the class and will be deleted at the end of the semester.

In our physical classrooms, Lehigh has established a policy requiring everyone to wear face coverings when in public spaces inside buildings on our campus and to maintain social distance. This policy applies to our physical classroom. Thank you in advance for following this rule. Students who do not wear a face covering during in-class meetings will be reminded to put their face covering on. If they do not do so, they will be asked once again to do so or leave the classroom.

Zoom Policies

Our class Zoom meetings have been created with a series of settings designed to minimize potential disruptions and to increase the pedagogical benefit of distributed learning. While we would all likely prefer to be physically co-present in the same room, the steps below are meant to make the best of the situation that we have at hand.

By default, your microphone should be muted when you join the class meeting. Please **leave your microphone muted**, unless you are actively talking.

By default, your **video should be on** when you join the class meeting. As an instructor, it is helpful to see reactions (or the lack thereof) on students' faces. At the same time, turning on the video may be uncomfortable or even impossible for some students. If you choose or need to leave your video off, please consider setting a profile photo. For detailed instructions, please see https://canvas.uw.edu/courses/721562/pages/zoom-adding-a-profile-photo or https://support.zoom.us/hc/en-us/articles/201363203-Customizing-your-profile

To access the class meeting, you will need to **use your Lehigh account to log in** to Zoom. In the interest of security, guest connections will not be allow.d

All class meetings **will be recorded**, and links will be shared on CourseSite ASAP after class ends. These recordings are *not* meant to take the place of attendance. You can neither ask

questions nor have a discussion with a recording, and this course involves a good deal of both. Rather the recordings are intended to help those who may face connectivity issues, either temporary or long term, as well as those located in exceptionally inconvenient timezones.

You are encouraged to **connect to the meeting early**, ~5 minutes before the scheduled class start time. The Professor will similarly connect early to ensure that all technologies are appropriately configured.

Please feel free to contact the Professor with any additional questions.

Grading

You will receive a grade based on the following break down.

15% Participation

15% Design Workbooks

60% Semester Project (20% for each of 3 milestones)

10% Poster Presentation

Grading Scale

97% – 100% A+	77% – 79.9% C+
93% – 96.9% A	73% – 76.9% C
90% – 92.9% A-	70% – 72.9% C-
87% – 89.9% B+	67% – 69.9% D+
83% – 86.9% B	63% – 66.9% D
80% – 82.9% B-	60% – 62.9% D-
	< 60% F

Policies

Technology in Class

While in class, your attention should be on class. Please silence, disable, or turn off any device that makes noise. You will need to use some sort of computing device to attend the class meetings or watch the recordings. If you need accommodations of any sort due to limited technology and/or internet access, please contact the Professor.

Academic Integrity

"If I have seen further, it is by standing on the shoulders of giants" (Isaac Newton, 1676).

In this class, you are both encouraged and will need to draw on the work and ideas of others. However, you must do so with appropriate acknowledgement. For scholarly writing, news media, books, or other publications, this usually means citation. In other cases, a footnote and/or an acknowledgement section may be more appropriate. Examples can be seen throughout the Professor's presentation of course materials.

Students must abide by the Code of Conduct to which they agreed, including academic integrity (https://studentaffairs.lehigh.edu/content/code-conduct#Art3). **Plagiarism will not be tolerated**. If in doubt, ask the Professor, or see Lehigh's plagiarism policies (available from http://library.lehigh.edu/content/plagiarism_policies). Consider, also, the following Lehigh Student Senate Statement on Academic Integrity.

> *"We, the Lehigh University Student Senate, as the standing representative body of all undergraduates, reaffirm the duty and obligation of students to meet and uphold the highest principles and values of personal, moral and ethical conduct. As partners in our educational community, both students and faculty share the responsibility for promoting and helping to ensure an environment of academic integrity. As such, each student is expected to complete all academic course work in accordance to the standards set forth by the faculty and in compliance with the University's Code of Conduct."*

Accommodations

Lehigh University is committed to maintaining an equitable and inclusive community and welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact Disability Support Services (DSS), provide documentation, and participate in an interactive review process. If the documentation supports a request for reasonable accommodations, DSS will provide students with a Letter of Accommodations. Students who are approved for accommodations at Lehigh should share this letter and discuss their accommodations and learning needs with instructors *as early in the semester as possible*. For more information or to request services, please contact Disability Support Services in person in Williams Hall, Suite 301, via phone at 610-758-4152, via email at indss@lehigh.edu, or online at https://studentaffairs.lehigh.edu/disabilities.

