I541
Human Computer Interaction Design I
[also listed as: I541 Interaction Design Practice]

Indiana University School of Informatics at IUPUI
Semester XXX

Course Info: Class section, room and schedule

Class Instructor: Instructor’s info

COURSE DESCRIPTION
Human-Computer Interaction (HCI) is the discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them (Hewett et al., 1992). The course covers human-computer interaction theory and application from an integrated-approach of knowledge domains, i.e., the cognitive, behavioral, and social aspects of users and user context, relevant to the requirements, design and usability evaluation of interactive systems. 

HCI describes the way a user accomplishes tasks with a computer, i.e., what the user does and how the computer responds, relative to their own respective behaviors, and what is the emerging user experience (UX). The study of HCI has become increasingly important as the amount of application software for desktop and mobile devices continues to rise in use in the home and workplace. It is now generally recognized that the nature and quality of user experience is considered integral to the design and development of all interactive systems and devices. The user interface, intended in broad sense as the key design component of HCI, functions at the intersection of people, social contexts and computing systems. Growing emphasis is placed on the design and usability of the user interface as a critical point of interaction that allows the user to acquire and manipulate information.

REQUIRED TEXT
Title: Interaction Design: Beyond Human-Computer Interaction
Author: Rogers, Sharp and Preece
NEW Edition 3rd
Publisher: John Wiley and Sons
Book site: http://www.id-book.com
Available on Amazon.com: direct link.

COURSE OUTCOMES
The learning objectives of this course will include the following:

1. Related to obtaining knowledge about HCI, students will explain, recognize, and apply with considerable depth:
   • Basic HCI theory, terms, principles, and conceptual models
• User Experience (UX), User-centered design theory and practices related to interaction design
• Product design and development processes and life-cycle
• User profiling to interaction design (needs and requirements)
• Interface design principles and processes
• Prototype design basics: theory and practice
• Product usability evaluations and testing methods

2. Related to applying HCI theory to product development, students will:
   • Apply HCI principles and a user-centered approach to interaction design
   • Analyze user needs and requirements
   • Design and develop prototypes based on user assessments (needs and requirements), while applying HCI principles and models.
   • Apply evaluation and usability testing methods to interactive products to validate design decisions

Core Competencies:
• Being aware of the implications and applications of the various knowledge domains to the design of human–computer interactions.
• Mastering the lifecycle of an interactive application from a user experience perspective
• Ideate, sketch, elaborate, validate and communicate user experiences and interface designs

REQUIRED SOFTWARE SKILLS
ALL students must be proficient in using (or willing to learn autonomously) any basic user interface editing software (e.g. Dreamweaver, Fireworks, Flash, Flex, InDesign, basic HTML editing, or other user interface prototyping tools). These basic skills will not be taught in the course, but are important pre-requisite to carry out high-quality projects.

ATTENDANCE
Attendance is required. The University regulations state: “Students are expected to be present for every meeting of the classes in which they are enrolled.” IUPUI faculty are required to submit to the office of the Register a record of student attendance through the semester, on which they will take action if the record conveys a trend of absenteeism. As a result, ATTENDANCE WILL BE TAKEN IN ALL CLASSES. An Attendance sheet will be passed out in class for each student to sign their name. If you do not sign your name while in class you will be marked absent. The instructor is not expected to remember who attended when, so signing the sheet while in class is important. Signing the attendance sheet for another student is absolutely prohibited. Any student found doing so will be in violation of university policies on ethics and/or conduct.

Class attendance entails being present for the entire duration of the class (including lecture and project meetings). Attending only part of the class is considered absence.

Missing class WILL impact your grade. All in-class students are allowed two (excused or unexcused) absences before their grade will be affected. In other words, whether you are sick or have personal problems or issues for missing class, it will amount to the same. Missing class means you do not show for the whole or majority of the session.

