

Course Syllabus – 2019/2020 Academic Year
A&D 522: Interaction Design Evaluation
School of Design, Arts, and Performance

Instructor: Cheryl Zhenyu Qian
Class Hours: Wednesday 6:00pm ~ 8:50pm
Office Hours: Wednesday 1:00pm ~ 2:30pm PAO 3167 or by appointment
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Course Online Schedule and Details:

Blackboard: <https://mycourses.purdue.edu> → Fall-2019-AD-52200-001

Course Blog Space:

Blackboard: 2019 A&D522 IXD Evaluation Blog Space

Course Description:

This course builds a foundation for interaction designers and user experience designers to conduct evaluation research. Students start from analyzing evaluation cases on interactive designs and systems to employing evaluation in design projects using quantitative, qualitative, or mixed methods of inquiry.

Evaluation in industrial design is challenged by the breadth of issues to be evaluated. The course focuses on instructing interaction design based evaluation methods that span a range of approaches including the interpretive analysis, empirical studies, and scientific analysis. This course will enable students to plan, design, and implement appropriate evaluation studies for different design situations and use experiences. We will introduce a range of design evaluation approaches including informal usability studies, lab experiments, field studies, and analytically-based evaluations. Students will explore techniques for feedback including usability tests, observation, interviews, heuristic reviews and discursive evaluations. Underlying concepts of evaluation including scientific experimentation, ethnography, phenomenology and aesthetics will be discussed. Students will learn how to design and implement appropriate evaluation studies for a range of design projects.

Course Objectives:

The course explores a range of evaluation approaches from formative methods like interface criticism and heuristic evaluation to complicated methods like field study and usability testing. Ideally, for each of these methods, students will complete in three steps: (1) read the assigned readings, attend the lectures and participate in the class discussions; (2) search for research journals or conference articles that adopted such evaluation methods and write literature reviews, (3) design and implement the evaluate studies. Considering the time consumption of all of the steps, in one semester students study about six evaluation methods from textbook and lectures, review four of them through external literature, and implement two in a collaborative design project.

- Identify the need, justification, and goal of conducting an evaluation.
- Understand systematic knowledge, logical-deductive processes and various research types, and recognize causes & effects, systematic bias and measurement/observation errors in research
- Be familiar with different kinds of qualitative and quantitative research methods and how they differ from each other. Build up reliable knowledge for them.
- Understand the structure of paradigms, theories, concepts, hypotheses, constructs, variables and data
- Be familiar with the techniques such as observation, interviews, contamination, exogenous effects, and unobtrusive measures
- Present the evaluation outcomes, and try to organize and write research papers based on the analysis.

Delivery Method:

Lecture [60 mins] and Studio [120 mins]

Evaluation Structure (to be discussed/finalized at beginning of course):

- **Assignments: literature review of evaluation methods** (20% in total)
 - Week 4. Review on Controlled Experiments
 - Week 6. Review on Questionnaire survey
 - Week 8. Review on Usability Testing
 - Week 11. Review on Field Studies
- **Projects: practice methods in existing applications or products** (20% each, 80% in total)
 - 5% Evaluation design
 - 5% Data collection and analysis
 - 5% Evaluation outcome presentation
 - 5% Quality of design suggestions and advice

Week / Date	Activities	Due
Week 1 Aug. 21	Lecture: Course overview and introduction of interaction design evaluation	
Week 2 Aug. 28	Lecture: Interface criticism Start project A: Interface Criticism	
Week 3 Sept. 4	Lecture: Controlled experiment Assignment 1: blog review of controlled experiment	
Week 4 Sept. 11	Lecture: Quantitative analysis	Post assignment 1 online and discuss in class
Week 5 Sept. 18	Presentations: project A Assignment 2: blog review of questionnaire survey	Submit project A documents
Week 6 Sept. 25	Lecture: Usability Testing I Start project B: Usability Testing on an EPICS project	Post assignment 2 online and discuss in class
Week 7 Oct. 2	Lecture: Usability Testing II Assignment 3: blog review of usability testing	

