

INFO-C 300 / INFO-I 300

Human-Computer Interaction

Department of Human-Centered Computing

Indiana University School of Informatics and Computing - Indianapolis

Course Description

The course will emphasize learning about human-computer interaction (HCI) based on implementation and testing of user interfaces for computer applications (e.g., websites and mobile applications). The course focuses on various forms of assessment and data analysis of user experiences with computer applications. Students learn how to design and conduct usability tests, how to collect usability metrics, how to analyze the data, how to report test results and how to use the test results to improve computer applications.

Required Textbooks:

** E-books for both textbooks are available to access free online via the IU Library website using the links below. Links to the e-books are also provided in the reading assignments on Canvas. If a link does not work for you, go to <https://iucat.iu.edu/> and search for the book title and see if you can find an alternative link that works for you. If you prefer to have physical books, both books should be available from the IUPUI Barnes and Noble bookstore or other bookstores. **

1. **Measuring the User Experience: Collecting Analyzing, and Presenting Usability Metrics, 2nd Edition**

Authors: Thomas Tullis and William Albert

Copyright: 2013

Publisher: Morgan Kaufmann

ISBN-10: 0124157815

Link to e-book via IU Library: <https://iucat.iu.edu/catalog/14696686>

2. **Moderating Usability Tests: Principles and Practices for Interacting**

Author: Joseph S. Dumas and Beth A. Loring

Copyright: 2008

Publisher: Morgan Kaufmann

ISBN-10: 0123739330 / ISBN-13: 9780123739339

Link to e-book via IU Library: <https://iucat.iu.edu/catalog/14267216>

Required Software: Microsoft Excel (used for data analysis exercises)

Course Learning Outcomes:

On completion of the course, students will be able to:

1. Describe types of metrics for measuring user experience in human-computer interaction
Assessments: Quizzes, Discussion Points, Tests
2. Analyze data from a usability test using basic statistics and graphing
Assessments: Exercises, Project 2
3. Effectively utilize written communications of both qualitative and quantitative information within the context of a team
Assessment: Discussion Points, Project 1-Part 2
4. Plan and moderate a usability test, with the ability to apply learned principles flexibly to specific test and reporting situations
Assessments: Project 1-Part 1, Project 2
5. Identify ethical issues involved in usability testing
Assessments: Test 3

Program-level Learning Outcomes (PLOs)

B.S. in Informatics

Please visit <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:

- B4. Develop insights from data and apply them to address problems and explore opportunities
- C1. Apply analytical methods for knowledge and pattern discovery and data analysis
- C3. Create effective visualizations to analyze and communicate data
- C4. Communicate insights derived from data
- F6. Work collaboratively as part of a team, including global teams

Human-Computer Interaction Certificate

Please visit <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-8. Interactive product evaluation and testing methods, both qualitative and quantitative
- HCI-11. Apply evaluation and usability testing methods to interactive products to validate design decisions

Alignment of PLOs, CLOs and IUPUI Profiles of Learning for Undergraduate Success

Program-level Learning Outcomes (Informatics/HCI)	Level of Knowledge*	Course Learning Outcomes	Profiles of Learning for Undergraduate Success
B4. Develop insights from data and apply them to address problems and explore opportunities	I, R	2	P2.3. Problem Solver: Analyzes, synthesizes, and evaluates
C1. Apply analytical methods for knowledge and pattern discovery and data analysis	I, R	1	P2.1. Problem Solver: Thinks critically
C3. Create effective visualizations to analyze and communicate data	I, R	2	P2.3. Problem Solver: Analyzes, synthesizes, and evaluates
C4. Communicate insights derived from data	I, R	3	P2.1. Problem Solver: Thinks critically
F6. Work collaboratively as part of a team, including global teams	R	3	P4.3. Community Contributor: Behaves ethically
HCI-1. Understanding of human-computer interaction and usability terms, concepts, principles and practices	I, R	1	P1.1. Communicator: Evaluates information
HCI-8. Interactive product evaluation and testing methods, both qualitative and quantitative	I	4, 5	P2.1. Problem Solver: Thinks critically
HCI-11. Apply evaluation and usability testing methods to interactive products to validate design decisions	I	4, 5	P2.3. Problem Solver: Analyzes, synthesizes, and evaluates

*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 stay up with the assignments (quizzes, discussion points, tests) for the course. The instructor is required to submit to the Registrar a record of student participation.

