INFO-I 275
Introduction to Human-Computer Interaction Theory

Department of Human-Centered Computing
Indiana University School of Informatics and Computing, Indianapolis
Fall 2019

Section No.: 26148 – Online Section – 3 credit hours
Start Date: Monday, August 26, 2019
Canvas Link: https://iu.instructure.com/courses/1840560

Instructor: Mark Larew, PhD, Professor of Practice
Office: WK 116 – Walker Plaza, 719 Indiana Avenue, Indianapolis, IN 46202
Office Hours: By appointment – contact via Canvas email to schedule
Office Phone: 317-278-4141
Email: Canvas email (preferred) or mlarew@iupui.edu

Teaching Assistant(s): To be announced via Canvas

Prerequisites: None (not an extension of any undergraduate or graduate course)

COURSE DESCRIPTION
Students will learn about fundamental theories of human-computer interaction (HCI) and user-centered design. This course provides both a survey of HCI research and an introduction to the knowledge and techniques from psychological, behavioral, and social sciences that are relevant to the design of interactive and ubiquitous computing systems.

Required Text:
Title: Cyberpsychology: An Introduction to Human-Computer Interaction, 2nd Edition (2017)
Author(s): Norman, Kent L.
Publisher: Cambridge University Press
ISBN: 9781107500556 (paperback), 9781108215893 (ebook)

You can get the paperback version of the textbook via the IUPUI Barnes & Noble store (http://iupui.bncollege.com) or other bookseller. An electronic version is also available from some booksellers (e.g., ebooks.com).

The IUPUI Library has a hard cover version of the textbook on reserve for this course. This book can be checked out to read at the library for 2 hours at a time.
Course Learning Outcomes:
On completion of the course, students will be able to:

1. Describe the impact of the increasing levels of interactions of humans and computers on HCI theories, models and principles.
   *Assessments: Discussion Points, Exercises*
2. Precisely identify, understand and define key HCI principles.
   *Assessments: Quizzes, Tests*
3. Describe elements of human information processing and cognitive processes that apply to human-computer interactions.
   *Assessments: Test 1, Project 1*
4. Describe ways in which goals and motivations of humans are relevant to HCI design of applications that support a variety of activities.
   *Assessments: Discussion Points, Exercises, Test 2*
5. Describe potential benefits and potential negative effects of human-computer interactions.
   *Assessments: Exercises, Test 3*
6. Present an analysis of HCI theoretical principles relevant to emerging HCI-related technology (e.g., augmented reality).
   *Assessments: Exercises, Test 3, Project 2*

Program-level Learning Outcomes (PLOs)

**B.S. in Informatics**
Please visit [https://soic.iupui.edu/undergraduate/degrees/informatics/learning-outcomes/](https://soic.iupui.edu/undergraduate/degrees/informatics/learning-outcomes/) to view the complete list of the program-level learning outcomes for the B.S. in Informatics. This course is designed to address primarily the following Informatics PLOs:

- **A6.** Evaluate and create interfaces by applying user experience design principles, methods, and theories
- **D3.** Define terms and explain principles essential to the design of IT and computing systems
- **E1.** Analyze the social, cultural, and organizational settings in which IT solutions will be deployed to achieve successful implementations
- **E2.** Interpret major societal trends affecting the development and deployment of technology, such as access, privacy, intellectual property, security, and equity
- **F2.** Support the ethical and appropriate design and use of technology

**Human-Computer Interaction Certificate**
Please visit [https://soic.iupui.edu/undergraduate/degrees/hci-certificate/](https://soic.iupui.edu/undergraduate/degrees/hci-certificate/) to view the complete list of PLOs for the undergraduate Human-Computer Interaction (HCI) Certificate. This course is designed to address primarily the following HCI Certificate core competencies:

- **HCI-1.** Understanding of human-computer interaction and usability terms, concepts, principles and practices
- **HCI-5.** Interface design principles and processes; including related areas of visual design
- **HCI-6.** Cognitive and information processing
- **HCI-10.** Human-computer interaction principles and a user-centered approach to interaction design as applied to software and the Web
### Alignment of PLOs, CLOs and IUPUI Profiles of Learning for Undergraduate Success

