IUPUI

SCHOOL OF INFORMATICS AND COMPUTING

DEPARTMENT OF HUMAN-CENTERED COMPUTING

Indiana University–Purdue University Indianapolis

INFO H563
Psychology of Human–Computer Interaction

Department of Human-Centered Computing
Indiana University School of Informatics and Computing, Indianapolis
Fall 2018

Section No.: 22628 *Credit Hours:* 3
Time: Wed 6:00 pm
Location: IT 273
First Class: August 22, 2018
Website: https://iu.instructure.com/courses/1751937

Instructor: Karl F. MacDorman, Ph.D. in Computer Science (Cambridge), Associate Professor
Office Hours: Wednesdays, 5–6 pm, or by Appointment *Office:* IT 559
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Section No.: 22629 *Credit Hours:* 3
Time: Quizzes due Thursdays, lectures available prior Sunday
Location: Web
First Class: August 22, 2018
Website: https://iu.instructure.com/courses/1751941

Instructor: Bob Green, MS in HCI (Indiana University), Adjunct Instructor
Office Hours: Wednesday, 5–6 pm, or by Appointment
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Email: rogreen@iupui.edu

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

COURSE DESCRIPTION

The course covers the psychological and behavioral science of human-computer interaction, including cognition, attention, memory, problem solving, mental models, perception, and action. Emphasis is placed on developing an understanding of the interaction between human and electromechanical systems and how these processes impact the design and testing of interactive technologies.

Learning Outcomes:

Upon completion of this course, students will	RBT*	PGPL	PLO	Assessment
1. Evaluate current human factors theories and research to examining interactive computing systems.	5	2	2	Assignment 1, 4 Quiz 6
2. Design and critique interactive systems by drawing on principles and theories from human information processing, distributed cognition, emotion and motivation, society and culture, and human-robot interaction.	6, 5	2, 3	1, 2, 5, 7, 8, 10	Assignment 5 Quiz 7–11
3. Analyze user interfaces by applying empirical methods.	4	1	1	Assignment 2 Quiz 1, 5, 12, 13
4. Simulate human expert performance to analyze and compare user interfaces and improve their efficiency.	4	1	1, 6	Assignment 3 Quiz 4
5. Evaluate interactive computing interfaces from an ethical standpoint.	5	4, 3	1, 7, 9	Assignment 6 Quiz 14, 15
6. Analyze the advantages and disadvantages of user interfaces and workflows in terms of human information processing (e.g., attention, mental workload, memory, problem solving) and distributed cognition.	4	1	1, 2	Quiz 2, 3

*Revised Bloom's taxonomy: 1. Remembering; 2. Understanding; 3. Applying; 4. Analyzing; 5. Evaluating; 6. Creating.
PLO: Program-level Learning Outcome (bottom of MS in HCI program page)

Principles of Graduate and Professional Learning (PGPL)

Learning outcomes are assessed in the following areas:

1. Knowledge and skills mastery — *Minor emphasis*
2. Critical thinking and good judgment — *Major emphasis*
3. Effective communication
4. Ethical behavior — *Some emphasis*

Software used:

uLogLite (or LogSqare or equivalent); CogTool; Bluestacks, iPhone, Android (or equivalent)

REQUIRED COURSE TEXTS

Course materials are available from links on the schedule of weekly readings, which appears at the end of this document. A password is required to access the papers, which is available from the instructor. However, many papers are also freely accessible on the Internet.

Title: *Designing pleasurable products*
Author: Jordan, P. W.
Copyright: 2000
Publisher: London: Taylor & Francis

Title: *Human factors: In simple and complex systems* (2nd ed.)
Author: Proctor, R. W. & Van Zandt, T.
Copyright: 2008 (1994 for 1st ed.)
Publisher: Boston: Allyn and Bacon

Papers: Various papers will be read throughout the course. These papers will be available via links at the end of the syllabus.

