



School of Information Sciences

Cognition in the Wild
Course Number IS406 [CRN 73321/73322]
Semester Year Fall 2020
Classroom and Class Time Zoom Classroom, 1pm to 3pm Monday

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Course Description

This course is designed as a foundation for students who are interested in learning how to analyze and evaluate human-centered information technologies. Students will learn basic principles in human cognition and behavior, and how these principles influence how we interact with information technologies. Students will learn how to evaluate human performance in the contemporary information environments and generate approaches to investigate research questions in the wild. The course will prepare students to translate theories in human cognition and behavior to analyze, evaluate and rethink human performance during the interactions with everyday and contemporary technologies.

Pre- and Co-requisites

None.

4 credit hours for graduate students; 3 credit hours for undergraduate students

Student Learning Outcomes

1. Students will be able to define important concepts in human performance and cognition
2. Students will be able to explain how the theories in human cognition and performance are translated to the design of the *interactions* with information technologies
3. Students will be able to think about potential constraints or adaptation of human behavior in the novel information environments
4. Students will be able to identify and criticize approaches to evaluate human performance in the interactions with information technologies

Course Context

This course meets a number of learning outcomes connected to program objectives for the Master Program in Information Management, Master Program in Library and Information Sciences, and PhD program in Library and Information Sciences, which in turn connect to larger iSchool and University of Illinois learning goals.

Program Learning Outcomes

iSchool Goal

This course meets the following goal:

- Maintain global leadership in education for the information professions

University of Illinois Campus-Wide Learning Goals (*Choose all that apply*)

This course meets the following goals):

1. *Intellectual Reasoning and Knowledge*
2. *Creative Inquiry and Discovery*
3. *Effective Leadership and Community Engagement*
4. *Social Awareness and Cultural Understanding*
5. *Global Consciousness*

Course materials

All readings will be posted on the course Moodle site for this course for download or linked to externally from this site.

Assignments and Methods of Assessment

1. **Peer Lecture and Discussion 30%** (40% for the students who register for this course for 3 credits)

Each student will lead a presentation and discussion on **one of the 7 topics in the semester**. (Undergraduate students can choose to work as a team of 2.) Each student will (1) do a 20-minute presentation on the readings for that week, and (2) lead a 15-minute discussion on the topic. The discussion can be related to the readings or other relevant issues about the topic.

Choose the topic

Students need to choose one topic for the peer lecture and discussion **by Sep 12 (12PM CST)**. The topic is chosen based on “**first come first select**” base. Students need to choose the desired topic from a Google Sheet, **posted on the Moodle site**.

Format

It will include 20-minute presentation of the readings and 15-minute discussion with the class. The presentation of the readings should include the following parts:

1. The main research questions of the paper
2. The backgrounds of the problem: What we already knew from literature

3. The gaps authors are trying to solve: What make this paper contribute to the existing literature
4. The approach authors used to solve the research questions
5. Main results
6. Conclusion from the paper
7. Students' own analytical thoughts about these papers: Any limitations and strength of the paper (e.g., the scope of research questions, the choice of data, the choice of methods, the interpretation of the results, the implications, etc.)
8. 1-sentence take-home message

In the 15-minute discussion, students will lead the discussion on issues related to the chosen topic. Here are some examples:

- How do you see the connection of this topic to any everyday life examples?
- How do you see any changes or variances of human performance with the development of the technology?
- Are there any better ways or different approaches to study human performance in the contemporary information environments?
- Taking a technology or everyday life example, discuss the limitations or capacities of the human performance.

The peer lecture and discussion will be evaluated using the following rubric.

1. Clarity, Correctness and Analytical Thinking (10 pt)
2. Facilitation and Preparation for the Discussion (10 pt)
3. Participation in Other Students' Discussions (10 pt)

***For the students who take this course for 3 credits**, the peer lecture and discussion will be evaluated using the following rubric.