Only the following are acceptable excuses for non-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. Non-participation 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. Non-participation that does not satisfy the above criteria is 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.

Reduction in Score for Submissions of Assignments after the Due Date:

Each student is responsible for completing each deliverable (e.g., discussion point, quiz) by the posted due date and submitting it by the specified method. Due dates are presented in the assignments and outlined in the syllabus posted on Canvas. In fairness to the instructor and students who completed their work on time, the score for a deliverable will be reduced 10% if the deliverable is submitted late and an additional 10% for each 24-hour period that elapses after the due date before the deliverable is submitted up to 4 days. Any deliverable submitted more than 4 days after the due date will be eligible for a maximum score of 60%.

Course Grade of 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. <http://registrar.iupui.edu/incomp.html>

COURSE ASSIGNMENTS

- A Student Introduction that is due in Week 1.
- Twelve quizzes that cover the assigned readings. Each quiz will be available on Canvas and is due by midnight on the date stated in the course schedule.
- Ten discussion point assignments.
- Three tests that cover both the assigned readings and lecture material. Each test will be available on Canvas and is due by midnight on the date stated in the course schedule.
- Three individual data analysis exercises. Each exercise will be available on Canvas and the completed exercise must be submitted to Canvas by midnight on the due date stated in the course schedule.
- Two individual projects. One involves designing a usability test for an interactive product (e.g., a website or mobile app). The other involves preparation for testing a website, conducting the test, analyzing the data collected, and presentation of the results in a report.

Scoring of Assignments

Type of Assignment	Number	Maximum Score for each Assignment	Total Points Possible for Type of Assignment
Student Intro	1	10	10
Quizzes	12	5	60
Discussion Points	10	15	150
Tests	3	50	150
Exercises	3	10	30
Project 1	1	50	50
Project 2	1	50	50
TOTAL POINTS POSSIBLE:			500

Course Grading Scale:

Grade	% of Total Points	Description
A +	≥ 97.00%	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 – 69.00%	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	Below 60%	Unacceptable work (Course must be repeated for credit)

No credits toward major, minor, or certificate requirements are granted for a grade below C.

COURSE SCHEDULE

The course schedule will be maintained in Canvas. An overview is presented below.

- Recordings of instructor presentations will be available on Canvas.
- Quizzes will be available on Canvas. Each quiz is based on a reading assignment.
- Students are expected to post Discussion Points assigned on Canvas on the topics covered in the lecture recordings and readings. Each Discussion Point is only 1-2 paragraphs but should note an implication of something you read and perhaps connect it to a specific example from your experience. Students need to post a reply to at least one other student's Discussion Point.
- Tests will be available on Canvas. Each test covers a 4-week period of the course.
- Data Analysis Exercises will be available on Canvas, with instructions for conducting the analyses.