COURSE TEXT, READING, and CLASS DISCUSSIONS

Assessing Your Understanding of the Readings:

We will cover about two chapters per week from the course texts and one supplemental journal article in human-computer interaction. Each student should not only read the assigned material but also arrive at a competent understanding of it. Four measures will be used to assess learning competency from the weekly readings:

1. Weekly in-class reading questions (i.e., quizzes) will be given to assess learning and comprehension, as well as to determine whether students are doing the reading.
2. Based on the weekly readings, students will be asked to complete short "minute essays"; the list of the possible questions that may be asked is presented within each weekly breakdown at the end of the syllabus.
3. A project and presentation involving an HCI method will be assigned in which students will summarize and integrate theories from the semester-long reading assignments. Students will demonstrate an application of their assigned method within their presentation.
4. Weekly discussions, directed by specific questions, will be organized through Canvas. Students are required to participate each week. The discussion is intended to challenge student comprehension, while adding practical applications to the theoretical content.

Quizzes

Quizzes and Minute Essays will be available on Canvas one week prior to their assigned lesson under 'Quizzes' and must be completed by 11:00 am Thursday. Students will have one minute per question, and will be notified of errors after submission of the quiz. Quizzes will remain open for review one week after their assigned lesson. After this time, the quizzes will be closed, and late submissions will not be possible. Quizzes will be closed the following Wednesday at 6:00 pm.

COURSE GRADE BREAKDOWN

A.	Assignments		65%
	1. Human factors	5%	
	2. User logging	10%	
	3. KLM GOMS simulation	15%	
	4. Distributed cognition	10%	
	5. Game critique and redesign	15%	
	6. Ethics	10%	
B.	Quizzes on weekly readings		25%
C.	Minute Essays		5%
D.	Participation		5%

Grading Scale:

A+	97 – 100	Outstanding achievement, given at the instructor's discretion
A	93 – 100	Excellent achievement
A–	90 – 092.99	Very good work
B+	87 – 089.99	Good work
B	83 – 086.99	Marginal work
B–	80 – 082.99	Very marginal work
C+	77 – 079.99	Unacceptable work (Elective or core course must be repeated)
C	73 – 076.99	Unacceptable work (Elective or core course must be repeated)
C–	70 – 072.99	Unacceptable work (Elective or core course must be repeated)
D+	67 – 069.99	Unacceptable work (Elective or core course must be repeated)
D	63 – 066.99	Unacceptable work (Elective or core course must be repeated)
D–	60 – 062.99	Unacceptable work (Elective or core course must be repeated)
F	Below 60	Unacceptable work (Elective or core course must be repeated)

No credit shall be given for a grade below B–.

Principles of Graduate and Professional Learning (PGPL)

Learning outcomes are assessed in the following areas:

- Knowledge and skills mastery (KS)
- Critical thinking and good judgment (CT)
- Effective communication (EC)
- Ethical behavior (EB)

COURSE SCHEDULE

LESSON 1

HCI Methods: Research methods in human factors; Reliability and human error in systems

Readings due

- Proctor, R. W. & Van Zandt, T. (2008). *Human factors: In simple and complex systems.* Boston: Allyn and Bacon.
    - Chapter 2. Research methods in human factors
    - Chapter 3. Reliability and human error in systems

Items due

- Quiz on the readings [KS, CT]
    - Be able to calculate reliability for a figure similar to Figure 3.5.

Possible minute essay questions [KS, CT, EC]

- Explain the difference between behavioral variables, stimulus variables, subject variables, independent variables, dependent variables, and extraneous variables.
- Describe measurement scales (nominal, ordinal, interval, and ratio), and give an example of each.
- Molecular vs. molar categories.
- Between–subject vs. within–subject designs.
- Standard deviations and *z*-scores.
- Type I and type II errors.
- Explain what a system is (based on the "Implications of the System Concept" section).
- What is the difference between a lapse, a mistake, and a slip?

LESSON 2

Cognitive Psychology: Human information processing (HIP); Attention and the assessment of mental workload

Readings due

- Mitchell, W. J., Szerszen, Sr., K. A., Lu, A. S., Schermerhorn, P. W., Scheutz, M., & MacDorman, K. F. (2011). A mismatch in the human realism of face and voice produces an uncanny valley. *i-Perception, 2*(1), 10–12. doi:10.1068/i0415
- Proctor, R. W. & Van Zandt, T. (2008). *Human factors: In simple and complex systems.* Boston: Allyn and Bacon.
    - Chapter 4. Human Information Processing
    - Chapter 9. Attention and the Assessment of Mental Workload

Items due

- Syllabus quiz [KS, EB]
- Quiz on the readings [KS]

Possible minute essay questions [KS, CT, EC]

- Explain the three-stage model.
- Explain prothetic vs. metathetic continua, and give an example of each.