1. Clarity, Correctness and Analytical Thinking (13 pt)
2. Facilitation and Preparation for the Discussion (13 pt)
3. Participation in Other Students' Discussions (14 pt)

2. Research Design and Critics 40% (60% for the students who register for this course for 3 credits)

2.1 Research Design

Students will be given a list of 5 research questions. Students will design a study (or a series of studies) to answer the research question. The design will be evaluated based on the rigor of the approach.

Format: Single-space, Margin 1 inch, 12 font size, Times New Roman, 1 page (Not including Tables, Figures or References).

References: American Psychological Association (APA) Style

Submission Information: The research design is due by **12PM CST on Nov 7.**

2.2 Critics on Research Design

Students will write a review on another student's research design. The review will be evaluated by the comprehensiveness of the evaluations and the rigor of the arguments.

Format: Single-space, Margin 1 inch, 12 font size, Times New Roman, 1 page (Not including Tables, Figures or References).

References: American Psychological Association (APA) Style

Submission Information: The critics on research design is due by **12PM CST on Nov 14.**

On Nov 16, each student will present how they want to address the research question by proposing their research design (6 minutes), followed by the critics from another student (6 minutes), and the response to the critics (3 minutes).

The research design and critics will be evaluated using the following rubric.

1. Research design (written) (15 pt)
2. Critics (written) (15 pt)
3. Oral presentation and response to the critics (10 pt)

***For the students who take this course for 3 credits,** the research design and critics will be evaluated using the following rubric.

1. Research design (written) (25 pt)
2. Critics (written) (20 pt)
3. Oral presentation and response to the critics (15 pt)

3. Final Project 30% (For the students who register for this course for 4 credits only)

Final Paper (Written) (20%)

Option 1. Students can choose to implement a study based on the research question they select in the mid of the semester.

Option 2. Students can choose a research question from the list, and propose a study to better understand the human performance in this information environment.

Format: Single-space, Margin 1 inch, 12 font size, Times New Roman, 2 pages (Not including Tables, Figures and References).

References: American Psychological Association (APA) Style

Submission Information: The final paper is due by **12PM CST on Dec 5.**

Final Paper (Oral) (10%)

Students will do a 15-minute presentation on their final paper on Dec 7th, including 10-minute presentation and 5-minute discussion.

The final paper will be evaluated using the following rubric.

1. Written: clarity and correctness (10%)
2. Written: analytical thinking (10%)
3. Oral presentation: clarity, correctness and analytical thinking (5%)
4. Oral presentation: discussion (5%)

General Policy

1. All work must be completed in order to pass this class.
2. Late or incomplete assignments will not be given full credit unless the student has contacted the instructor prior to the due date of the assignment (or in the case of emergencies, as soon as practicable). For any late work, 5 points (out of the total score) will be deducted per day late (till 0 points).
3. Criteria for grading homework assignments include (but are not limited to) creativity and the amount of original work demonstrated in the assignment. However, students are permitted to use and adapt the work of others, provided that the following guidelines are followed:
 - a. Use of other people's material must not infringe the copyright of the original author, nor violate the terms of any licensing agreement. Know and respect the principles of fair use with respect to copyrighted material.
 - b. Students must scrupulously attribute the original source and author of whatever material has been adapted for the assignment. Summarize the changes or adaptations that have been made. Make plain how much of the assignment represents original work.

Incomplete grades

An exceptional request for an incomplete grade is most often granted to students encountering a medical emergency or other extraordinary circumstances beyond their control. Students must request an incomplete grade from the instructor. The instructor and student will agree on a due date for completion of coursework. The student must submit an Incomplete Form signed by the student, the instructor, and the student's academic advisor to the front office:

<https://uofi.app.box.com/v/ISIncompleteForm>

Please see the Student Code for full details: <http://studentcode.illinois.edu/article3/part1/3-104/>

Grading Scale

Include the grading scale used in the course. If you permit A+ grades, or have other measures for grading please include them here. Suggested grading scale:

94-100 = A
90-93 = A-
87-89 = B+
83-86 = B
80-82 = B-
77-79 = C+
73-76 = C
70-72 = C-
67-69 = D+
63-66 = D
60-62 = D-
59 and below = F

Course Policies

Please submit the assignments on time. Late work will be deducted 1 point per 5 minutes. Missing work will receive 0 points.

