**COURSE DESCRIPTION**

This course covers multiple aspects of conducting a research project in Human-Computer Interaction with a focus on the design or evaluation of modern search user interfaces. Students will use models and frameworks that underpin human information seeking behavior as an analytical lens through which to examine users engaged in search. Students will apply principles of user-centered design to the design of new search experiences and novel interfaces that support a wide range of search tasks. They will evaluate their prototype interfaces with users. Topics may include exploratory search, sensemaking, faceted search, tagging and retrieving with cognitive and emotional metadata (using psycho-physiological data), new interaction modalities in human-information interaction (for example, eye gaze), evaluation of interactive information retrieval.

Class time will be split between (typically short) content-based lectures, reading 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.

**NOTE:** Students taking this course are expected to have some previous experience in HCI gained either by having taken a course in HCI/UX/usability/IA or a related area, or by having an equivalent work experience. **Please contact the 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
- connect theories and models of human information seeking with the design of interfaces
- become familiar state of the art search interfaces
- be able to conceptualize, design, and evaluate novel information search interfaces
- become familiar (and experiment) with technologies that support new interaction modalities
- become familiar and be able to employ new evaluation methods (including eye-tracking)
- understand the ethics of evaluating interactive technology with human participants
- 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 (2-4 students) will engage in selected stages of a typical HCI project, including identifying and understanding the problem, envisioning, conceptualizing a solution, designing, prototyping and implementing a search interface, evaluating the solution with users 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 functional (interactive) prototype or in a thorough evaluation of an existing search system that will be described in a final paper. The paper should be ready for submission to a major international conference (such as ACM CHI, ASIST, SIGIR, CHIIR, IUI, ETRA, UM, ICMI, ASSETS).

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 😊

**TEXTBOOK**

The textbook for this course is **RRTT**: Russell-Rose, T., & Tate, T. (2013). Designing the Search Experience: The Information Architecture of Discovery. Newnes. The book is available in UT bookstore and online at UT. Book's website: http://designingthesearchexperience.com

**OTHER BOOKS AND READINGS**

Selected chapters will be assigned from other books:


**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**

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Class participation (includes participation in class discussions)</td>
<td>10%</td>
</tr>
<tr>
<td>Reading discussant in class (once or twice per semester)</td>
<td>15%</td>
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<tr>
<td>Reading discussions on line (most of the semester)</td>
<td>10%</td>
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<tr>
<td>Project (teamwork, unless otherwise noted)</td>
<td>65%</td>
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<tr>
<td>P1: Proposal</td>
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<td>P2: Design concept or evaluation plan</td>
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<td>P3: Early prototypes or evaluation protocols</td>
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<td>P4: Project presentation</td>
<td>5%</td>
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<tr>
<td>P5: Final paper</td>
<td>60%</td>
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*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.*
**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**

The major work outside the classroom is the team project. Due dates are in the course schedule/calendar. Even if the instructor doesn't announce each homework in class, it's your job to know when you should be working on one and when they are due. Ask when in doubt. One other type of homework will be the regular (mostly weekly) reading assignments described below. All students are expected to have completed IRB certification for conducting studies with human subjects. If you have not done it as a part of another class, the deadline for this course is listed in the course schedule.

**READING ASSIGNMENTS**

You are responsible for keeping up with readings in the book per the schedule given in the course schedule/calendar. All assigned reading are to be done before a class meeting (except our first meeting, of course). Each week, you are required to post the most important or controversial points from the reading and discussion questions relevant to the reading topic. You will do this on the designated Canvas discussion area (note: there may be more than one topic per week). The **deadline for posting questions is Sunday 11:59pm**. Bring your points and discussion questions with you to class each week (electronic or paper) and be prepared to discuss them in detail. One (or two) students will be assigned each week as discussants. The discussants are required to be prepared to take a leading role in our discussion. The discussants should be familiar with reading-related questions posted by your classmates and be able to summarize them and possibly try to answer some of them. After the class, if any of you leaves with some “burning” questions related to the discussed topics, you are expected to post them on the weekly topical discussion area on Canvas. These questions should be clearly marked as “AFTER CLASS”. Any student, TA or an instructor may post responses to these questions.

**TEAM PROJECT**

The major work for the course is the semester-long project. Early in the semester, students will form teams and define their idea for the project 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.