• On the third missed class time your final grade will drop 15 points (regardless of the reason) for every day of further absence.
**DUE DELIVERABLES**

All weekly due assignments are the students’ responsibility. If class is missed, the student is still responsible for the assignment, as well as to find out what was covered in class, e.g., any new assignments or variations to an existing assignment. ALL assignment deadlines are outlined in the syllabus or syllabus supplemental documents provided on OnCourse. In the end, each student is responsible for the deadline. Also, weekly assignment deadlines should be adhered to, to insure fairness to all students. For the purpose of maintaining an equal and fair evaluation of each student’s work, no student will receive special treatment.

As a result, the following rules will apply to this course:

- All assignments must be submitted through OnCourse at the designated time as stated on the project description document, or as communicated via email.
- **ALL assignments handed in late will be reduced 10 points for every day late** (24 hrs. from the due date and time). For example, if the assignment is due at 6PM on the due date and it is post-marked 6:01PM, it will be reduced automatically by 10 points. If the class meets in the class room, students must be ready to hand the assignment in at the start of class time.
- Incompletes will NOT be issued except under very extreme personal conditions that have been reviewed by the instructor and in consultation with the Dean.

**POINTS TO NOTE FOR SUCCESS**

1. **Rigor**: This course will move along at a quick pace, being organized around a collection of weekly chapter readings and design exercises related to HCI theory and application. Though this course is an introduction to the HCI for graduates, it attempts to become as specific as possible about the major models and concepts of interaction design.

2. **Accountability**: Assignments and projects are not merely for learning but also a test of your character whereby diligence and accountability are required.

3. **Cooperation and Communication**: Good cooperation with the instructor is vital for maintaining a high degree of productivity and harmony in weekly assignments and during class time. Oral and written communication is an important part of this course.

4. **Creativity**: This course demands not only a weekly response to assignments, but also some degree of creativity in product design and concept development. This is actually one of the more exciting and dynamic aspects of the course, where students have a chance to develop products where they can apply much of the theory gained during the weekly assignments.

**GRADING**

1. **Weekly Quizzes on the Textbook** 10%
2. **Class Participation (individual)** 5%
3. **Weekly contribution to group project (individual)** 10%
4. **Midterm Team Presentation**
   Midterm Project Presentation (individual contribution) 10%

**12.5%**
Midterm Project Presentation (group) 2.5%

5. **Final Team Presentation** 12.5%
   - Final Project Presentation (individual contribution) 10%
   - Final Project Presentation (group) 2.5%

6. **Team Midterm Project Report** 25%
7. **Team Final Project Report** 25%

   \[\text{Final class grade (individual)}\] 100%

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**GRADE SCALE**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>97 - 100</td>
<td>[outstanding achievement]</td>
</tr>
<tr>
<td>A</td>
<td>93 - 96.99</td>
<td>[excellent achievement]</td>
</tr>
<tr>
<td>A-</td>
<td>90 - 92.99</td>
<td>[very good work]</td>
</tr>
<tr>
<td>B+</td>
<td>87 - 89.99</td>
<td>[good work]</td>
</tr>
<tr>
<td>B</td>
<td>83 - 86.99</td>
<td>[marginal work]</td>
</tr>
<tr>
<td>B-</td>
<td>80 - 82.99</td>
<td>[very marginal work]</td>
</tr>
<tr>
<td>C+</td>
<td>77 - 79.99</td>
<td>[unsatisfactory work]</td>
</tr>
<tr>
<td>C</td>
<td>73 - 76.99</td>
<td>[unacceptable work]</td>
</tr>
</tbody>
</table>

**DESCRIPTION OF GRADE COMPONENTS AND EXPECTATIONS**

1. **Weekly Quizzes**
   Important information regarding your online quizzes:
   1. Quizzes will be available only on OnCourse. They cover the reading material (textbook chapters), so they will open one week before the scheduled in-class time, and close when the scheduled in-class session begins. If, for example, the in-class session begins on Thursday at 6 p.m., the quiz will be scheduled to shut down at exactly 6 p.m. that day.
   2. Quizzes will be automatically closed after the deadline, and will not be re-opened for late completion.
   3. Quizzes will generally include ca. 15 multiple choice and/or True/False questions, concerning the weekly reading.
   4. You will be given about 1.5 minutes per question to complete the quiz; about 20 minutes for 15 questions.
   5. As mentioned above, the time limit expires OnCourse will close and submit the quiz if you have not done so yourself.
   6. It is better to leave unsure questions to the end and then go back, if you have more time.

