

**I541**  
**Human Computer Interaction Design I**  
*Indiana University School of Informatics - IUPUI*

**Spring 2007**

**Course Info:** 3 Credit Hours | Room: IT 355 | Wednesday 5:45 – 8:25 | Section: 4073  
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Office Hours: Mon & Wed – 4:30-5:30pm and 8:25-9:25pm  
Contact Policy: Contact Dr. Faiola by phone 8am-9pm any day or email anytime.  
**Prerequisites:** None

**COURSE DESCRIPTION**

This 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 design and usability testing of interactive systems.

**REQUIRED COURSE TEXT**

**Title:** Interaction Design: Beyond Human-Computer Interaction  
**Author:** Preece, Rogers, and Sharp  
**Edition:** 1st  
**Copyright:** 2002  
**ISBN:** 0-471-49278-7  
**Publisher:** John Wiley and Sons  
**Web site:** <http://www.id-book.com/>

**Title:** Developing effective research proposals  
**Author:** Keith Punch  
**Edition:** 1st  
**Copyright:** 2000  
**Publisher:** Sage  
**ISBN:** 0-7619-6355-3  
**Purchase:** Online from Publisher or Amazon  
**Site:** <http://www.sagepub.co.uk/book.aspx?pid=104010>

**Title:** Research Design: Qualitative & Quantitative Approaches  
**Author:** John W Creswell  
**Edition:** 1st  
**Copyright:** 1994  
**Publisher:** Sage  
**ISBN:** 0-8039-5255-4  
**Purchase:** Online from Publisher or Amazon

**Title:** Understanding Research Methods: An Overview of the Essentials  
**Author:** Mildred L. Patten  
**Edition:** 2<sup>nd</sup> Edition  
**Copyright:** 2000  
**Publisher:** Pyrczak Publishing  
**ISBN:** 1-884585-22-1  
**Purchase:** Online from Publisher or Amazon

**Oncourse:** Research papers on the subject of HCI provided online (posted on Oncourse)  
**Authors:** Varied

## **EXPANED COURSE DESCRIPTION**

The study of human-computer interaction (HCI) is related to the interaction between humans and technology, which is the focus of this course. 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. The study of HCI has become increasingly important as a number of application software for desktop and mobile devices continues to rise in use in the home and workplace. In fact, it is now generally recognized that the nature and quality of user interactions be considered integral to the design and development of all interactive systems and devices. The graphic user interface (GUI), a key design component to HCI, functions at the intersection of people and machines. Growing emphasis has been placed on the design and usability of the GUI as a critical point of interaction that allows the user to acquire and manipulate information.

## **COURSE OBJECTIVES / OUTCOMES**

The course objectives of this course will include each graduate student acquiring 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-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)
  - System requirements and product assessments
  - Interface design principles and processes
  - Prototype design basics: theory and practice
  - Product usability evaluations and testing methods
2. Related to applying HCI theory and principles 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. (See project description for more details.)
  - Apply evaluation and usability testing methods to interactive products to validate design decisions

## **COURSE TEXT, READING, and CLASS DISCUSSIONS**

### **Assessing Your Competence of the Reading Material:**

We will cover one chapter per week from the course text, in addition to supplemental readings in human computer interaction. Each student should not only read but arrive at a competent understanding of the materials. Three measures will be used to assess learning competency from the weekly readings:

1. Weekly discussions, directed by specific questions, will be given in an open class discussion format. During this time the instructor will challenge student comprehension, while adding practical applications to the theoretical content.
2. Weekly quizzes will be given to assess learning and comprehension, as well as to determine if students are doing the reading.
3. A final paper or project report will be assigned in which students will summarize and integrate theories and case studies from the semester-long reading assignments.

### **Class Lectures and Discussion:**

The purpose of the class lectures to provide ONLY a very brief overview of the chapter and to help stimulate discussion. Questions generated by the students and the class discussion will be necessary to provide more depth to the issues in each chapter.

After all students have read the weekly reading assignment, students will take turns each week playing the role

of discussion leader. This will happen two or three times in the semester. Whatever teams are responsible to lead the discussion, they must do the following:

1. Come prepared to class to provide questions that can help the class into the content of the chapter.
2. Prepare 8-10 key points to discuss from the chapter reading – in the form of questions.
3. The question will be handed out at the start of class each week. (Students will have time to consider each of the points and prepare themselves to respond. They may discuss with one another if problems arise during the review period.)
4. Discussion Time: After the class has been given their points, they will have 10 minutes to review and prepare for the class discussion. (This time is NOT for reading the chapter materials, but ONLY for assessing who will cover what.) The class discussion time should be very interactive. The discussion team leaders will lead the discussion and approve or disapprove the responses from the class. However, the atmosphere of the discussion should be informal. Limit the total discussion to about 45-50 min. The instructor will provide support throughout the discussion.