Week	Dates (end dates are Wednesdays)	Topics / Readings/ Assignments Due / Quizzes / Projects
1		<p>Post a Student Introduction on Canvas</p> <p>Read Chapter 1 in “Measuring the User Experience”</p> <p>Watch Week 1 Instructor Presentations: Course Introduction, Measurement, UX Metrics</p> <p>Complete Quiz for Chapter 1 on Canvas</p> <p>Post a discussion point on Canvas – reply to at least one discussion point on Canvas</p>
2		<p>Read Chapter 2 in “Measuring the User Experience”</p> <p>Watch Week 2 Instructor Presentation(s): Data, Statistics & Graphs</p> <p>Complete Quiz for Chapter 2 on Canvas</p> <p>Post a discussion point on Canvas – reply to at least one discussion point on Canvas</p>
3		<p>Read Chapter 3 in “Measuring the User Experience”</p> <p>Watch Week 3 Instructor Presentation(s): Types of Usability/UX Studies</p> <p>Complete Quiz for Chapter 3 on Canvas</p> <p>Post a discussion point on Canvas – reply to at least one discussion point on Canvas</p>
4		<p>Read Chapter 4 in “Measuring the User Experience”</p> <p>Watch Week 4 Instructor Presentation(s): Performance Metrics</p> <p>Complete Quiz for Chapter 4 on Canvas</p> <p>Post a discussion point on Canvas – reply to at least one discussion point on Canvas</p> <p>Complete Test 1 on Canvas</p>
5		<p>Read Chapter 5 in “Measuring the User Experience”</p> <p>Watch Week 5 Instructor Presentation(s): Issue-Based Metrics</p> <p>Complete Quiz for Chapter 5 on Canvas</p> <p>Post a discussion point on Canvas – reply to at least one discussion point on Canvas</p> <p>Submit Exercise 1 to Canvas</p>

6	<p>Read Chapter 6 in “Measuring the User Experience”</p> <p>Watch Week 6 Instructor Presentation(s): Self-Report Metrics</p> <p>Complete Quiz for Chapter 6 on Canvas</p> <p>Post a discussion point on Canvas – respond to at least one discussion point on Canvas</p> <p>Submit Exercise 2 to Canvas</p>
7	<p>Read Chapters 1, 2, 3 and 4 in “Moderating Usability Tests”</p> <p>***Note: These chapters are in the second course text book.***</p> <p>Watch Week 7 Instructor Presentation(s): Moderating Usability Tests</p> <p>Complete Quiz for Chapters 1-4 on Canvas</p> <p>Post a discussion point on Canvas – respond to at least one discussion point on Canvas</p> <p>Submit Exercise 3 to Canvas</p>
8	<p>Read Chapters 5, 6 and 7 in “Moderating Usability Tests”</p> <p>Watch Week 8 Instructor Presentations: Preparing for a Usability Test, and Conducting an In-Person Test</p> <p>Complete Quiz for Chapters 5-7 on Canvas</p> <p>Post a discussion point on Canvas – respond to at least one discussion point on Canvas</p>
9 – 10	<p>Complete Test 2 on Canvas</p> <p>Start Project 1</p>
11	<p>Read Chapters 8, 9 and 10 in “Moderating Usability Tests”</p> <p>Watch Week 11 Instructor Presentations: Remote Usability Testing, Monitor-Participant Relationship, and Diverse Populations</p> <p>Complete Quiz for MUT Chapters 8-10</p> <p>Post a discussion point on Canvas – respond to at least one discussion point on Canvas</p> <p>Post Project 1-Part 1 Task Descriptions</p>
12	<p>Read Chapters 7, 8 and 9 in “Measuring the User Experience”</p> <p>Watch Week 12 Instructor Presentations: Behavioral and Psychological Metrics, Combined and Comparative Metrics, and Special Topics in Usability Assessment</p> <p>Complete Quizzes for MUE Chapters 7 – 9</p> <p>Post a discussion point on Canvas – respond to at least one discussion point on Canvas</p> <p>Post Project 1-Part 2 Review Group Feedback</p>
13-14	<p>*** 2-week period ***</p> <p>Complete Test 3 on Canvas</p> <p>Watch Instructor Presentation in Project 2-Part 1 assignment</p> <p>Submit Project 2-Part 1 assignment to Canvas</p>
15-16	<p>Watch Instructor Presentation in Project 2-Part 2 assignment</p> <p>Submit Project 2-Part 2 assignment to Canvas</p>

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
3. Online civility: To maintain an effective and inclusive learning environment, it is important to be an attentive and respectful participant in on-line discussions, group work, 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 other classroom visitors, 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/>. 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 teleconferenced 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> for more information.
8. **Administrative Withdrawal:** A basic requirement of this course is that students participate in all class discussions and conscientiously complete all required course activities and/or assignments. If a student is unable to attend, participate in, or complete an assignment on time, it is the student's responsibility to inform the instructor. 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.