In the projects, students will design search experiences and novel interfaces that support a wide range of search tasks and evaluate these interfaces with users. Topics may include exploratory search, sensemaking, faceted search, new interaction modalities in human-information interaction, evaluation of interactive information retrieval. The project will include several phases, including identifying and understanding the problem, conceptualizing a solution, designing and prototyping a search interface and/or evaluating an interface with users and, finally, presenting the results. The projects will be expected to produce results that are publishable in an international conference. The project is described in more detail separately.
**CLASS PARTICIPATION**

Class participation includes active participation in lectures, presentations (Q&A) and in classroom discussions. Assigned lead discussants will receive up to 10% for leading a discussion.

**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. 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.

*Academic Honor Code*

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

- [http://deanofstudents.utexas.edu/sjs/scholdis_conduct.php](http://deanofstudents.utexas.edu/sjs/scholdis_conduct.php)

**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](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](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.

Weather contingencies

If the university is closed (for any reason) on an assignment due date, the assignment will be due at the beginning of the next class.

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 385K-HCI 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
TEAM PROJECT

The major work for the 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.

In the projects, students will design search experiences and novel interfaces that support search tasks and evaluate these interfaces with users. A team project may focus either 1) on the design and prototype (with minimal evaluation), 2) on evaluation of an existing information search system, 3) on understanding user interaction with an existing information search system. The 2 and 3 are similar, the difference is in the emphasis on the system (2), or on the user (3). Example project areas include exploratory search, sensemaking, faceted search, evaluation of interactive information retrieval. The project will include several phases, including identifying and understanding the problem, conceptualizing a solution, designing and prototyping a search interface and/or evaluating an interface with users and, finally, presenting the results. The projects will be expected to produce results that are publishable in an international conference. A selection of more specific project ideas will be provided and discussed with students.

0. Project Teams

Teams will be formed based on your backgrounds and experience.

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 or the research question you will be addressing; include motivation; (if applicable) who are your intended users; what search scenarios/tasks and contexts you will be investigating. It will be useful if you support your project motivation by referring to prior work (cite literature).

2. Design concept or evaluation plan

For projects with a focus on design, this phase will involve ideation, sketching and creating story boards. For projects with a focus on evaluation, this phase will involve preparing lab experiment design.

3. Early prototypes or evaluation protocols (IRB)

For projects with a focus on design, teams will create an interactive prototype of a search interface/system. The prototype should demonstrate how your proposed search interface supports the targeted search scenarios/tasks.

For projects with a focus on evaluation, this phase will involve finalizing experiment design and all needed materials, and submitting research protocol to IRB for approval. This protocol will specify the evaluation plan for their prototype systems with human subjects.

After phase 3 and before the final phase 4, “design” teams will work on polishing their prototypes (making them more interactive, etc.) and will conduct a quick evaluation of their prototypes. The
“evaluation” teams will conduct their experiment with human subjects. 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 end-of-the-semester class showcase. This may include a live demonstration (if applicable). This is intended to convey overview of the project and to showcase the functional prototype (if applicable).

4.1. Presentation guidelines
Prepare a slide presentation showing off your design and process, and including lessons learned. Your presentation will have sections similar to the final project report. Feel free to draw as much of the presentation content as you wish from the report. It is important that you include lessons-learned from specific project phases as well as from the overall project experience. Your presentation should look professionally and be prepared with presentation software (e.g. PowerPoint / Keynote). Do not use a lot of narrative text. Graphics and visual elements are preferred over text. Your presentation should be delivered in professional manner and each project team member should be involved. You should be prepared to answer questions about your project. Each team will have 25 min for their presentation (including a prototype demo, if applicable) + up to 10 minutes for Q&A.

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)
4. How does the project address the problem (Interface Design)
5. How effective is your solution (Evaluation: Results/Discussion)
6. What are the major contributions of your project (Conclusions). This section could include limitations and future work.

The sections will differ between the projects. In particular, they may be different for projects that focus on evaluation.

Like all academic communications, when making claims or presenting design decisions, it is expected that you substantiate them by providing appropriate references and/or supporting evidence. It is expected that the final paper will be submitted to a major conference such as ACM CHI, JCDL, ASIST, UIST, IUI, ETRA, ICMI, or ASSETS. As such, reports must follow the specifications set by the particular conference, including using the appropriate format. The final paper must be 8 to 10 pages long (depending on the conference) in the two-column ACM conference paper format. The paper needs to have an appropriate number of references (usually 15-30; most of the should be different than the course readings).