## COURSE GRADE BREAKDOWN

### 60% Team Portion of Grade

- |                   |     |
|-------------------|-----|
| • Midterm Project | 15% |
| • Midterm Report  | 10% |
| • Final Project   | 25% |
| • Final Report    | 20% |

### 40% Individual Portion of Grade

- |                                   |     |
|-----------------------------------|-----|
| • Project Team Assessment         | 5%  |
| • Class & Project participation * | 25% |

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### \*Participation and engagement observed during class time:

- Quiz/Test scores account for 50% of participation
- Responsive and knowledgeable of text material during open discussions
- Evidence of active preparation in team and class discussions.
- Evidence of active preparation in team projects and report development.
- Class attendance and promptness to class on time.
- Attitude and investment in the course as a whole.

## GRADE SCALE

Letter grade	Percentage
A+ A A- B+ B B- C+ C	97-100 93-96.99 90-92.99 87-89.99 83-86.99 80-82.99 77-79.99 73-76.99

## GRADING PRINCIPLES & POLICIES

**Evaluation Forms:** Students should review all grading forms that will be used by the instructor to grade projects, presentations, papers, and other assignments, as well as the forms used by teams to assess one another. Please see the course web site under the section called “Evaluation Forms.” These documents will show you the checklist and criteria by which each class assignment will be evaluated.

**Grade Review at the Midterm:** Students will be shown their midterm grades after the midterm project has been evaluated. If students want to see their grades at any other time during the semester, they should contact the Instructor by email and the Instructor will send them the grades by email.

## 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:** Team and individual assignments and projects are not merely for learning but also a test of your character whereby diligence and accountability to the assignments and your teammates will be assessed.
3. **Cooperation and Communication:** Cooperation with the instructor and teammates (if applicable) is vital for maintaining a high degree of productivity and harmony in weekly team assignments and during class time. Oral and written communication is an important part of this course. We will have weekly open discussion sessions, small group discussions about reading materials and your projects, projects reports, and a short course paper. The reports provide a way to explain in detail the theoretical and practical aspects of each project.
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.

## POLICIES *for* ATTENDANCE & ASSIGNMENT/PROJECT DEADLINES

1. **Missing class WILL affect your grade.** 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 entire evening of class. The grade reduction policy works in this way.
  - a. On the third missed class your final grade will drop 5 points (regardless of the reason).
  - b. On the fourth missed class your final grade will drop 10 points (regardless of the reason).
  - c. On the fifth missed class a grade of "F" will be issued for the course and the student will have the option of dropping the course.
2. **Responsible for all materials or content:** All material covered in class or any assignments made during class are the students' responsibility. In other words, if class is missed, the student is responsible to find out what was covered, whether course content, an assignment, or a revision to a due date, time, or place of an assignment.
3. **Class Tardiness and Incompletes:** Because evening classes are so lengthy, coming late to class can also affect your grade. 15 to 60 minutes late will result in a note being recorded. An accumulation of regular tardiness could reduce your grade at the end of the class under the category of class participation, which is a % of your final grade. Two 60 minutes (or more) late will count as one missed class and will then follow the same policy as above. Incompletes will NOT be issued except under very extreme personal conditions that have been reviewed by the instructor and in some cases in consultation with the Dean's Office.
4. **Deadlines:** ALL assignment deadlines are outlined in this Syllabus. BUT are described in DETAIL in the weekly DELIVERABLES handouts. The instructor will give reminders of these dates, BUT in the end, each student is responsible for the deadline. Also, course 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:
  - a. All assignments must be ready to hand in at the designated time and place as stated on the assignment sheet, as discussed in class or communicated via email, or on the syllabus.
  - b. All assignments handed in late will be reduced 10 points for every day late (24 hrs. from the due date and time).
  - c. Not coming to class to hand in an assignment or forgetting to bring the assignment does NOT constitute a valid reason. In other words, if a student has not finished an assignment and decides to

not come to class, both the absence will be recorded and a zero grade will be assigned to the project without exception. This arrangement is especially necessary in light of team-based projects in which other teammates are usually dependent on one another to come to class with assignments finished. It is advisable that teammates keep in very close communication about project deadlines and handing in assignments.

## **OTHER IMPORTANT POLICIES**

1. **University Attendance Policy:** 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.
2. **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*]
3. **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:
  - a. [http://www.iupui.edu/~resgrad/grad/academic\\_misconduct\\_curriculum\\_subcommittee.rtf](http://www.iupui.edu/~resgrad/grad/academic_misconduct_curriculum_subcommittee.rtf).
  - b. <http://life.iupui.edu/dos/code.htm>).
4. **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.
5. **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 <http://life.iupui.edu/dos/code.htm> for further information regarding the above points)
6. **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.

## **BIBLIOGRAPHY**

The following is a representative sample of the selected readings in addition to the course text.