Team Work

A significant portion of the work in this class will be completed in groups or teams. At the end of any group work, you will be asked to evaluate the other members of the teams in which you have worked. Individuals who receive a negative evaluation from *one* team member will receive a notification that a complaint was made (though not by whom). Individuals who receive a negative evaluation from *two* team members will receive a 10% deduction in their grade on the project. Individuals who receive a negative evaluation from *more than two* team members will

receive a 50% reduction in their grade on the project. Individuals who receive positive comments from *every* group member will receive a 5% bonus on their project grade. Complex cases may involve external dispute resolution if necessary.

DISSENT

In this class, you will be asked to critique other designer's work, including that of fellow classmates. Disagreements that arise in this process are both allowed and encouraged. However, disagreement must be voiced and conducted in a civil manner. Moreover, you should provide *constructive* critique. Saying that you do not like something does not help the designer. What can help is pointing out unfortunate, undesirable, or unintended consequences, as well as offering alternatives.

From the Lehigh Principles of our Equitable Community:

> *We recognize each person's right to think and speak as dictated by personal belief and to respectfully disagree with or counter another's point of view.*

Lehigh University endorses The Principles of Our Equitable Community. We expect each member of this class to acknowledge and practice these Principles. Respect for each other and for differing viewpoints is a vital component of the learning environment inside and outside the classroom. See http://www.lehigh.edu/~inprv/initiatives/PrinciplesEquity_Sheet_v2_032212.pdf

LEHIGH UNIVERSITY POLICY ON HARASSMENT AND NON-DISCRIMINATION

Lehigh University upholds The Principles of Our Equitable Community and is committed to providing an educational, working, co-curricular, social, and living environment for all students, staff, faculty, trustees, contract workers, and visitors that is free from harassment and discrimination on the basis of age, color, disability, gender identity or expression, genetic information, marital or familial status, national or ethnic origin, race, religion, sex, sexual orientation, or veteran status. Such harassment or discrimination is unacceptable behavior and will not be tolerated. The University strongly encourages (and, depending upon the circumstances, may require) students, faculty, staff or visitors who experience or witness harassment or discrimination, or have information about harassment or discrimination in University programs or activities, to immediately report such conduct.

If you have questions about Lehigh's Policy on Harassment and Non-Discrimination or need to report harassment or discrimination, contact the Equal Opportunity Compliance Coordinator (Alumni Memorial Building / 610.758.3535 / eocc@lehigh.edu).

SCHEDULE

Each reading should be completed *before class* on the day that it is assigned. All readings with URLs are available through Lehigh. You **should *not* pay** for any of the readings. You can access them from on campus, or you can use the Lehigh VPN. For detailed directions, see:

- Linux: https://lts.lehigh.edu/services/stepwise-instructions/installing-cisco-anyconnect-vpn-client-software-linux
- Mac: https://lts.lehigh.edu/services/stepwise-instructions/connect-vpn-mac
- Windows: https://lts.lehigh.edu/services/stepwise-instructions/install-and-connect-vpn-windows

Any readings that are not freely available online will be posted on CourseSite.

The astute reader will notice some days designated as [flex topic] days. These days serve two purposes on the schedule. First, they allow the instructor and the students to custom tailor the class to specific areas of interest that emerge over the course of the semester. Second, they ensure that the core material is covered in the event that any class meeting days need to be cancelled (e.g., for weather).

DATE	TOPIC & READINGS	ASSIGNMENTS ETC.
	UNIT α - INTRODUCTION	
WEEK 1		
T – 8/25	WHAT IS HUMAN-COMPUTER INTERACTION?	
R	HISTORICAL FOUNDATIONS Vannevar Bush. 1945. As We May Think. *The Atlantic*.	
	UNIT 1 – USERS AND DESIGN	
WEEK 2		
T – 9/1	SKETCHING AND PROTOTYPING Bill Buxton. 2007. *Sketching User Experiences: Getting the Design Right and Getting the Right Design*. Morgan Kaufmann, San Francisco, CA. pp. 104-123. Tutorial: Creating Your First Wireframe. https://balsamiq.com/tutorials/articles/firstwireframe/	

DATE	TOPIC & READINGS	ASSIGNMENTS ETC.
R	INTERVIEWING USERS Robert S. Weiss. 1994. Interviewing. In *Learning from Strangers: The Art and Method of Qualitative Interview Studies*. The Free Press, New York, 61–119. *Optional*: Karen Holtzblatt and Hugh R. Beyer. Contextual Design. The Encyclopedia of Human-Computer Interaction. Retrieved from https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/contextual-design	
WEEK 3		
T – 9/8	SURVEYS Hendrik Müller, Aaron Sedley and Elizabeth Ferrall-Nunge. 2015. Survey Research in HCI. https://pdfs.semanticscholar.org/d142/c1b2488ea054112187b347e1a5fa83a3d54e.pdf [*read only up **to the Examples** section*] Work through Qualtrics Documentation/Tutorials (*read and do before class*): https://www.qualtrics.com/support/survey-platform/survey-module/survey-module-overview/	*Before Class*: Sign Up for Qualtrics (https://lehigh.qualtrics.com)
R – 9/9	ETHNOGRAPHIC OBSERVATION Tony Salvador, Genevieve Bell, and Ken Anderson. 1999. Design Ethnography. *Design Management Journal (Former Series)* 10, 4: 35–41. https://doi.org/10.1111/j.1948-7169.1999.tb00274.x *Optional*: Paul Dourish. 2006. Implications for Design. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 541–550. https://doi.org/10.1145/1124772.1124855	
WEEK 4		