In addition to submitting the final paper, please submit appendices (could be the same or a separate document). The appendices should contain selected elements from earlier submissions (showing a examples of your progression from sketches → early prototypes → evaluated prototype and → final prototypes). Include also several larger size images of your prototypes and images from your evaluation of the prototypes that do not fit into a two column paper (you can refer to these images in your paper).
### INF385T: Projects In HCI – Instructor: Dr. Jacek Gwizdka

**Course Schedule (subject to change) – Spring 2015**

<table>
<thead>
<tr>
<th>#</th>
<th>Date</th>
<th>Topic</th>
<th>Readings (do before class, except as indicated)</th>
<th>In class activity</th>
<th>Due - Project deliverables... (due at the beginning of class, except as indicated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 20</td>
<td>Introductions</td>
<td></td>
<td>introductions</td>
<td>Fill out background surveys – due Jan 22.</td>
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<tr>
<td>2</td>
<td>Jan 27</td>
<td>Users and Information Search</td>
<td>RRTT:1-2</td>
<td>Reading discussion (1)</td>
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<td></td>
<td></td>
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<td></td>
<td>Discuss project teams</td>
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<tr>
<td>3</td>
<td>Feb 3</td>
<td>Context and Modes of Search</td>
<td>RRTT:3-4</td>
<td>Reading discussion (1)</td>
<td>P0. Project Teams</td>
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<td></td>
<td>Discuss project topic ideas</td>
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<tr>
<td>4</td>
<td>Feb 10</td>
<td>Design: Query Formulation &amp; Results Display</td>
<td>RRTT:5-6</td>
<td>Reading discussion (2)</td>
<td>P1. Project Proposal</td>
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<td></td>
<td>Discuss project proposals</td>
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<tr>
<td>5</td>
<td>Feb 17</td>
<td>Design: Exploratory and Faceted Search. Patterns.</td>
<td>RRTT:7 RWRR:4 PMJC:4</td>
<td>Reading discussion (2 (+1))</td>
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<td>Discuss project progress</td>
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<td>6</td>
<td>Feb 24</td>
<td>Eye-tracking: Introduction and Examples</td>
<td>JBAS:1-2,6-7 AB:1-3</td>
<td>Reading discussion (2)</td>
<td>P2. Design concept or evaluation plan</td>
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<td>IX lab: eye-tracker quick view</td>
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<tr>
<td>7</td>
<td>Mar 3</td>
<td>Evaluation: Planning and Study Design; ethics</td>
<td>DK:5-6 (opt 4) AB:4,5,8 (opt 6)</td>
<td>Reading discussion (2)</td>
<td>IRB. Students should complete IRB certification</td>
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<td>IX lab: eye-tracker intro</td>
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<tr>
<td>8</td>
<td>Mar 10</td>
<td>Evaluation: Details and Conducting a Study</td>
<td>DK:9,10 AB:7,9</td>
<td>Reading discussion (1+1)</td>
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<td>IX lab: eye-tracker use</td>
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<tr>
<td>9</td>
<td>Mar 24</td>
<td>Mid-term project presentations &amp; discussions</td>
<td></td>
<td>Discuss projects</td>
<td>P3. Early prototypes or evaluation protocols (IRB)</td>
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<tr>
<td>10</td>
<td>Mar 31</td>
<td>Evaluation: Data Analysis</td>
<td>AB:10-13</td>
<td>Reading discussion (1?1)</td>
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<td>IX lab: eye-tracking software</td>
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<tr>
<td>11</td>
<td>Apr 7</td>
<td>Project Prototyping &amp; Evaluations</td>
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<td>Project work – classroom &amp; IX lab</td>
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<tr>
<td>12</td>
<td>Apr 14</td>
<td>Project Prototyping &amp; Evaluations</td>
<td></td>
<td>Project work – classroom &amp; IX lab</td>
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<tr>
<td>13</td>
<td>Apr 21</td>
<td>Project Prototyping &amp; Evaluations</td>
<td></td>
<td>Project work – classroom &amp; IX lab</td>
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<tr>
<td>14</td>
<td>Apr 28</td>
<td>Project Prototyping &amp; Evaluations</td>
<td></td>
<td>Project work – classroom &amp; IX lab</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>May 5</td>
<td>Final project presentations</td>
<td></td>
<td>P4. Project presentation and P5. final paper</td>
<td></td>
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