2. **Class Participation (individual).**
   The participation grade is based on the evaluation of the performance of the following activities:
(a) completeness and punctuality of weekly written discussion points. Each week, each student needs to study the reading assignments and post on OnCourse 1 interesting discussion point (one or two paragraphs) for each weekly reading assigned (either a book chapter, paper or report). The discussion points should demonstrate original, intellectual elaboration on the subject and that you have studied and master the entire content of the reading. For example, discussion points can pertain:: a relevant example of a practical application, a connection with an HCI topic or event of particular relevance, a reference (with explanation) to a related resource found, a supportive argument or a counter-argument to the topics discussed in the readings.

⇒ Discussion points must be HIGH QUALITY!
NO: “I find this interesting” or just rephrasing in your own words what you read. Avoid reading the book chapter at the last minute and post some superficial comments. This will easily result in a lower Participation Grade. Comments must be salient and demonstrate an articulate and mature perspective on the topic.

The question may come from a student’s professional/ personal experience, curiosity/interest or lack of clarity regarding some theory or practice. They may also challenge the class with a problem derived from the theory and/or best practice that would force the class to reflect on the application of the theory. In each case, each student MUST note at the conclusion of the question, where in the text the question or problem is derived from. For example: Is the waterfall lifecycle model really outdated for today’s application in the IT industry? In either case, give a reason for your answer or another model that is more fitting. (pp. 187-188)

⇒ Discussion points must be posted on OnCourse/Messages by 12 noon of class day. Subject of each posted message:
Smith_WK3_Paper-Title

⇒ Each discussion point message must be addressed to “All Participants” (select recipients list option “All Participants”), otherwise it will be considered missing.

Weekly readings (book chapters) are indicated in the weekly schedule (last section) of this syllabus and are made available either as web links from the Weekly Schedule or as resources in OnCourse/Resources.

(b) Each week, each in class student is expected to come prepared in class in relation with the entire reading assignments (ENTIRE CHAPTER, for example, even if only one section has been assigned for discussion), to support the discussion points raised and to engage in purposeful discussion.

(c) Demonstrated weekly reading preparation, proactive participation in class discussion, quality of questions posed during project presentations.
3. **Weekly contribution to group project (individual).** Each project team must deliver every week the due deliverables expected for the project (see Project Instructions Document). In each weekly team activity, each student is expected to give his/her substantial contribution, which is individually graded. This individual grade is based on the evaluation of the following tasks:

   **(a) Individual Weekly Self-Report:** by each weekly deadline, each student must share with the team members and upload in the Team Folder a brief (max half page) self-report indicating the *individual work done during the week*:
   - *Activities* accomplished during the week
   - *Results* obtained (pointing to deliverables/document/part of documents uploaded in the Team folder.

   (b) Each team is responsible to share fairly the weekly workload for the project. Insufficient, late or missing self-report is lack of evidence of substantial, individual contribution to the weekly team work and will result in a lower individual grade. A pattern of missing weekly self-reports can lead to separation from the team and failure in the class.

   (c) Additional ways to show and **demonstrate individual contribution** are the following:
   - Each week, students take turns in leading the discussion with the instructor to showcase the evidence of the weekly progress (documents produced, artifacts designed data collected etc.)
   - Each student does contribute to the demonstration of evidence of weekly contribution.

   (d) Individual contribution must fit well in a **coordinated effort** among team members to weekly share responsibility for the project task assigned.

4. **Midterm Team Presentation.** This grade is based on the evaluation of the performance of the following activity:

   (a) Individual contribution and participation to the team presentation of the midterm project. Evaluation criteria: organization/structure of the presentation, timing, richness/saliency, clarity, cohesiveness, delivery.

   (b) Quality of the team presentation as a whole. Evaluation criteria: organization/structure of the presentation, timing, richness/saliency, clarity, cohesiveness, delivery.