DATE	TOPIC & READINGS	ASSIGNMENTS ETC.
T – 9/15	PARTICIPATORY DESIGN Michael J. Muller and Sarah Kuhn. 1993. Participatory Design. *Communications of the ACM* 36, 4: 24–28. https://doi.org/10.1145/153571.255960 Michael J. Muller. 2001. Layered Participatory Analysis: New Developments in the CARD Technique. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 90–97. https://doi.org/10.1145/365024.365054 *Optional*: Eevi E. Beck. 2002. P for Political: Participation is not enough. Scandinavian Journal of Information Systems 14, 1: 1.	
R	CULTURAL PROBES Bill Gaver, Tony Dunne, and Elena Pacenti. 1999. Cultural Probes. *interactions* 6, 1: 21–29. https://doi.org/10.1145/291224.291235 William W. Gaver, Andrew Boucher, Sarah Pennington, and Brendan Walker. 2004. Cultural probes and the value of uncertainty. *interactions* 11, 5: 53–56. https://doi.org/10.1145/1015530.1015555 *Optional*: Kirsten Boehner, Janet Vertesi, Phoebe Sengers, and Paul Dourish. 2007. How HCI interprets the probes. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 1077–1086. https://doi.org/10.1145/1240624.1240789	

UNIT 2 – DESIGN AND IMPLEMENTATION

WEEK 5

T – 9/22	SPEED NETWORKING Come prepared to discuss your user population of interest and potential design methods.	
R	TEAM MEETINGS Professor feedback on project ideas	

DATE	TOPIC & READINGS	ASSIGNMENTS ETC.
WEEK 6		
T – 9/29	WEB UI WITH JQUERY https://learn.jquery.com/jquery-ui/getting-started/	*Before Class*: Get a local web server running on your machine (see the Milestone 2 description for details)
R	INTERFACE DESIGN GUIDELINES David Canfield Smith, Charles Irby, Ralph Kimball, Bill Verplank, and Eric Harslem. 1982. Designing the Star User Interface. *BYTE Magazine* 7, 4: 242–282. Donald A. Norman. 1988. The Psychopathology of Everyday Things. in *The Design of Everyday Things* (Revised & Expanded Edition), 1-36. Basic Books: New York.	
WEEK 7		
T – 10/6	DESIGN FOR DATABASES Jed R. Brubaker and Gillian R. Hayes. 2011. SELECT * FROM USER: Infrastructure and Socio-technical Representation. In *Proceedings of the ACM Conference on Computer Supported Cooperative Work (CSCW)*, 369–378. https://doi.org/10.1145/1958824.1958881 [***stop** at the heading Features of Computing Practice*]	
R	COLOR FOR INTERACTION Color Theory. https://www.interaction-design.org/literature/topics/color-theory	
WEEK 8		

DATE	TOPIC & READINGS	ASSIGNMENTS ETC.
R – 10/13	FITTS'S LAW Pual M. Fitts. 1954. The Information Capacity of the Human Motor System in Controlling the Amplitude of Movement. Journal of Experimental Psychology 47, 381–391. I. Scott MacKenzie and William Buxton. 1992. Extending Fitts' Law to Two-dimensional Tasks. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 219–226. https://doi.org/10.1145/142750.142794 *Optional*: Ken Goldberg, Siamak Faridani, and Ron Alterovitz. 2015. Two Large Open-Access Datasets for Fitts' Law of Human Motion and a Succinct Derivation of the Square-Root Variant. *IEEE Transactions on Human-Machine Systems* 45, 1: 62–73. https://doi.org/10.1109/THMS.2014.2360281	
W	LIMITATION AND NEGATION [*flex topic*] James Pierce and Eric Paulos. 2014. Some Variations on a Counterfunctional Digital Camera. In *Proceedings of the ACM Conference on Designing Interactive Systems (DIS)*, 131–140. https://doi.org/10.1145/2598510.2602968 *Optional*: Eric P. S. Baumer and M. Six Silberman. 2011. When the Implication Is Not to Design (Technology). In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 2271–2274. https://doi.org/10.1145/1978942.1979275	
WEEK 9		
T – 10/20	[no class meeting]	**Due**: Milestone 1
R	TEAM MEETINGS Professor Feedback on Milestone 1	
	UNIT 3 – EVALUATION	
WEEK 10		