<table>
<thead>
<tr>
<th>Program-level Learning Outcomes (Informatics/HCI)</th>
<th>Level of Knowledge*</th>
<th>Course Learning Outcomes</th>
<th>Profiles of Learning for Undergraduate Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>A6. Evaluate and create interfaces by applying user experience design principles, methods, and theories</td>
<td>I</td>
<td>2, 6</td>
<td>P2.3. Problem Solver: Analyzes, synthesizes, and evaluates</td>
</tr>
<tr>
<td>D3. Define terms and explain principles essential to the design of IT and computing systems</td>
<td>I, R</td>
<td>1, 2, 3</td>
<td>P2.1. Problem Solver: Thinks critically</td>
</tr>
<tr>
<td>E1. Analyze the social, cultural, and organizational settings in which IT solutions will be deployed to achieve successful implementations</td>
<td>I</td>
<td>4</td>
<td>P2.3. Problem Solver: Analyzes, synthesizes, and evaluates</td>
</tr>
<tr>
<td>E2. Interpret major societal trends affecting the development and deployment of technology systems</td>
<td>I</td>
<td>4</td>
<td>P2.1. Problem Solver: Thinks critically</td>
</tr>
<tr>
<td>F2. Support the ethical and appropriate design and use of technology</td>
<td>I, R</td>
<td>5</td>
<td>P4.3. Community Contributor: Behaves ethically</td>
</tr>
<tr>
<td>HCI-1. Understanding of human-computer interaction and usability terms, concepts, principles and practices</td>
<td>I</td>
<td>1, 2, 3</td>
<td>P1.1. Communicator: Evaluates information</td>
</tr>
<tr>
<td>HCI-5. Interface design principles and processes; including related areas of visual design</td>
<td>I, R</td>
<td>1, 2, 3</td>
<td>P2.1. Problem Solver: Thinks critically</td>
</tr>
<tr>
<td>HCI-10. Human-computer interaction principles and a user-centered approach to interaction design as applied to software and the Web</td>
<td>I, R</td>
<td>1, 2, 3</td>
<td>P2.3. Problem Solver: Analyzes, synthesizes, and evaluates</td>
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*Indicators of level of knowledge: I = Introduce; R = Reinforce; M = Master
EXPECTATIONS, GUIDELINES, AND POLICIES

Participation:
A basic requirement of this course is that you will conscientiously complete all required course activities and assignments by the due dates.

Only the following are acceptable excuses for absences from participation: death in the immediate family (e.g. mother, father, spouse, child, or sibling), hospitalization or serious illness; jury duty; court ordered summons; religious holiday; university/school coordinated athletic or scholastic activities; an unanticipated event that would cause participation to result in substantial hardship to one’s self or immediate family. Absences must be explained with the submission of appropriate documentation to the satisfaction of the instructor, who will decide whether missed work may be made up. Absences that do not satisfy the above criteria are considered unexcused. To protect your privacy, doctor’s excuses should exclude the nature of the condition and focus instead on how the condition impacts your attendance and academic performance.

Incomplete:
The instructor may assign an Incomplete (I) grade only if at least 75% of the required coursework has been completed at passing quality and holding you to previously established time limits would result in unjust hardship to you. All unfinished work must be completed by the date set by the instructor. Left unchanged, an Incomplete automatically becomes an F after one year, see http://registrar.iupui.edu/incomp.html

Deliverables:
You are responsible for completing each deliverable (exercise, test, project deliverable) by its due date. Due dates are listed in this syllabus and on Canvas. In fairness to the instructor and students who completed their work on time, a grade on a deliverable will be reduced 10% if it is submitted 1 to 24 hours after the deadline and an additional 10% for each additional 24-hour period after the deadline.

Grading Information:
The breakdown of assessed items is shown below.

<table>
<thead>
<tr>
<th>Points</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Introduction</td>
<td>10</td>
</tr>
<tr>
<td>Quizzes</td>
<td>100</td>
</tr>
<tr>
<td>Discussion Points</td>
<td>150</td>
</tr>
<tr>
<td>Exercises</td>
<td>240</td>
</tr>
<tr>
<td>Projects</td>
<td>200</td>
</tr>
<tr>
<td>Tests</td>
<td>300</td>
</tr>
</tbody>
</table>