Week 8 Oct. 9	Work on project B	Post assignment 3 online and discuss in class
Week 9 Oct. 16	Presentations: project B	Submit project B documents
Week 10 Oct. 23	Lecture: Field study Assignment 4: blog review of field study Start Project C: Field Study	
Week 11 Oct. 30	Workshop: Qualitative Data Analysis	Post assignment 4 online and discuss in class
Week 12 Nov. 6	Presentations: Project C	Submit project C documents
Week 13 Nov. 13	Lecture: Heuristic Evaluation Start Project D: Heuristic Evaluation on industrial design senior thesis projects	
Week 14 Nov. 20	Lecture: Other evaluation methods	
Week 15 Nov. 27	<i>Thanksgiving Vacation</i>	
Week 16 Dec. 4	Presentations: Project D	Submit project D documents
Week 17	Exam week (no class)	

Course Administration:

Lecture and Demonstration. Lectures will concern the body of knowledge surrounding the evaluation in interaction design. Students are expected to be at all class sessions (see Excused Absences policy below). If a student has to miss a class, permission for an excused absence **MUST** be granted by the professor before class. It is responsibility of each individual student to secure all materials and information presented in class. Lectures will not be repeated. For every non-excused absence, 2% will be reduced from your final grade.

Excused Absence. You must clear any absence beforehand with the professor and the professor will require documentation before the absence is excused. Absence due to illness or other circumstances beyond your control will be handled on a case-by-case basis and will require documentation.

Philosophy. Students are required to do more than attend classes and complete their assignments. Students are **REQUIRED** to push their skills to the point where they gain the most they possibly can out the course, regardless of their previous experience.

File security and disks. Unfortunately, you are not working in your own lab. You are responsible for the security of your files. You should have multiple copies on multiple sources at all times. Loss of data, files, or other associated items needed for a project will require that you recreate your work, with no exceptions.

Textbooks:

- Albert, W., & Tullis, T. (2013). *Measuring the user experience: collecting, analyzing, and presenting usability metrics*. Newnes.
- Rubin, J. and D. Chisnell, (2008). *Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests*. Indianapolis, IN: Wiley Pub, 2nd Edition.