DATE	TOPIC & READINGS	ASSIGNMENTS ETC.
T – 10/27	USABILITY EVALUATION Assistant Secretary for Public Affairs. 2013. Planning a Usability Test. *usability.gov*. Retrieved from https://www.usability.gov/how-to-and-tools/methods/planning-usability-testing.html Assistant Secretary for Public Affairs. 2014. Running a Usability Test. *usability.gov*. Retrieved from https://www.usability.gov/how-to-and-tools/methods/running-usability-tests.html *Optional*: John Brooke. 1996. SUS: A "Quick and Dirty" Usability Scale. In *Usability Evaluation In Industry*, Patrick W. Jordan, Bruce Thomas, Ian L. McClelland and Bernard A. Weerdmeester (eds.). Taylor & Francis, London, pp. 189–194. Sandra G. Hart and Staveland. 1988. Development of NASA-TLX (Task Load Index): Results of Empirical and Theoretical Research. *Advances in Psychology* 52: 139–183. https://doi.org/10.1016/S0166-4115(08)62386-9	
R	[no class meeting]	

WEEK 11

T – 11/3	USER EXPERIENCE Virpi Roto, Effie Law, Arnold Vermeeren, and Jettie Hoonhout. 2011. User Experience White Paper: Bringing clarity to the concept of user experience. Retrieved from http://www.allaboutux.org/files/UX-WhitePaper.pdf Virpi Roto, Effie Law, Marianna Obrist, Arnold Vermeeren, and Kaisa Väänänen-Vainio-Mattila. User eXperience Evaluation: Which Method to Choose? Retrieved from http://www.allaboutux.org/files/UX-evaluation-methods-CourseMaterial.pdf [**begin at p. 27**] *Optional*: Saul Greenberg and Bill Buxton. 2008. Usability Evaluation Considered Harmful (Some of the Time). In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 111–120. Retrieved from http://dl.acm.org/citation.cfm?id=1357074	

DATE	TOPIC & READINGS	ASSIGNMENTS ETC.
R	DESIGNING EXPERIMENTS David W. Martin. 2008. How to Do Experiments. in *Doing Psychology Experiments*. Thomson Wadsworth, Belmont, CA, pp. 25-35 [***stop*** *at the heading* ***Statistical Regression***]	
WEEK 12		
T – 11/10	LOG DATA ANALYSIS Cancelled ~~[*flex day*]~~ ~~Susan Dumais, Robin Jeffries, Daniel M. Russell, Diane Tang, and Jaime Teevan. 2014. Understanding User Behavior Through Log Data and Analysis. In Ways of Knowing in HCI, Judith S. Olson and Wendy A. Kellogg (eds.). Springer New York, New York, NY, 349–372. https://doi.org/10.1007/978-1-4939-0378-8_14 [***start*** *at the heading* ***Collecting, Cleaning, and Using Log Data***]~~	
R	TEAM MEETINGS Professor feedback on evaluation plan	Submit Draft Evaluation Plan
WEEK 13		
T – 11/17	CODE REVIEW Professor meets individually with each team	**Due**: Milestone 2
R	CODE REVIEW Professor meets individually with each team	
WEEK 14	**THANKSGIVING BREAK**	
T – 11/24	[- no class meeting -]	
R	[- no class meeting -]	
	UNIT Ω – EPILOGUE	
WEEK 15		

DATE	TOPIC & READINGS	ASSIGNMENTS ETC.
T – 12/1	FRONTIERS *Choose and read **One** of the following:* Hiroshi Ishii and Brygg Ullmer. 1997. Tangible Bits: Towards Seamless Interfaces Between People, Bits and Atoms. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 234–241. https://doi.org/10.1145/258549.258715 Thad Starner, Steve Mann, Bradley Rhodes, Jeffrey Levine, Jennifer Healey, Dana Kirsch, Rosalind W. Picard, and Alex Pentland. 1997. Augmented Reality Through Wearable Computing. *Presence: Teleoperators and Virtual Environments* 6, 4: 396–398. Mark Weiser. 1991. The Computer for the 21st Century. *Scientific American* 265, 3: 94–104. *Optional*: Genevieve Bell and Paul Dourish. 2007. Yesterday's tomorrows: notes on ubiquitous computing's dominant vision. *Personal and Ubiquitous Computing* 11, 2: 133–143. https://doi.org/10.1007/s00779-006-0071-x	
R	Final Project Presentations	Zoom Poster Session **Due**: Milestone 3, Online, R 12/10 at 11:59 p.m. **Due**: Final Group Evaluations, F 12/11 at 12:00 p.m.