5. **Final Team Presentation.** This grade is based on the evaluation of the performance of the following activity:

   (c) Individual contribution and participation to the team presentation of the final project. Evaluation criteria: organization/structure of the presentation, timing, richness/saliency, clarity, cohesiveness, delivery.

   (d) Quality of the team presentation as a whole. Evaluation criteria: organization/structure of the presentation, timing, richness/saliency,
clarity, cohesiveness, delivery.

6. **Midterm Project Report.** See *Project Description Document* for details on project DELIVERABLES DUE week by week and evaluation criteria.

   ➔ **Weekly Project Parts must be submitted on OnCourse / respective Team Folder by class time (6.00 PM)**

7. **Final Project Report.** See *Project Description Document* for details on project DELIVERABLES DUE week by week and evaluation criteria.

   ➔ **Weekly Project Parts must be submitted on OnCourse / respective Team Folder by class time (6.00 PM)**

**SUGGESTED SUCCESS STRATEGIES (based on evidence from past years)**

- Every week, each team **meet regularly** to work together and to share/coordinate the individual contribution at least once (preferably twice) **during the week** long before class time (not the same day). During the week, each student works individually (in constant coordination with the team) or in team.
- In class, each week, during the project meeting with the instructor in class, each team **brings in writing (on paper) evidence of the weekly deliverable produced**.
- Each student is responsible to **share responsibility fairly** among the group and to resolve internal conflicts.
- If major conflicts within the group arise, and students are not able to solve these conflicts, the **whole group** must meet the instructor to devise a working strategy.
- Reflect, apply and think how to **integrate the course theory** and lectures into your project ideas and strategies.
- **Keep looking** and studying **external resources**, including websites, magazine, newsletters, academic papers (see HCI Resources at the end of the Syllabus), as well as research and market trends in HCI, interactive technologies and computing. Maturely and critically integrate this input in your project ideas and strategies.
- **Know and be familiar** with the **work of each individual student** in your team. Show a mature and professional attitude in sharing responsibility.
- Pay attention to details without not losing the big picture in your project deliverables. Balance craft, saliency and professional communication in your documentation, interface design and technological implementation.

**ROAD TO FAILURE IN PROJECTS (based on evidence from past years)**

- Meet with your group only at the last minute before class (or the same day) to patch things up and quickly integrate material and deliverables. This typically results in low quality deliverables, poor work integration within the team, clear evidence of disorganization and lack of coordination, unprofessional work, and lower grade.
- Missing to fulfill one or more points indicated in the Suggested Strategies for Success.
WEEKLY SCHEDULE
This schedule is ONLY a general outline of weekly activities. Please refer to the weekly deliverables on the project description documents available on OnCourse for accurate and detailed information regarding project assignments, weekly project deliverables.

