

# INF385K: Projects in Human-Computer Interaction

Instructor: Dr. Jacek Gwizdka

Syllabus – Spring 2019

**Instructor:** Dr. Jacek Gwizdka

**Office:** [UTA](#) 5.532

**Office Hours:** By appointment

**Phone:** (512) 471-0636 (no voice mail please, *email is preferred contact method*)

**Email:** [jacekg@ischool.utexas.edu](mailto:jacekg@ischool.utexas.edu) (**please always include INF385K-PHCI in the subject line**)

**TA:** Yung-Sheng Chang

**Email:** [yscchang@utexas.edu](mailto:yscchang@utexas.edu)

**Class meetings:** Wednesdays 12pm-2:50pm, [UTA](#) 1.504

**Canvas @ UT:** <https://utexas.instructure.com/>

**Course schedule:** in Canvas

**Course Announcements:** via Canvas (make sure to configure your Canvas settings to receive notifications about announcement and messages)

**Note:** The class meetings schedule, along with assigned readings, and assignment due dates is in a separate document.

---

## **COURSE DESCRIPTION**

The spring 2019 edition of Projects in HCI (INF385K) will cover multiple aspects of conducting research projects in Human-Computer Interaction with a focus on user research methods in the lab equipped with a state-of-the-art eye-tracking and other devices. Typically, the course will emphasize methods for evaluating user experience and user interfaces. It will offer an opportunity to deepen your knowledge of usability testing and user interface evaluation and to sharpen your skills.

Class time will be split between content-based lectures (typically short), discussions, and project work. The part of class time used for lectures will be devoted to highlighting course materials. A few class meetings will be devoted to project work – the project will be the major student effort in this course. Student teams will be able to shape their own idea for the project within thematic constraints and challenges given by the instructor. Student projects will take advantage of the state-of-the-art eye-tracking equipment in the IX lab.

**NOTE:** Students taking this course are expected to have some previous experience in HCI/UX/usability research gained either by having taken a course in HCI/UX/usability/IA or quantitative research methods and experimental design, or by having an equivalent work experience. Please contact instructor before registering for this course.

## **OBJECTIVES**

At the end of this course students will:

- further their HCI knowledge by applying it in new and practical situations;
- learn about eye-trackers and their use in UX research;
- learn how to combine a variety of evaluation methods (including eye-tracking);
- learn how to design and conduct user studies employing the above methods;
- apply this knowledge in a small-scale semester-long project;
- be prepared for further training and research in this area.

## **CLASS STRUCTURE and ORGANIZATION**

The primary activity will be a semester-long, hands-on **HCI research project**. Student groups (1-3 students) will engage in selected stages of a typical HCI project, including identifying and understanding the problem, proposing evaluation plan, creating detailed research study protocol, executing it in the lab, and presenting the results. Student groups will be able to shape their own idea for the project within thematic constraints and challenges given by the instructor. The semester-long projects are expected to result in a thorough evaluation of some aspect of user experience with an existing software or web-based user interface. The results will be described in the final paper. The projects will be expected to produce results that are publishable in an international conference (such as, ACM CHI, ASIST, CHIIR, SIGIR, ETRA, UM, ICMI, IUI). The project is described in more detail in a separate document.

In addition to the project, the course uses readings, discussions, presentations and other activities in support of learning. The goal is to create a learning environment in the classroom where questions and concepts are discussed and analyzed and skills are developed collaboratively. This format requires participation of all class members. Students are expected to:

- Participate actively in the course project and in all group activities.
- Attend all class sessions; if a student misses a class, it is his or her responsibility to arrange with another student to obtain all notes, handouts and assignment sheets.
- Read all material prior to class; students are expected to use the course readings to inform their classroom participation and enable them to perform the class activities and assignments.
- Hand in all deliverables fully and on time. Late submissions will not be accepted unless an emergency is involved. In the event of an emergency, the student must contact the instructor as soon as possible. (see also Grading and Policies)
- Educate themselves and their peers. The successful completion of this course and their participation in the information professions depend upon the students' willingness to demonstrate initiative and creativity. Your participation in the professional and personal growth of your colleagues is essential to your success as well as theirs. Such collegiality is at the heart of professional practice. The in-class discussion of the assignments is designed to encourage this kind of collaboration.
- Participate in all class discussions.
- If needed, ask for additional help from the instructor or the Teaching Assistant.