Grading Scale:
A+ 97.00-100% Professional level work, showing highest level of achievement
A 93.00-96.99% Extraordinarily high achievement, quality of work; shows command of the subject matter
A– 90.00-92.99% Excellent and thorough knowledge of the subject matter
B+ 87.00-89.99% Above average understanding of material and quality of work
B 83.00-86.99% Mastery and fulfillment of all course requirements; good, acceptable work
B– 80.00-82.99% Satisfactory quality of work
C+ 77.00-79.99% Modestly acceptable performance and quality of work
C 73.00-76.99% Minimally acceptable performance and quality of work
C– 70.00-72.99% Unacceptable work (Course must be repeated for credit)
D+ 67.00-69.99% Unacceptable work (Course must be repeated for credit)
D 63.00-66.99% Unacceptable work (Course must be repeated for credit)
D– 60.00-62.99% Unacceptable work (Course must be repeated for credit)
F < 60% Unacceptable work (Course must be repeated for credit)

No credits toward major, minor, or certificate requirements are granted for a grade below C.
SCHEDULE
An initial schedule is presented below. The schedule will be maintained and updated on Canvas. Please confirm due dates for assignments on Canvas and set reminders as needed.

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates (end dates are Wednesdays)</th>
<th>Instructor Presentations</th>
<th>Exercises, Project Deliverables, Tests</th>
<th>Reading/Discussion Point Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Aug 26 – Sept 4</td>
<td>Introduction, Syllabus Review, Historical Background</td>
<td>Week 1 Exercise</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>Week 2</td>
<td>Sept 5 – 11</td>
<td>Theoretical Models, Classical HCI Theory, Research</td>
<td>Week 2 Exercise</td>
<td>Ch 3, Ch 4</td>
</tr>
<tr>
<td>Week 3</td>
<td>Sep 12 – 18</td>
<td>Human Information Processing, Learning and Memory</td>
<td>Week 3 Exercise</td>
<td>Ch 7</td>
</tr>
<tr>
<td>Week 4</td>
<td>Sep 19 – 25</td>
<td>Thinking and Problem Solving</td>
<td>Week 4 Exercise</td>
<td>Ch 8</td>
</tr>
<tr>
<td>Week 5</td>
<td>Sep 26 – Oct 2</td>
<td></td>
<td>Test 1</td>
<td></td>
</tr>
<tr>
<td>Week 6</td>
<td>Oct 3 – Oct 9</td>
<td>Second Wave HCI, Activity Theory, Contextual Inquiry, Project 1 Introduction</td>
<td>Week 6 Exercise</td>
<td>Review Section 3.5.3 in Chapter 3</td>
</tr>
<tr>
<td>Week 7</td>
<td>Oct 10 – Oct 16</td>
<td>Motivation, Emotion and Affective Computing</td>
<td>Week 7 Exercise</td>
<td>Ch 11</td>
</tr>
<tr>
<td>Weeks 8-9 (Fall Break)</td>
<td>Oct 17 - 30</td>
<td>Social Media and Interpersonal Relations</td>
<td>Week 8/9 Exercise</td>
<td>Ch 12</td>
</tr>
<tr>
<td>Week 10</td>
<td>Oct 31 – Nov 6</td>
<td></td>
<td>Test 2 Project 1 Report</td>
<td></td>
</tr>
<tr>
<td>Week 11</td>
<td>Nov 7 – 13</td>
<td>Assistive Technologies, Virtual Environments, Project 2 Introduction</td>
<td>Week 11 Exercise</td>
<td>Ch 15, Ch 6</td>
</tr>
<tr>
<td>Week 12</td>
<td>Nov 14 – 20</td>
<td>Automation and Artificial Intelligence</td>
<td>Week 12 Exercise</td>
<td>Ch 14</td>
</tr>
<tr>
<td>Weeks 13-14 (Thanksgiving Break)</td>
<td>Nov 21 – Dec 4</td>
<td>Video Games and Gamification</td>
<td>Week 13/14 Exercise</td>
<td>Ch 16</td>
</tr>
<tr>
<td>Week 15</td>
<td>Dec 5 – 11</td>
<td>The Future of HCI</td>
<td></td>
<td>Ch 19</td>
</tr>
<tr>
<td>Week 16</td>
<td>Dec 12 – 18</td>
<td></td>
<td>Test 3 Project 2 Report</td>
<td></td>
</tr>
</tbody>
</table>
Schedule/Assignment Notes:

- Most weeks are set up to start on Thursday and end the following Wednesday. There are exceptions for the start of the semester, Fall Break, and Thanksgiving Break.
- Instructor presentations are posted to assignments on Canvas. The slides for each presentation are posted under “Files” on Canvas.
- It will be helpful to complete the reading assignment for the week before viewing the instructor presentation(s) for the week.
- For weekly Discussion Point assignments related to the reading assignments, each student should post at least one significant discussion point – only 1 or 2 paragraphs, but noting an implication of something you read or heard and perhaps connecting it to a specific example from your experience. A Discussion Point is expected not to be a summary of the entire reading. Instead, select a topic of interest to you and focus on that topic. After posting your discussion point, you should read other students’ discussion points and post a reply to one of these discussion points. Your reply should include a significant comment – perhaps an example from your experience – and not only a simple statement such as “I agree” or “nice idea.”
- Details for each assignment are posted on Canvas.
- Assignment due dates are shown in the assignments on Canvas.
- Tests will be available on Canvas for at least 3 days prior to the due date so the student can take the exam any time within this period, which ends at midnight on the date the test is due.
- Projects will be completed by individual students (i.e., no group projects).

CODE OF CONDUCT

All students should aspire to the highest standards of academic integrity. Using another student’s work on an assignment, cheating on a test, not quoting or citing references correctly, or any other form of dishonesty or plagiarism shall result in a grade of zero on the item and possibly an F in the course. Incidences of academic misconduct shall be referred to the Department Chair and repeated violations shall result in dismissal from the program.

All students are responsible for reading, understanding, and applying the Code of Student Rights, Responsibilities and Conduct and in particular the section on academic misconduct. Refer to The Code > Responsibilities > Academic Misconduct at http://www.indiana.edu/~code/. All students must also successfully complete the Indiana University Department of Education “How to Recognize Plagiarism” Tutorial and Test. https://www.indiana.edu/~istd You must document the difference between your writing and that of others. Use quotation marks in addition to a citation, page number, and reference whenever writing someone else’s words (e.g., following the Publication Manual of the American Psychological Association). To detect plagiarism instructors apply a range of methods, including Turnitin.com. http://www.ulib.iupui.edu/libinfo/turnitin
Academic Misconduct:

1. **Cheating:** Cheating is considered to be an attempt to use or provide unauthorized assistance, materials, information, or study aids in any form and in any academic exercise or environment.
   a. A student must not use external assistance on any “in-class” or “take-home” examination, unless the instructor specifically has authorized external assistance. This prohibition includes, but is not limited to, the use of tutors, books, notes, calculators, computers, and wireless communication devices.
   b. A student must not use another person as a substitute in the taking of an examination or quiz, nor allow other persons to conduct research or to prepare work, without advanced authorization from the instructor to whom the work is being submitted.
   c. A student must not use materials from a commercial term paper company, files of papers prepared by other persons, or submit documents found on the Internet.
   d. A student must not collaborate with other persons on a particular project and submit a copy of a written report that is represented explicitly or implicitly as the student’s individual work.
   e. A student must not use any unauthorized assistance in a laboratory, at a computer terminal, or on fieldwork.
   f. A student must not steal examinations or other course materials, including but not limited to, physical copies and photographic or electronic images.
   g. A student must not submit substantial portions of the same academic work for credit or honors more than once without permission of the instructor or program to whom the work is being submitted.
   h. A student must not, without authorization, alter a grade or score in any way, nor alter answers on a returned exam or assignment for credit.

2. **Fabrication:** A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citation to the sources of information.

3. **Plagiarism:** Plagiarism is defined as presenting someone else’s work, including the work of other students, as one’s own. Any ideas or materials taken from another source for either written or oral use must be fully acknowledged, unless the information is common knowledge. What is considered “common knowledge” may differ from course to course.
   a. A student must not adopt or reproduce ideas, opinions, theories, formulas, graphics, or pictures of another person without acknowledgment.
   b. A student must give credit to the originality of others and acknowledge indebtedness whenever:
      1. directly quoting another person’s actual words, whether oral or written;
      2. using another person’s ideas, opinions, or theories;
      3. paraphrasing the words, ideas, opinions, or theories of others, whether oral or written;
      4. borrowing facts, statistics, or illustrative material; or
      5. offering materials assembled or collected by others in the form of projects or collections without acknowledgment.
4. **Interference**: A student must not steal, change, destroy, or impede another student’s work, nor should the student unjustly attempt, through a bribe, a promise of favors or threats, to affect any student’s grade or the evaluation of academic performance. Impeding another student’s work includes, but is not limited to, the theft, defacement, or mutilation of resources so as to deprive others of the information they contain.