- Ackerman, Mark (2000): The Intellectual Challenge of CSCW: The Gap Between Social Requirements and Technical Feasibility. In *Human-Computer Interaction*, 15 (2) p. 181-203
- Myers, B., Hollan, J. Cruz, I., Bryson, S., Bulterman, D., Catarci, T., Citrin, W., Glinert, E., Grudin, J., Ioannidis, Y. (1996) Strategic directions in human-computer interaction. *ACM Computing Surveys*, 28(4):794-809.
- Faiola, A. & Matei, S. (2005). Cultural cognitive style and web design: Beyond a behavioral inquiry of computer-mediated communication. In *C. Ess & F. Sudweeks (Eds.) Culture and Computer-Mediated Communication: Toward New Understandings*.
- Faiola, A. (in press). The Design Enterprise. *Design Issues*, MIT Press.
- Grudin, J. (1994). Computer-supported cooperative work: Its history and participation. *IEEE Computer* 27(5), 19-26.
- Johnson, J., Henderson, D.A. (2002) Conceptual Models: Begin by Designing What to Design", *Interactions*, 9(1), pages 25-32.
- Marcus, A. Chen, E. (2002): Designing the PDA of the future. *Interactions*, 9 (1) p. 34-44
- Norman, D.A.: Emotion and attractive. (2002) *Interactions*, July/August, S. 36-42.
- Rogers, Y. (2006) Distributed Cognition and Communication. In *The Encyclopedia of Language and Linguistics 2nd Edition*. Edited by Keith Brown Elsevier: Oxford. 181-202. PDF version
- Rose, A., Shneiderman, B., & Plaisant, C. (1995). An applied ethnographic method for redesigning user interfaces. *DIS*, 115-122.
- Shapiro, Dan (1994): The Limits of Ethnography: Combining Social Sciences for CSCW. In: Smith, John B., Smith, F. Don, Malone, Thomas W. (ed.): *Proceedings of the 1994 ACM conference on Computer supported cooperative work*. October 22 - 26, 1994, Chapel Hill, North Carolina, United States. p.417-428.

# Course Schedule

## (Overview)

This schedule is a general outline of weekly activities. Please refer to the weekly Deliverable handout for accurate and detailed information regarding project assignments and due dates.

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### WEEK 1

#### CLASS INTRODUCTION

- Review:
- Discuss course project
- Class textbook application to class project

#### READING:

- Read Chapter 1 of Preece text.
- Read paper on OnCourse

#### PROJECT – Thesis Research Overview

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### WEEK 2

#### READING:

- Read Chapter 2 of Preece text.
- Papers:
  - Strategic Directions in Human-Computer Interaction
  - Conceptual Models: Begin by Designing What to Design

#### PROJECT:

- See Deliverables sheet for this week's specific project application.

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### WEEK 3

#### READING:

- Preece: Chapter 6 - The process of interaction design
- Punch: Chapter 1 & 2 – Intro & The proposal
- Read paper on OnCourse

#### PROJECT:

- See Deliverables sheet for this week's specific project application.

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### WEEK 4

#### READING:

- Chapter 7 - Identifying needs and establishing requirements
- Punch: Chapter 3 – General framework of the developing proposals
- Read paper on OnCourse

#### PROJECT:

- See Deliverables sheet for this week's specific project application.

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**WEEK 5**

**READING:** [Read only selected portions of chapters]

- Chapter 8 - Design, Prototyping...
- WK 5 - Marcus - Designing the PDA of the future (on Oncourse)

**PROJECT:**

- See Deliverables sheet for this week's specific project application.

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**WEEK 6**

**READING:**

- **Chapter 9:** User-centered approaches to interaction design (ONLY to p. 307)
- **Chapter 15:** Design and evaluation in the real world  
ONLY Read pp. 461-468
- **Paper** - An applied ethnographic method for redesigning user interfaces (on Oncourse)

**PROJECT:**

- See Deliverables sheet for this week's specific project application.

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**WEEK 7**

**READING:**

- **Chap. 10 – Introducing Evaluation,** What, why, and when
- **Chap. 11 – An Evaluation Framework**

**PROJECT:**

- See Deliverables sheet for this week's specific project application.

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**WEEK 8**

**READING:**

- No reading this week.

**PROJECT:**

- See Deliverables sheet for this week's specific project application.

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**WEEK 9**

**Midterm Project and Presentation This Week  
&  
REVIEW OF FINAL PROJECT**

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**WEEK 10**

**READING:**

- Chapter 3
- Paper: Computer Supported Cooperative (CSCW): History & Focus

**PROJECT:**

- See Deliverables sheet for this week's specific project application.

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**WEEK 11****READING:**

- Chapter 4
- Paper: The Intellectual Challenge of CSCW- The Gap Between Social Requirements and Technical Feasibility

**PROJECT:**

- See Deliverables sheet for this week's specific project application.
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**WEEK 12****READING:**

- Chapter 12
- Paper: Research in Social Computing- Approaches and New Di

**PROJECT:**

- See Deliverables sheet for this week's specific project application.
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**WEEK 13****READING: To be announced.****PROJECT:**

- See Deliverables sheet for this week's specific project application.
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**WEEK 14****READING: To be announced.****PROJECT:**

- See Deliverables sheet for this week's specific project application.
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**WEEK 15****READING: No reading.****PROJECT:**

- See Deliverables sheet for this week's specific project application.
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**WEEK 16****– LAST DAY OF CLASS**

- Team Presentations of final project
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**WEEK 17****– WED. BY NOON (SHARP)**

- Final Project and Report Due
- Delivered to teacher's office