### **HANDS-ON, PRACTICAL APPROACH**

This course takes a practical, applied, hands-on approach, based on the application of established best practices, principles, and proven methods to ensure a quality user experience.

### **MY PERSONAL GOALS FOR YOU IN THE COURSE**

In addition to content-specific objectives reflected by the topics in the course calendar, I have these personal goals for each student:

- to get you to think deeply and carefully about the subject,
- to help you to genuinely like the subject,
- to provide knowledge and skills useful to you in your career,
- to engender a deeper interest that can be pursued beyond this course,
- to make you proud of your achievements in this course, especially of your project work,
- and, hopefully, to have a little fun in the process 😊

### **BOOKS AND READINGS**

Selected chapters will be assigned from the following books:

1. **SMK:** MacKenzie S.I. (2013). HCI: An Empirical Research Perspective. Morgan Kaufmann. Full text available online through UT library.
2. **AB:** Bojko, A. (2014) (2013). Eye Tracking the User Experience: A Practical Guide to Research. Rosenfeld Media.
3. **JBAS:** Bergstrom, J. R., & Schall, A. J. (2014). Eye Tracking in User Experience Design. Elsevier Science & Technology Books. Full text available online through UT library.

**Note:** Additional readings may be assigned as needed.

### **CLASS LECTURE SLIDES**

The PDF versions of class lecture slides, if applicable, will be posted on Canvas. You have permission to print a copy for your personal use; please do not post or share them online. This policy applies to all other course handouts too.

### **GRADING**

|   |                              |
|---|------------------------------|
| Class participation (includes participation in class discussions) | 5%                           |
| Homework / Assignments (3+3+6)                                    | 12%                          |
| Eye-tracking paper discussion (in class) (once per semester)      | 10%                          |
| Project (teamwork, unless otherwise noted)                        | <b>Project Subtotal: 73%</b> |
| P1: Proposal  | P/F                          |
| P2: Initial evaluation plan                                       | P/F                          |
| P3: Detailed research protocol (Canvas submission)                | P/F                          |
| P4: Project presentation (poster)                                 | 15%                          |
| P5: Final paper   | 50%                          |
| P5i: Reflections and Lessons Learned (*individual*)               | 8%                           |
| <b>Course Total:</b>  | <b>100%</b>                  |

**Note:** Intermediate project phases are not graded explicitly. However, you will be receiving feedback on your work along with assessment of how well you did.

## **GRADUATE GRADING SCALE**

- 96 or above (A: superior), 90-95 (A-: distinguished)
- 87-89 (B+: good), 84-86 (B: satisfactory), 80-83 (B-: barely satisfactory)
- unsatisfactory: 77-79 (C+), 74-76 (C), 70-73 (C-).

Note: Final grading does not happen just by calculations. I take into account many factors, and so your "Canvas points/%" are only a rough indication of the final grade. Ask when in doubt.

## **HOMEWORK**

All assignments and project deliverable due dates are on the course schedule and in Canvas (under Assignments and Calendar). Even if the instructor doesn't announce each due date in class, it's your job to know when you should be working on one and when they are due. Please ask when in doubt.

### ***Submitting written homework and assignments***

You must prepare your assignments using a word processor and submit it by uploading to Canvas by the due date/time. Please always use appropriate three- or four-letter file extensions in submitted filename (e.g., .docx for Word files, .pdf for Adobe portable document format. Please avoid submitting zip files). Assignments usually may not be submitted via email to either the professor or a TA.

**Important:** All documents that you are submitting should include on the front page of your submission your name (spelled in the same way as in the course roster), course number/name, instructor's name, semester and the date of submission. For group work, if applicable, please also always include on the front page all group member names, your project group number, and your project short name (or title). **Warning:** If you do not follow these requirements, your submission may be returned without a grade and without a possibility to re-submit it.