Reference

- Bates, R. H. "The International Coffee Organization: An International Institution," in Robert H. Bates, Avner Greif, Margaret Levi, Jean-Laurent Rosenthal, and Barry R. Weingast (eds.), *Analytic Narratives*, Princeton: Princeton University Press, pp. 194-230. ISBN: 0691001286.
- Booth, W. C., Colomb, G. G., and J. M. Williams, (2008), *The Craft of Research*, 3rd Ed. Chicago: University of Chicago Press, ISBN: 9780226065656.
- Boulton, D. and M. Hammersley, "Analysis of Unstructured Data," in Roger Sapsford and Victor Jupp (eds.) *Data Collection and Analysis*, London, Thousand Oaks, New Delhi: Sage Publications, pp. 282-297, ISBN: 076195046X.
- Cuzzort, R.P, and J.S. Vrettos, (1996), *The Elementary Forms of Statistical Reason*, New York: St. Martin's Press, ISBN: 0312089465.
- Diamond, J. (2005), "One Island, Two Peoples, Two Histories: The Dominican Republic and Haiti," *Collapse: How Societies Choose to Fail or Succeed*, New York: Penguin Books, pp. 329-357. ISBN: 0670033375.
- Dix, A., Finlay, J., Abowd, G. and R. Beale., (1998). *Human-Computer Interaction*. 2nd Edition. Harlow, England: Pearson Education, ISBN: 0132398648.
- George, A. L. and A. Bennett, (2005), "Process-Tracing and Historical Explanation," *Case Studies and Theory Development in the Social Sciences*, Cambridge, MA: MIT Press, pp. 205-232. ISBN: 0262072572.
- Hamilton, L. (2009), *Statistics with Data*, 10th Ed., Belmont, CA : Thomson Brooks/Cole, ISBN: 9780495557869.
- Hornbæk, K. (2006), Current practice in measuring usability: Challenges to usability studies and research. *International Journal of Human-Computer Studies*, 64 (2), pp.79-102.
- Jenne, E. K. (2006), "Ethnic Bargaining in the Balkans: Secessionist Kosovo versus Integrationist Vojvodina," *Ethnic Bargaining: The Paradox of Minority Empowerment*, Ithaca: Cornell University Press, pp.159-183. ISBN: 9780801444982.
- Kuniavsky, M. (2003), *Observing the User Experience*, San Francisco, CA: Morgan Kaufmann Publishers, ISBN: 1558609237.
- Lakatos, I. (1970), "Falsification and the Methodology of Scientific Research Programmes", in Imre Lakatos and Alan Musgrave (eds.), *Criticism and the Growth of Knowledge* (Cambridge University Press, 1970), pp. 116-122, 132-138. ISBN: 0521078261.
- Leventhal, L. and J. Barnes. (2007), *Usability Engineering: Process, Product & Examples*, Upper Saddle River, NJ: Prentice Hall, ISBN: 9780131570085.
- Marshall, C. and G.B. Rossman, (2006), *Designing Qualitative Research*, 4th Ed. Thousand Oaks, Calif.: Sage Publications, ISBN: 9781412924887.
- Martin, D. W. (2004). *Doing Psychology Experiments*, 6th Edition, Belmont, Calif. : Thomson/Wadsworth, ISBN: 053460255X.
- Norman, D. (2002), *the Design of Everyday Things*, New York: Basic Books. ISBN: 9780465067107.
- Phillips, J. L. (1999). *How to Think about Statistics*, 6th Edition, New York: W.H. Freeman, ISBN: 0805072551.
- Rubin, J. and D. Chisnell, (2008). *Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests*. 2nd Edition. Hoboken: John Wiley & Sons, ISBN: 9780470386088. Available online.
- Stone, D., Jarrett, C., Woodroffe, M. and S. Minocha, (2005), *User Interface Design and Evaluation*, San Francisco, CA: Elsevier/Morgan Kaufmann, ISBN: 0120884364.
- Vasquez, J. A. (1997), "The Realist Paradigm and Degenerative versus Progressive Research Programs: An Appraisal of Neotraditional Research on Waltz's Balancing Proposition," *American Political Science Review*, Vol. 91, No. 4 (December 1997), pp. 899-912.
- Wengraf, T. (2001), *Qualitative Research Interviewing*, London: Sage Publications, pp. 152-181. ISBN: 0803975007.
- Zinnes, D. A. (1980), "Three Puzzles in Search of a Researcher," in *International Studies Quarterly*, Vol. 24, pp. 315-342.

Policies and Statements

DISABILITIES AND ADAPTIVE PROGRAMS STATEMENT

Students with disabilities must register with Adaptive Programs in the Office of the Dean of Students before classroom accommodations can be provided. If you are eligible for academic accommodations because you have a documented disability that will impact your work in this class, please schedule an appointment with the instructor as soon as possible to discuss your needs.

EMERGENCY STATEMENT

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. Here are ways to get information about changes in *this* course. Blackboard web page, my email address:qianz@purdue.edu, and my office phone: 494-3069.

* To report an emergency, call 911.

* To obtain updates regarding an ongoing emergency and to sign up for Purdue Alert text messages view www.purdue.edu/ea.

EMERGENCY NOTIFICATION PROCEDURES are based on a simple concept – if you hear a fire alarm inside, proceed outside. If you hear a siren outside, proceed inside.

Indoor Fire Alarms mean to stop class or research and immediately evacuate the building.

- Proceed to your Emergency Assembly Area away from building doors. **Remain outside** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.
- **All Hazards Outdoor Emergency Warning Sirens** mean to immediately seek shelter (**Shelter in Place**) in a safe location within the closest building.
- “Shelter in place” means seeking immediate shelter inside a building or University residence. This course of action may need to be taken during a tornado, a civil disturbance including a shooting or release of hazardous materials in the outside air. Once safely inside, find out more details about the emergency*. **Remain in place** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.