- Explain executive-process interactive control (EPIC) theory, and give an example.
- Explain the Stroop effect.

LESSON 3

Cognitive Psychology: Retention and comprehension of information; Solving problems and making decisions

Readings due

- Proctor, R. W. & Van Zandt, T. (2008). *Human factors: In simple and complex systems.* Boston: Allyn and Bacon.
    - Chapter 10. Retention and Comprehension of Information
    - Chapter 11. Solving Problems and Making Decisions

Items due

- **Human factors assignment** [KS, CT]
- Quiz on the readings [KS]
    - Be able to determine the validity of a conditional syllogism.
    - Understand Cowan's model of short-term memory.

Possible minute essay questions [KS, CT, EC]

- Explain episodic and semantic memory.
- Explain the path information travels to be permanently stored in long-term memory.
- Describe the Production System Framework.
- Explain "reasoning by analogy" and give an example of it.
- Explain "anchoring."
- Explain the two types of logical fallacies. Why are they considered fallacies?
- What are the differences between induction and deduction?
- Explain the three phenomena of prospect theory.
- What is the gambler's fallacy?
- Given Wason (1969)'s experiment, explain why only the 'E' and '7' cards should be turned over.

LESSON 4

HCI Methods: GOMS and CogTool

Readings due

- John, B.E. & Kieras, D.E. (1996). The GOMS family of user interface analysis techniques: Comparison and contrast. *ACM Transactions on Computer-Human Interaction, 3*(4), pp. 320–351.
- John, B. E. (2009). *CogTool tutorial*. Human-Computer Interaction Institute, Carnegie-Mellon University.

Items due

- **User logging assignment** [KS, CT]
- Quiz on the readings [KS]
    - You will need to know the difference between reliability and validity.

Possible minute essay questions [KS, CT, EC]

- Describe each of the GOMS components.

- Explain the Keystroke-Level Model (KLM-GOMS).
- Explain Card, Moran, and Newell GOMS (CMN-GOMS).
- Explain Natural GOMS Language (NGOMSL).
- Explain Cognitive-Perceptual-Motor GOMS (CPM-GOMS).

LESSON 5

HCI Methods: Evaluating efficiency, effectiveness, and satisfaction

Readings due

- Kurosu, M., Urokohara, H. & Sato, D. (2002). A new data collection method for usability testing: NEM: Novice-expert ratio method. National Institute of Multimedia Education.
- MacDorman, K. F., Whalen, T. J., Ho, C.-C., & Patel, H. (2011). An improved scale for measuring usability from novice and expert performance. *International Journal of Human-Computer Interaction, 27*(3), 1–23. doi:10.1080/10447318.2011.54047

Items due

1. **KLM GOMS simulation (CogTool) assignment** [KS, CT]
2. Quiz on the readings [KS]

Possible minute essay questions [KS, CT, EC]

- Explain the NEM and its importance.
- Why is it important to also consider novice and expert completion times independently of their computed NEM ratio?
- Explain the differences between subjective evaluation and objective evaluation, using mental workload as a practical example.
- What are the deficiencies in the NEM?
- Under what circumstances is Hedges's $\hat{g}$ a better measure than Cohen's *d* and why?

LESSON 6

Distributed Cognition: Distributed cognition and communication

Readings due

- Hutchins, E. (1995). How a cockpit remembers its speed. *Cognitive Science, 19,* 265-288.
- Kirsh, D. & Maglio, P. (1994). On distinguishing epistemic from pragmatic action. *Cognitive Science, 18,* 513-549.

Items due

- Quiz on the readings [KS]

Possible minute essay questions [KS, CT, EC]

- Explain "the propagation of representational state across media."
- Explain how the representations and processes outside of the pilot flying the plane are analogous to elements of cognitive memory.
- Explain how rotation is used as an epistemic action.

LESSON 7

Motivation: Operant conditioning

Readings due

- Skinner, B. F. (1957). The experimental analysis of behavior. *American Scientist, 45*(4), 343–371.

Items due

- **Distributed cognition assignment** [CT, EC]
- Quiz on the readings [KS]

Possible minute essay questions [KS, CT, EC]

- Identify limitations in the experiments discussed and the analysis of human behavior reported in Skinner's article.
- Explain fixed-ratio and variable-ratio reinforcement.
- Explain the major findings of the avoidance experiments.
- Explain the major findings of the motivation experiments.
- Explain the effects of drugs on human behavior.