Note: All students are expected to have completed IRB certification for conducting studies with human subjects (including financial conflict of interest (FCOI)). If you have not done it as a part of another class, the deadline for this course is listed on the course schedule.

## **CLASS PARTICIPATION**

Class participation includes active participation in lectures, presentations (Q&A) and in classroom discussions.

## **CLASS POLICIES**

### ***Due dates and times for handing in homework and project assignments***

Unless otherwise indicated, all homework and project assignments must be turned in at the beginning of class on the due date. You should think of all due dates for assignments, especially project assignments, as firm. The tight schedule of deliverables throughout the whole semester makes it nearly impossible to slip or extend due dates. Any assignment that you do not hand in on time may be penalized in grading. If you are not able to complete an assignment by the due date, it would be best for you to hand in as much of it as you have done. You must prepare your assignments using a word processor and submit it by uploading to Canvas by the due date/time. Please do **not** submit links to Google Docs or other online documents - an actual document needs to be submitted. Assignments usually may not be submitted via email to either the professor or a TA.

### ***Attendance***

You will not be graded directly on attendance. You are adults in a graduate-level course and are *expected* to attend every class. Beyond the occasional need to be absent from class for a good reason, please consider that much of the learning for the course occurs in class. You cannot participate in this learning if you are not present.

If you have to miss class for an extended period due to a protracted illness or similar reason, we will treat your needs as a special case and I will do everything I can to help you survive.

### ***Computer use in the classroom***

You may use your laptops and other computing devices (e.g., tablets, smartphones) in the classroom. However, their use during class time is ***restricted*** to ***class related activities***. Students who use their devices for non-class related activities will be excused from the class and will have points deducted from their final grade.

### ***Plagiarism & Academic Honor Code***

Plagiarism, as defined in the 1995 Random House Compact Unabridged Dictionary, is the "use or close imitation of the language and thoughts of another author and the representation of them as one's own original work." (as cited in Plagiarism (2017). Wikipedia, <https://en.wikipedia.org/wiki/Plagiarism>). If you use words or ideas that are not your own you must cite your sources. Otherwise you will be guilty of plagiarism. Here's a resource designed to help you avoid plagiarism: [www.lib.utexas.edu/plagiarism](http://www.lib.utexas.edu/plagiarism)

You are encouraged to discuss assignments with classmates, but anything submitted must reflect your own, original work. If in doubt, ask the instructor. Plagiarism (as described above) and similar conduct represents a serious violation of UT's Honor Code and standards of conduct:

- [http://deanofstudents.utexas.edu/sjs/scholdis\\_plagiarism.php](http://deanofstudents.utexas.edu/sjs/scholdis_plagiarism.php)
- <http://deanofstudents.utexas.edu/sjs/conduct.php>
- [http://bit.ly/UT\\_plagiarism\\_Matt](http://bit.ly/UT_plagiarism_Matt) – resource from Dr. Matt Lease (4pgs)

**It is YOUR RESPONSIBILITY as a student to avoid honor code violations.** Neither ignorance nor accidents excuse violations. If in doubt, ask the instructor and/or err on the side of caution by quoting borrowed text and citing sources of borrowed ideas and text.

**Students who violate University rules on academic dishonesty are subject to severe disciplinary penalties, such as automatically failing the course and potentially being dismissed from the University. \*\*PLEASE\*\* do not take the risk.** We are REQUIRED to automatically report any suspected case to central administration for investigation and disciplinary hearings. Honor code violations ultimately harm yourself as well as other students, and the integrity of the University, academic honesty is strictly enforced. For more information, see the Student Judicial Services site: <http://deanofstudents.utexas.edu/sjs>.