**In both cases, you should seek additional clarifying information by all means possible...Purdue Emergency Status page, text message, email alert, TV, radio, etc...review the Purdue Emergency Warning Notification System multi-communication layers at http://www.purdue.edu/ehps/emergency_preparedness/warning-system.html*

EMERGENCY RESPONSE PROCEDURES

- Review the **Emergency Procedures Guidelines**
https://www.purdue.edu/emergency_preparedness/flipchart/index.html
- Review the **Building Emergency Plan** (available on the Emergency Preparedness website or from the building deputy)
 - evacuation routes, exit points, and emergency assembly area
 - when and how to evacuate the building
 - shelter in place procedures and locations
 - additional building specific procedures and requirements

PAO – VPA BUILDING EMERGENCY PLAN www.purdue.edu/ehps/emergency_preparedness/emergency/building-plan.html

Select • BEP LIST, Scroll down to and select: Pao–Visual and Performing Arts Building Emergency Plan

Emergency Contact Information:

Building Deputy: Jon Smith

Phone Number: 49-66477

Office/Room Number: 1114

Email Address: jssmith@purdue.edu

Non-emergency Contact Numbers:

- * Fire: Purdue Fire Department (PUFD) 494-6919
- * Police: Purdue Police Department (PUPD) 494-8221
- * Radiological and Environmental Management: 494-6371
- * Physical Facilities Services: 494-9999

EMERGENCY PREPAREDNESS AWARENESS VIDEOS

- "Shots Fired on Campus: When Lightning Strikes," is a 20-minute active shooter awareness video that illustrates what to look for and how to prepare and react to this type of incident. See: <http://www.purdue.edu/securePurdue/news/2010/emergency-preparedness-shots-fired-on-campus-video.cfm> (Link is also located on the EP website)
- All Hazards Online Awareness training video (on Webcert & Blackboard.) A 30 minute computer based training video that provides safety and emergency preparedness information. See the **EP website** for sign up instructions.

MORE INFORMATION

Reference the Emergency Preparedness web site for additional information:
https://www.purdue.edu/epps/emergency_preparedness/

COURSE EVALUATIONS STATEMENT

During the last two weeks of the semester, you will be provided with an opportunity to evaluate this course and your instructor(s). Purdue now uses an online course evaluation system. Near the end of classes, you will receive an official e-mail from administrators with a link to the online evaluation suite. You will have up to two weeks to complete this evaluation. Your participation in an integral part to this course and your feedback is vital to improving education at Purdue University. I strongly urge you to participate in the evaluation system.

ACADEMIC DISHONESTY STATEMENT

Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-a, of University Regulations] Furthermore the university Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972]

PLAGIARISM STATEMENT

The Office of the Dean of Students will investigate instances of reported plagiarism and take appropriate actions. See the Dean of Students web page for descriptions of plagiarism and university plagiarism policies http://www.purdue.edu/univregs/pages/stuconduct/stu_regulations.html). All acts of plagiarism are violations of the University Academic Dishonesty Policy and will be dealt with according to procedures established by the university.

CLASS ATTENDANCE STATEMENT

Purdue University policy states that all students are expected to be present for every meeting of classes in which they are enrolled. All matters relative to attendance, including the make-up of missed work, are to be arranged between you and the instructor. Only the instructor can excuse you from classes or course responsibilities. In the case of an illness, accident, or an emergency, you should make direct contact with your instructor as soon as possible, preferably prior to class. If the instructor cannot be reached directly a message should be left in the instructor's departmental mailbox or with the department secretary. If you will be absent for more than five days, and have not been able to reach the instructor in person or by telephone or through leaving notification of your circumstances with the divisional secretary, you or your representative should notify the Dean of Students (765-494-1254) as soon as possible after becoming aware that the absence is necessary. Be advised, you may be asked to provide documentation from an authorized professional or agency which supports an explanation for your absence.

STUDENT WORK REPRODUCTION STATEMENT

The Purdue University Department of Art and Design (School of Visual & Performing Arts) retains a non-exclusive right to reproduce all undergraduate and graduate student projects for the purpose of education, publication, promotion, illustration, advertising, trade in any manner or medium now known or later developed in perpetuity.