LESSON 8

Motivation: Self-determination theory

Readings due

- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55,* 68–78.
- Pink, D. H. (2009). *Drive: The surprising truth about what motivates us*. New York: Penguin.
    - Chapter 4: Autonomy
    - Chapter 5: Mastery
    - Chapter 6: Purpose

Items due

- Quiz on the readings [KS, EB]

Possible minute essay questions [KS, CT, EC, EB]

- How does SDT approaches human motivation and personal well-being?
- Is motivation a singular construct? Why is it valued in real world?
- Comment on the major differences between intrinsic and extrinsic motivation.
- Discuss some plausible causes for alienation and inauthenticity using the SDT theory.
- If autonomy is one of the key drives of human motivation, how is today's management changing people from players to pawns?
- Discuss how autonomy over the four Ts can facilitate Type I behavior.
- If control is opposite to autonomy, and autonomy facilitates motivation, then how can mastery also motivate us?
- Explain autotelic experience and flow with examples.
- Why does flow not guarantee mastery? Discuss the major differences.
- Discuss the three laws of mastery with examples.
- How is purpose reified in the realms of organizational life?
- Discuss profit goals and purpose goals. Which kind of goals made the graduates happier than when they were students?

LESSON 9

Motivation: Game design

Readings due

- Fullerton, T. (2008). *Game design workshop: A playcentric approach to creating innovative games* (2 ed.). CRC Press.
    - Chapter 2: The structure of games
    - Chapter 3: Working with formal elements

Items due

- Quiz on the readings [KS]

Possible minute essay questions [KS, CT, EC]

- Why are rules important for game design? Can you think of a theoretical lens from your readings to support your answer?
- The readings talk about Objectives, Procedures, Resources, Conflict, Boundaries and Outcome in two games. Try discussing them in the light of the three drives of motivation: autonomy, mastery and purpose.
- Why would a puzzle motivate a player?
- How does persuasive games persuade users? Can you link the strategies, as discussed by Bogost, to Pink's theory of Drive?
- Choose any of the objectives from the reading and discuss how you can instill autonomy, mastery and purpose while designing a game around it.
- Why do you think resources are important? Discuss in terms of the any pertinent theory from previous readings.
- Which theory of drive can you relate to conflict? Why will it motivate players to play a game?
- Which theory of drive can you relate to boundaries? Why will it motivate players to play a game?

LESSON 10

Motivation: Game design

Readings due

- Fullerton, T. (2008). *Game design workshop: A playcentric approach to creating innovative games* (2 ed.). CRC Press.
    - Chapter 4: Working with dramatic elements
- Schell, J. (2008). *The art of game design: A deck of lenses*. Pittsburg, PA: Schnell Games.

Items due

- **Game critique and redesign assignment** [KS, CT]
- Quiz on the readings [KS]

Possible minute essay questions [KS, CT, EC]

- How are the lenses of surprise and lenses of curiosity similar and dissimilar?
- Discuss the lens of flow.
- How would you use the lens of skill to incorporate and balance mastery and autonomy?

- Do you think that the lens of meaningful choice is an application of the theory of purpose towards human motivation? Why or why not?
- From the readings, list at least five lenses for each of the three drives of motivation: autonomy, mastery, and purpose.
- Which theory of drive can you relate to challenge? Why would it motivate players to play a game?
- How does flow acts as a trade-off between challenge and ability? Which theory of drive does it relate to?
- How can you relate the dramatic element of play to Pink's theory of purpose?

LESSON 11

Emotional Design: The four pleasures

Readings due

- Jordan, P. W. (2000). Designing pleasurable products. London: Taylor & Francis.
    - Chapter 2. The four pleasures

Items due

- Quiz [KS]

Possible minute essay questions [KS, CT, EC]

- Describe the four pleasures, and give an example of each.
- Describe the differences between "need pleasures" and "pleasures of appreciation," and give an example of each.
- Explain the importance of the office metaphors used in the Macintosh interface.
- Explain cognitive dissonance, and give an example.
- Explain *Zeitgeist*, using the "jet age aesthetic" of the 1950s as a practical example.
- Explain each of Geert Hofstede's dimensions by which a culture is defined.
- What are metanarratives? Give an example.