### ***Notice about students with disabilities***

The University of Texas at Austin provides appropriate accommodations for qualified students with disabilities. To determine if you qualify, please contact the Dean of Students at 512-471-6529 or UT Services for Students with Disabilities. If they certify your needs, we will work with you to make appropriate arrangements. UT SSD Website: <http://www.utexas.edu/diversity/ddce/ssd>

### **Coping with stress and personal hardships**

The [Counseling and Mental Health Center](#) offers a variety of services for students, including both individual counselling and [groups and classes](#), to provide support and assistance for anyone coping with difficult issues in their personal lives. As mentioned above, life brings unexpected surprises to all of us. If you are facing any personal difficulties in coping with challenges facing you, definitely consider the various services offered and do not be shy to take advantage of them if they might help. These services exist to be used.

### **Notice about missed work due to religious holy days**

A student who misses an examination, work assignment, or other project due to the observance of a religious holy day will be given an opportunity to complete the work missed within a reasonable time after the absence, provided that he or she has properly notified the instructor. It is the policy of the University of Texas at Austin that the student must notify the instructor at least fourteen days prior to the classes scheduled on dates he or she will be absent to observe a religious holy day. For religious holy days that fall within the first two weeks of the semester, the notice should be given on the first day of the semester. The student will not be penalized for these excused absences, but the instructor may appropriately respond if the student fails to complete satisfactorily the missed assignment or examination within a reasonable time after the excused absence.

### **Electronic-mail Notification Policy**

In this course e-mail will be used as a means of communication with students. You will be responsible for **checking your e-mail regularly** for class work and announcements. If you are an employee of the University, your e-mail address in Canvas is your employee address.

All email concerning the class should be addressed to the TA with a copy to the instructor. We will sort out which of us should act on the message and will make every effort to answer your email in a timely fashion. However, you should not necessarily always expect to get an immediate reply. In particular, don't expect to get answers to questions about a homework or project assignment within the last few hours before that assignment is due.

Please put **INF385K-PHCI** as part of the subject line of your email; that will help us identify your emails more quickly.

The University has an official e-mail student notification policy. It is the student's responsibility to keep the University informed as to changes in his or her e-mail address. Students are expected to check e-mail on a frequent and regular basis in order to stay current with University-related communications, recognizing that certain communications may be time-critical. Read the policy: <http://www.utexas.edu/its/policies/emailnotify.html>. You can find and change your official email address of record at [https://utdirect.utexas.edu/apps/utd/all\\_my\\_addresses](https://utdirect.utexas.edu/apps/utd/all_my_addresses)

**INF385K: Projects In HCI – Instructor: Dr. Jacek Gwizdka**  
**Course Schedule (subject to *change*) – Spring 2019**

| #  | Date    | Topic  | Readings / Tutorials<br>(to read/watch <i>before</i> class) | In class activity  | Due - Project deliverables...<br>(due at the beginning of class, except as indicated)      |
|----|---------|--|---|--|--|
| 1  | Jan 23  | Introductions  | Syllabus  | Introductions  |  |
| 2  | Jan 30  | HCI Research Design  | SMK: 4-5  | Reading discussion<br>Present Human Behavior (p.I&IV)  | P0. Project Teams  |
| 3  | Feb 6   | Eye-tracking:<br>Fundamentals                              | JBAS:1-2, AB:1-3<br>online tutorial/video                   | Reading discussion<br>Present eye-tracking tutorial<br>Eye-tracking paper<br>Discuss project proposals | P1. Project Proposal   |
| 4  | Feb 13  | Eye-tracking: study design                                 | AB:4-7<br>SMK: 6<br>online tutorial/ video                  | Eye-tracking paper<br>Reading discussion<br>Discuss project progress                                   | A1. Eye-tracking – ET Data   |
| 5  | Feb 20  | Eye-tracking in usability, web users                       | JBAS:3,6-8  | Eye-tracking paper<br>Reading discussion<br>Discuss A1   | P2. Related work and evaluation plan   |
| 6  | Feb 27  | Eye-tracking: conducting a study                           | AB:8,9  | Eye-tracking paper (2)<br>Reading discussion<br>IX lab: eye-tracker use                                | A2. Eye-tracking – Perception Bias   |
| 7  | Mar 6   | Eye-tracking: Data extraction and preparation for analysis | AB:10-11  | Eye-tracking paper<br>Reading discussion<br>IX lab: eye-tracking software                              |  |
| 8  | Mar 13* | TBA  |   |  |  |
|    | Mar 20  | March break no class                                       |   |  |  |
| 9  | Mar 27  | Eye-tracking: Data analysis                                | AB:12-13  | Eye-tracking paper<br>Reading discussion   | P3. Research protocol  |
| 10 | Apr 3   | Other biometric methods                                    | JBAS:4<br>online tutorial/ video                            | Discuss methods<br>Present biometric tutorials (3)<br>Eye-tracking paper                               | A3. Eye-tracking – AOIs<br>Quant Analysis  |
| 11 | Apr 10  | Project  |   | Project work   |  |
| 12 | Apr 17  | Project  |   | Project work   | Project progress will be periodically checked  |
| 13 | Apr 24  | Project  |   | Project work   |  |
| 14 | May 1   | Writing up research  | SMK: 8  | Reading discussion<br>Project work   |  |
| 15 | May 8   | Final project presentations                                |   |  | P4. Project presentations.<br>Final team paper (P5) and individual (P5i) <b>Mon May 10</b> |