<table>
<thead>
<tr>
<th>Wks</th>
<th>Chapter Covered</th>
<th>Weekly Quiz</th>
<th>General Class &amp; Project Activity</th>
<th>Project Stage Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ch 1</td>
<td>Quiz 1 – Ch 1</td>
<td>Course Introduction, Lecture, Explain Midterm Project</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ch 2 &amp; 9</td>
<td>Quiz 2 – Ch 2 &amp; 9</td>
<td>Lecture, Discussion and Project Meetings</td>
<td>Begin early development of product problem space for delivery on Week 3.</td>
</tr>
<tr>
<td>3</td>
<td>Ch 10</td>
<td>Quiz 3 – Ch 10</td>
<td>Lecture, Discussion and Project Meetings</td>
<td>I. Problem space</td>
</tr>
<tr>
<td>4</td>
<td>Ch 11</td>
<td>Quiz 4 – Ch 11</td>
<td>Lecture, Discussion and Project Meetings</td>
<td>II. Design Conceptualization</td>
</tr>
<tr>
<td>5</td>
<td>Ch 12</td>
<td>Quiz 5 – Ch 12</td>
<td>Lecture, Discussion and Project Meetings</td>
<td>III. Identifying needs &amp; establishing requirements</td>
</tr>
<tr>
<td>6</td>
<td>Ch 13</td>
<td>Quiz 6 – Ch 13</td>
<td>Lecture, Discussion and Project Meetings</td>
<td>IV. Developing alternative prototype designs A. Sketching and Paper prototyping</td>
</tr>
<tr>
<td>7</td>
<td>Ch 7</td>
<td>Quiz 7 – Ch 7</td>
<td>Lecture, Discussion and Project Meetings</td>
<td>B. Dynamic prototyping</td>
</tr>
<tr>
<td>8</td>
<td>Ch 14</td>
<td>Quiz 8 – Ch 14</td>
<td>Lecture, Discussion and Project Meetings</td>
<td>V. Evaluating designs: Assessment of Findings Finish evaluation and begin writing Midterm Report</td>
</tr>
<tr>
<td>9</td>
<td>None</td>
<td>-- Midterm Presentation -- Explain Final Project</td>
<td>IVI. Presenting your Project Midterm Product &amp; Report Due Midnight October 22th</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Ch 4 &amp; 6 + additional reading (video)</td>
<td>Quiz 9 – Ch 4 &amp; 6</td>
<td>Lecture, Discussion and Project Meetings</td>
<td>I. Problem Space and Requirements</td>
</tr>
<tr>
<td>11</td>
<td>Ch 3 &amp; 5</td>
<td>Quiz 10 – Ch 3 &amp; 5</td>
<td>Lecture, Discussion and Project Meetings</td>
<td>II. Design A. Conceptualization</td>
</tr>
<tr>
<td>12</td>
<td>Ch 15</td>
<td>Quiz 11 – Ch 15</td>
<td>Lecture, Discussion and Project Meetings</td>
<td>B. Paper Prototyping &amp; Cognitive Walkthrough</td>
</tr>
<tr>
<td>13</td>
<td>Ch 8</td>
<td>Quiz 12 – Ch 8</td>
<td>Lecture, Discussion and Project Meetings</td>
<td>C. Dynamic Prototype</td>
</tr>
<tr>
<td>14</td>
<td>Thanksgiving Recess – NO CLASSES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>None</td>
<td>In-Depth Project Review Meetings</td>
<td>C. Dynamic Prototype (cont.)</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>None</td>
<td>Final Presentation</td>
<td>III. Validation: External Evaluator and Design Feedback</td>
<td></td>
</tr>
</tbody>
</table>

--- END OF CLASSES ---

Dec. 12th Final Report Due Final Product & Report Due (Due by Midnight end of the day)

⇒ Dec. 21 Final Fall Grades Available on OneStart (by Registrar)

QUICK TASK REMINDER FOR EACH WEEK --- By each class date:

- Study in-depth all weekly Readings
- Complete Online quiz by 6pm class time
- Post Weekly Project Deliverable (as Team) by 6pm class time
- Complete and post weekly self-report
- Post Class Discussion Points by 12 noon class day
OTHER UNIVERSITY-WIDE POLICIES

Bringing your children to class: University Policy states that: “Children are not permitted to attend class with parents, guardians, or childcare providers. This conduct has the effect of unreasonably interfering with an individual’s work or academic performance creating an offensive learning environment.” “A student must not violate course rules as contained in a course syllabus, which are rationally related to the content of the course or to the enhancement of the learning process in the course.” [Code of Student Rights, Responsibilities, and Conduct, page 29]

Academic Dishonesty / Integrity / Plagiarism: Using another student’s work on a project or assignment, cheating on a test, or any other form of dishonesty or plagiarism will result in a grade of zero on that assignment and possibly an "F" in the course, and will be referred to the Dean of Students. All students should aspire to high standards of academic honesty. This class encourages cooperation and the exchange of ideas. For further reference, students may see: [http://life.iupui.edu/dos/code.htm](http://life.iupui.edu/dos/code.htm).

Values and ethics: Profanity or derogatory comments about or towards the instructor or any member of the class will NOT be tolerated. Violating this rule will result in a warning and if the offense continues, administrative action will be taken.