LESSON 12

Emotional Design: Creating pleasurable products

Readings due

- Jordan, P. W. (2000). *Designing pleasurable products*. London: Taylor & Francis.
    - Chapter 3. Creating pleasurable products

Items due

- Quiz on the readings [KS]
    - You should be familiar with the "messages" being conveyed through pictograms.

Possible minute essay questions [KS, CT, EC]

- Examine a product with which you are familiar in light of each of the four pleasures.
- Give three examples of three formal properties and three examples of experiential properties, and explain why each example is either a formal property or an experiential property.

LESSON 13

HCI Methods: Implicit Association Test (IAT)

Readings due

- MacDorman, K. F., Vasudevan, S. K., & Ho, C.-C. (2009). Does Japan really have robot mania? Comparing attitudes by implicit and explicit measures. AI & Society, 23(4), 485–510. doi:10.1007/s00146-008-0181-2
- Mitchell, W. J., Ho, C.-C., Patel, H., & MacDorman, K. F. (2011). Does social desirability bias favor humans? Explicit–implicit evaluations of synthesized speech support a new HCI model of impression management. *Computers in Human Behavior, 27*(1), 402–412. doi:10.1016/j.chb.2010.09.002

Items due

- Quiz [KS]
  - The original IAT excluded the training block results from analysis. Was this a mistake or the right thing to do? Why?

Possible minute essay questions [KS, CT, EC]

- Explain the design of the implicit association test, using an example to qualify your explanation.
- What are self-presentational factors? How are they addressed with the Implicit Association Test?

LESSON 14

The Ethics of Human-Computer Interaction: Human values, ethics, and design; Human agency

Readings due

- Friedman, B. & Kahn, P. H. (2003). Human values, ethics, and design. In J. A. Jacko & A. Sears (Eds.), The human-computer interaction handbook (pp. 1177-1201). Mahwah, NJ: Lawrence Erlbaum Associates.
- Friedman, B. & Kahn, P. H. (1992). Human agency and responsible computing: Implications for computer system design. *Journal of Systems and Software,* 17(1), 7-14.

Items due

- **Ethics assignment**
- Quiz on the readings

Possible minute essay questions

- How are consequentialist, deontological, and virtue-based ethics similar? How are they different?
- Explain the naturalistic fallacy.
- What are the advantages and disadvantages of using APACHE in an open-loop system?

LESSON 15

The Psychology of Human-Robot Interaction: Android science and the uncanny valley; Authenticity

Readings due

- MacDorman, K. F. & Ishiguro, H. (2006). The uncanny advantage of using androids in social and cognitive science research. *Interaction Studies*, *7*(3), 297-337.
- Turkle, S. (2007). Authenticity in the age of digital companions. *Interaction Studies, 8*(3), 501-517.

Items due

- Quiz on the readings

Possible minute essay questions

- How does pathogen avoidance help explain the uncanny valley?
- Explain how Tamagotchi's killer app "killed the competition."
- How can relational artifacts elicit narcissistic experiences?

EXPECTATIONS, GUIDELINES, AND POLICIES

Participation, Online Section:
The forum section of Canvas will be used to allow you to interact with your fellow students and the instructor. You are expected to contribute to the discussion on a weekly basis.

Participation, Classroom Section:

Each student should bring to each class on a sheet of paper with the student's name one question on the readings.

Attendance

A basic requirement of this course is that you will participate in all class meetings, whether online or face-to-face, and conscientiously complete all required course activities and assignments. Class attendance is required for classroom-based courses. It entails being present and attentive for the entire class period. Attendance shall be taken in every class. If you do not sign the attendance sheet while in class, you shall be marked absent. Signing the attendance sheet for another student is prohibited. The instructor is required to submit to the Registrar a record of student attendance, and action shall be taken if the record conveys a trend of absenteeism.

Only the following are acceptable excuses for absences: 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 attendance 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.

Missing class reduces your grade through the following grade reduction policy: You are allowed two excused or unexcused absences. Each additional absence, unless excused, results in a 5% reduction in your final course grade. More than six absences result in an F in the course. Missing class may also reduce your grade by eliminating opportunities for class participation. For all absences, the student is responsible for all covered materials and assignments.

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

Deliverables:

You are responsible for completing each deliverable (e.g., assignment, quiz) by its deadline and submitting it by the specified method. Deadlines are outlined in the syllabus or in supplementary documents accessible through Canvas. Should you miss a class, you are still responsible for completing the deliverable and for finding out what was covered in class, including any new or modified deliverable. In fairness to the instructor and students who completed their work on time, a grade on a deliverable shall be reduced 10%, if it is submitted late and a further 10% for each 24-hour period it is submitted after the deadline.