\* Dr. Gwizdka away at an academic conference.

Readings are from: **SMK:** MacKenzie S.I. (2013) HCI: An Empirical Research Perspective. Morgan Kaufmann.  
**AB:** Bojko, A. (2013). Eye Tracking the User Experience: A Practical Guide to Research. Rosenfeld Media.  
**JBAS:** Bergstrom, J. R., & Schall, A. J. (2014). Eye Tracking in User Experience Design. Morgan Kaufmann.  
**Note:** Additional readings may be assigned as needed.

# INF385K: Projects in Human-Computer Interaction

Instructor: Dr. Jacek Gwizdka

Project Description – Spring 2019

---

## **TEAM PROJECT**

The major effort in this course is the semester-long project. Early in the semester, students will form teams and define their projects within thematic constraints and challenges given by the instructor. Teams will work on their projects throughout the semester. Like with real life projects, it's hard to foresee all issues you may encounter in your project work. Hence, the project deadlines may need to be adjusted accordingly. Please keep this in mind. The semester-long projects are expected to result in a novel evaluation of some aspect of user experience with an existing software or web-based user interface (or similar). The results will be described in the final paper. The projects will be expected to produce results that are publishable in an international conference. A publication co-authored with the instructor is expected from PhD students taking this course; for other students, it is optional. Students who aim to publish should have IRB certification and should obtain IRB approval for their study.

The project focus may be, for example, on evaluation of an existing software or web-based user interface, on comparing two existing interfaces, on understanding user experience with an existing system, on understanding user performance of selected types of user tasks. Examples of past projects are provided on Canvas.

The project will include several phases, including identifying and understanding the problem, designing user study, conducting user study with participants, analyzing data, and, finally, presenting the results and conclusions.

### **0. Project Teams**

Students will form project teams of two to three students. Occasionally, exceptions to the team size can be made. For example, PhD students may work on their projects individually.

### **1. Project Proposal**

Your project will be driven by a problem or a research question you are proposing to address. Project proposal should include a short description of the problem and the research question(s) you will be addressing. Include motivation. It will be useful if you provide brief support your project's motivation by referring to prior work (related literature), this part will be extended in the next project submission.

### **2. Related work and preliminary evaluation plan**

This phase will involve extending related work, finalizing research questions and planning your lab experiment design.

*Expected sections in your submission:* Introduction and Motivation. Research Questions (both potentially revised from P1); Related Work; Method (initial elements of experimental design: stimuli description, tasks, procedure (some elements). Research Questions can also come after Related Work if it informs them. You may want to start formulating hypotheses.

### **3. Detailed research protocol**

Based on feedback received on your evaluation plan, this phase will involve finalizing experiment design and all needed materials, and submitting research protocol to Canvas. PhD students (and others who want to publish) are expected to submit their research protocols and consent forms to IRB for approval.



*Expected sections in your submission:* Revision of any previously submitted sections, if applicable. Complete Method section (experimental design., stimuli description, tasks, procedure, measures (independent and dependent variables).