Code of Student Rights, Responsibilities and Conduct: All students are responsible for reading, understanding, and applying the Code of Student Rights, Responsibilities and Conduct of IUPUI. (students can access www.iupui.edu/code for further information regarding the above points)

Disabilities Policy: In compliance with the Americans with Disabilities Act (ADA), all qualified students enrolled in this course are entitled to "reasonable accommodations." Please notify the instructor during the first week of class of any accommodations needed for the course. Students with learning disabilities must provide written verification for this policy to be recognized.
IMPORTANT HCI RESOURCES AND ADDITIONAL READINGS

Human-Computer Interaction is a rapidly expanding and growing field. It is inspired by many disciplines, it has several “souls” and grows in many, different directions. Hundreds of books on HCI-related aspects are available and new ones are constantly published. I provide here some starting points to follow interesting trends in this growing body of knowledge, both from the academic perspective, and from an HCI designer’s perspective.

A. Selected Academic Conferences, Journal and Magazines in HCI

- ACM Digital Library: full access to most of the published HCI literature (and a broad range of other computing fields). [http://portal.acm.org/](http://portal.acm.org/)
  Free access to full PDF papers when accessed from within IUPUI network.


- ACM Interactions. *Interactions* magazine on ACM Digital Library (full papers accessible available from IUPUI campus network) - [http://interactions.acm.org](http://interactions.acm.org)

- ACM Annual SIG-CHI Conference (known as “CHI”). the full proceedings of the premiere annual conference in Human-Computer Interaction are available on ACM Digital Library (full papers accessible available from IUPUI campus network) [http://portal.acm.org/event.cfm?id=RE151&CFID=20228246&CFTOKEN=78782895](http://portal.acm.org/event.cfm?id=RE151&CFID=20228246&CFTOKEN=78782895)

- Other relevant international annual HCI conferences where all graduate students are encouraged to proactively and periodically submit to and publish their work:
UIST: Annual ACM Symposium on User Interface Software and Technology  
http://www.acm.org/uist/

RecSys: ACM Conference on Recommender Systems  
http://www.recsys.acm.org/

C&C: Creativity and Cognition  
http://dilab.gatech.edu/ccc/index.html

ITS: Interactive Tabletops and Surfaces  

HCI International Conference Series  
http://www.hci-international.org/

SIGDOC: ACM International Conference on Design of Communication  
http://www.sigdoc.org/

PERVASIVE: International Conference on Pervasive Computing  
http://pervasiveconference.org/2012/

More ACM SIGCHI conferences:  
http://www.sigchi.org/conferences/calendarofevents.html

- **Human-Computer Interaction Journal**: the leading journal in the HCI field. Papers are freely accessible through IUPUI library here.  
  Journal website:  

- **ACM TOCHI**: ACM Transactions in Human-Computer Interaction  
  - http://portal.acm.org/citation.cfm?id=J756&picked=prox

**B. Selected Web, Interaction Design, and Usability-related newsletters, blogs, and sites.**

I suggest subscribing to the newsletters and periodically checking these resources to follow some trends in the field.

- Jakob Nielsen’s website: http://www.useit.com
- User Interface Engineering and Jared Spool: http://www.uie.com
- Online Marketing and Design: http://blog.clickz.com
- Interaction Design at Cooper: http://www.cooper.com/journal
• Usability Professionals’ Association: http://www.upassoc.org
• Instructor’s Blog (Communication, Design and Usability): http://bolchini.blogspot.com
• Indiana Chapter of the Usability Professionals’ Association: http://indiana-upa.org/
• Interesting open-access HCI Encyclopedia, in progress:
  o http://interaction-design.org/encyclopedia/

C. Ample Selection of HCI Job Banks

The market of interactive applications development - in a growing number of domains - is increasingly acknowledging the fundamental role played by HCI experts to design successful user experiences and products. Here is just a small selection of job banks with job announcements looking for open HCI-related positions worldwide:

http://www.upassoc.org/usability_resources/jobs/
http://www.job-search-engine.com/keyword/usability-design-experience
http://www.webuild.org/jobs/search.php?kword=user experience
http://beta.ixda.org/topic_jobs.php
http://informatics.iupui.edu/careers/jobs/
http://twitter.com/#!/uxdesignjobs

http://balsamiq.com/
http://www.axure.com/
http://www.justinmind.com/