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 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 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. **Administrative withdrawal:** Students must 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, the student must 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 occurs after the full refund period, and a student who has been administratively withdrawn is ineligible for a tuition refund.
2. **Civility:** To maintain an effective and inclusive learning environment, it is important to be an attentive and respectful participant in lectures, discussions, group work, and other classroom exercises. Thus, unnecessary disruptions should be avoided, such as ringing cell phones, engagement in private conversations, and other unrelated activities. Cell phones, media players, or any noisy devices should be turned off during a class. Texting, web surfing, and posting to social media are generally not permitted. Laptop use may be permitted if it is used for taking notes or conducting class activities. Students should check with the instructor about permissible devices in class. 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.
3. **Communication:** For classroom-based courses, the instructor or teaching assistant should respond to emails by the end of the next class or, for online courses, within two Indiana University working days, which excludes weekends and holidays. The instructor should provide weekly office hours or accept appointments for face-to-face, telephone, or teleconferenced meetings, and announce periods of extended absence in advance.
4. **Counseling and Psychological Services (CAPS):** Students seeking counseling or other psychological services should contact the CAPS office at 274-2548 or capsindy@iupui.edu. For more information visit http://life.iupui.edu/caps/.
5. **Course evaluations:** Course evaluations provide vital information for improving the quality of courses and programs. Students are urged to complete one course and instructor evaluation for each section in which they are enrolled at the School of Informatics and Computing with the following exceptions: (a) The student has withdrawn from the course; (b) fewer than five students are enrolled in the section (in which case maintaining anonymity is difficult); 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 typically

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. In small sections, demographic information should be left blank, if it could be used to identify the student.

6. **Disabilities policy:** All qualified students enrolled in this course are entitled to reasonable accommodations for a disability. Notify the instructor during the first week of class of accommodations needed. Students requiring accommodations 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). For more information visit http://aes.iupui.edu.
7. **Email:** Indiana University uses your IU email account as an official means of communication, and students should check it daily. Although you may have your IU email forwarded to an outside email account, please email faculty and staff from your IU email account.
8. **Emergency preparedness:** Know what to do in an emergency so that you can protect yourself and others. For more information, visit the emergency management website at http://protect.iu.edu/emergency.
9. **IUPUI course policies:** Several campus policies governing IUPUI courses may be found at the following link: http://registrar.iupui.edu/course_policies.html
10. **No class attendance without enrollment.** Only those who are officially enrolled in this course may attend class unless enrolled as an auditor or making up an Incomplete by prior arrangement with the instructor. This policy does not apply to those assisting a student with a documented disability, serving in an instructional role, or administrative personnel. http://registrar.iupui.edu/official-enrollment-class-attendance.html Children may *not* attend class with their parents, guardians, or childcare providers.
11. **Religious holidays:** Students seeking accommodation for religious observances must submit a request form to the course instructor by the end of the second week of the semester. For information visit http://registrar.iupui.edu/religious.html.
12. **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.
13. **Sexual misconduct:** IU does not tolerate sexual harassment or violence. For more information and resources, visit http://stopsexualviolence.iu.edu/.
14. **Student advocate:** The Student Advocate assists students with personal, financial, and academic issues. The Student Advocate is in the Campus Center, Suite 350, and may also be contacted at 317 274-4431 or studvoc@iupui.edu. For more information visit http://studentaffairs.iupui.edu/advocate.

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.

STATEMENT OF VALUES

IUPUI values the commitment of students to learning; of faculty to the highest standards of teaching, scholarship, and service; and of staff to the highest standards of service. IUPUI recognizes students as partners in learning. IUPUI values the opportunities afforded by its location in Indiana's capital city and is committed to serving the needs of its community. Thus, IUPUI students, faculty, and staff are involved in the community, both to provide educational programs and patient care and to apply learning to community needs through service. As a leader in fostering collaborative relationships, IUPUI values collegiality, cooperation, creativity, innovation, and entrepreneurship as well as honesty, integrity, and support for open inquiry and dissemination of findings. IUPUI is committed to the personal and professional development of its students, faculty, and staff and to continuous improvement of its programs and services.