The teams will **conduct their user study in the IX lab with human subjects**. This will be the major part of project effort. There is no separate project deliverable from this part, but we will be checking progress of team efforts. Subsequently, the results will be analyzed and written up for the final presentation and submission.

#### **4. Project presentation**

Each group will present their project during the last class meeting and as a part of the iSchool's Open House. (see appendix for more info)

##### **4.1. Presentation guidelines**

Prepare a poster presentation of your project. Your poster will use material from the final project report. Feel free to draw as much of the poster content as you wish from the report (your selection of the most important points and illustrative images will be part of the grade). Your poster should look professionally and be prepared with presentation software (e.g. PowerPoint). Use bullet points and not lots of narrative text. Graphics and visual elements are preferred over text. You will be able to print your posters in the IT lab at the iSchool. More poster formatting and printing details will be provided later.

#### **5. Final paper**

The purpose of the final paper is to show the students' capacity to communicate their work in a professional way. It must be scholarly structured using sections such as Abstract, Introduction, Related Work, Method, Results, Discussion and Conclusions. The report must have a coherent story and convincing argumentation that explains:

1. What is the problem that the project addresses? (Introduction)
2. Why is it important? (Motivation)
3. What have other people done in this area? (Related Work / Background)
4. What are your research questions (RQs) or hypotheses?
5. What is your approach and method? (Procedure, Participants, Data collection method(s))
6. How have you analyzed the data? (include, if justified to have, a separate Data analysis section)
7. What are the findings? (Results)
8. What have you found? How do your findings relate to RQs? (Discussion)
9. What are the major contributions and limitations of your project (Conclusions)

The sections may differ between the projects.

It is expected that the final paper will be publishable at a major international conference (such as ACM CHI, CHIIR, JCDL, ASIST, UIST, IUI, ETRA, ICMI, or ASSETS). As such, the reports must follow the specifications set by the particular conference, including using the appropriate format. The final paper should be 8 to 10 pages long in the two-column ACM conference paper format (use the ACM Proceedings template: <http://www.acm.org/publications/proceedings-template>). The paper needs to have an appropriate number of references (usually 10-30; beyond textbooks used in the class).

In addition to submitting the final paper, please submit a separate document with appendices. The appendices should contain selected elements from earlier submissions. Include also several larger size images from your evaluation of the prototypes that do not fit into a two-column paper.

### ***5i. Reflections and Lessons Learned - Individual***

Now that you have completed the project, please reflect on all parts of the process. What worked well and what did not work too well. Think about the reasons why. What would you change in the process (not in the design) next time? What are your lessons-learned from the overall experience.

Deliverables : a 2-4 page report. Single-spaced. Submitted separately from the team report.

### **Appendix – Participation in the iSchool's Open House Project Presentations (to be revised as needed)**

The iSchool's Open House (May 10, 2019, 1-4pm) is an opportunity to present, showcase, and demo student projects, including projects from this course, to hundreds of visitors and employers who visit the school for the event. Students interested in presenting projects will need to submit a brief 1-2 paragraph proposal by March nn, 2019 (look out for the deadline and upload link via announcement emails or contact TBA.

- Proposals should cover the following elements: 1) A clearly stated objective and an overall description of the work to be performed or demonstrated; 2) The deliverables, outcomes or the expected culminating products and the methods you will employ to achieve these outcomes; and 3) An explanation of how the project fits into your education (learning objectives) and professional goals.
- Proposals are subject to review by the Open House Committee to ensure a professional presentation that represents the iSchool well. NOTE: You will have an opportunity to withdraw your proposal by April xx if you don't think the project will be ready in time.
- Student projects can be displayed at the Open House in a wide variety of formats (iPads, laptops, screens, physical objects, art – posters are NOT required). A number of electrical outlets will be available and students will request all technical needs when they submit project proposals (by March xx). Remember to talk with the IT Lab about borrowing equipment early on and reserve any equipment needed in advance.
- Think big! Students have acquired internship and job offers via the work they have showcased at Open House. At a minimum, it's a powerful networking opportunity.