5. **Violation of Course Rules**: A student must not violate course rules established by a department, the course syllabus, verbal or written instructions, or the course materials that are rationally related to the content of the course or to the enhancement of the learning process in the course.

6. **Facilitating Academic Dishonesty**: A student must not intentionally or knowingly help or attempt to help another student to commit an act of academic misconduct, nor allow another student to use his or her work or resources to commit an act of misconduct.

**OTHER POLICIES**

1. **Right to revise**: The instructor reserves the right to make changes to this syllabus as necessary and, in such an event, will notify students of the changes immediately.

2. **IUPUI course policies**: A number of campus policies governing IUPUI courses may be found at the following link: [http://registrar.iupui.edu/course_policies.html](http://registrar.iupui.edu/course_policies.html)

3. **Online civility**: To maintain an effective and inclusive learning environment, it is important to be a respectful participant in online discussions and other classroom exercises. IUPUI nurtures and promotes “a campus climate that seeks, values, and cultivates diversity in all of its forms and that provides conditions necessary for all campus community members to feel welcomed, supported, included, and valued” (IUPUI Strategic Initiative 9). IUPUI prohibits “discrimination against anyone for reasons of race, color, religion, national origin, sex, sexual orientation, marital status, age, disability, or [veteran] status” (Office of Equal Opportunity). Profanity or derogatory comments about the instructor, fellow students, invited speakers, or any members of the campus community shall not be tolerated. A violation of this rule shall result in a warning and, if the offense continues, possible disciplinary action.

4. **Course Evaluation Policy**: Course evaluations provide vital information for improving the quality of courses and programs. Students are required to complete one course and instructor evaluation for each section in which they are enrolled at the School of Informatics and Computing. This requirement has three exceptions: (a) The student has withdrawn from the course; (b) only one student is enrolled in the section (in which case anonymity is impossible); and (c) the section is a laboratory that must be taken with a course having a different section number. Course evaluations are completed at [https://soic.iupui.edu/app/course-eval/](https://soic.iupui.edu/app/course-eval/). Course evaluations are open from the eleventh week. Course evaluations are anonymous, which means that no one can view the name of the student completing the evaluation. In addition, no one can view the evaluation itself until after the instructor has submitted the final grades for the course. In small sections, demographic information should be left blank, if it could be used to identify the student. A course evaluation must close before the grade for that course can be released. To ensure students have had ample opportunity to complete the evaluation, an uncompleted course evaluation could delay the release of the grade for up to a week.
5. **Communication:** The instructor should respond to emails within 48 hours, excluding weekends and holidays, and announce periods of extended absence in advance. The instructor should provide weekly office hours or accept appointments for face-to-face, telephone, or teleconference meetings.

6. **Email:** Indiana University uses your IU email account as an official means of communication, and students should check it daily for pertinent information. Although you may have your IU email forwarded to an outside email account, please email faculty and staff from your IU email account.

7. **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 accommodations needed for the course. Students requiring accommodations because of a disability must register with Adaptive Educational Services (AES) and complete the appropriate AES-issued before receiving accommodations. The AES office is located at UC 100, Taylor Hall (Email: aes@iupui.edu, Tel. 317 274-3241). Visit [http://aes.iupui.edu](http://aes.iupui.edu) for more information.

8. **Administrative Withdrawal:** A basic requirement of this course is that students participate in all assigned discussions and conscientiously complete all required course activities and/or assignments. If a student misses more than half of the required activities within the first 25% of the course without contacting the instructor, the student may be administratively withdrawn from this course. Administrative withdrawal may have academic, financial, and financial aid implications. Administrative withdrawal will take place after the full refund period, and a student who has been administratively withdrawn from a course is ineligible for a tuition refund. Contact the instructor with questions concerning administrative withdrawal.

**MISSION STATEMENT**

The Mission of IUPUI is to provide for its constituents’ excellence in

- Teaching and Learning;
- Research, Scholarship, and Creative Activity; and
- Civic Engagement.

With each of these core activities characterized by

- Collaboration within and across disciplines and with the community;
- A commitment to ensuring diversity; and
- Pursuit of best practices.

IUPUI’s mission is derived from and aligned with the principal components—Communities of Learning, Responsibilities of Excellence, Accountability and Best Practices—of Indiana University’s Strategic Directions Charter.