Attendance/ Participation Policy

The iSchool expects students to **attend all classes** except in cases of emergency. Student Code on Attendance: <http://studentcode.illinois.edu/article1/part5/1-501/>

If you have an emergency, communicate with the instructor as early as possible to prevent negatively impacting your grade. Students missing more than one class—or who regularly arrive late or leave early—will not pass the class unless alternate arrangements are made. Students are expected to demonstrate respect for the ideas and opinions of all other members of the class at all times. Failure to observe this course requirement can result in a failing course participation grade, and may result in a failing grade for the course.

Academic Integrity

The iSchool has the responsibility for maintaining academic integrity so as to protect the quality of education and research in our school and to protect those who depend on our integrity. Consequences of academic integrity infractions may be serious, ranging from a written warning to a failing grade for the course or dismissal from the University.

See the student code for academic integrity requirements:
<http://studentcode.illinois.edu/article1/part4/1-401/>

Please review and reflect on the academic integrity policy of the University of Illinois, http://studentcode.illinois.edu/article1_part4_1-401.html, to which we subscribe. By turning in materials for review, you certify that all work presented is your own and has been done by you independently, or as a member of a designated group for group assignments.

If, in the course of your writing, you use the words or ideas of another writer, proper references must be given (using APA citation style). Not to do so is to commit plagiarism, a form of academic dishonesty or plagiarism. Please be aware that the consequences for plagiarism or other forms of academic dishonesty will be severe. Students who violate university standards of

academic integrity are subject to disciplinary action, including a reduced grade, failure in the course, and suspension or dismissal from the University.

Statement of Inclusion

<http://www.inclusiveillinois.illinois.edu/mission.html>

As the state's premier public university, the University of Illinois at Urbana-Champaign's core mission is to serve the interests of the diverse people of the state of Illinois and beyond. The institution thus values inclusion and a pluralistic learning and research environment, one which we respect the varied perspectives and lived experiences of a diverse community and global workforce. We support diversity of worldviews, histories, and cultural knowledge across a range of social groups including race, ethnicity, gender identity, sexual orientation, abilities, economic class, religion, and their intersections.

Religious Observances

In keeping with our Statement of Inclusion and Illinois law, the University is required to reasonably accommodate its students' religious beliefs, observances, and practices in regard to admissions, class attendance, and the scheduling of examinations and work requirements.

If you would like an absence letter, then you must fill out the Religious Observance Accommodation Request form is available at <http://odos.illinois.edu/community-of-care/resources/docs/Religious-Observance-Accommodation-Request-Form.pdf>. Other accommodations may also be available. If you anticipate the need for an accommodation, please communicate with your instructor at the first week of the semester.

Week-by-Week Topic and Assignment Schedule

Schedule and readings subject to change.

Week 1. Aug 24 Introduction

Week 2. Aug 31 Cognitive Systems and Distributed Cognition
Workshop: Study Design 1: Basic Principles

Week 3. Sep 7 Labor Day (Holiday, No Class)

Week 4. Sep 14 Cognition and Information Proliferation 1: Decision-Making
Workshop: Library resources (Chris Bailey)

Week 5. Sep 21 Cognition and Information Proliferation 2: Search
Workshop: Study Design 2: Human Performance in the Wild

Week 6. Sep 28 Cognition and Information Proliferation 3: Comprehension
Workshop: Evaluation of the Study Design

Week 7. Oct 5 Coupling System 1: Memory

Peer Lecture and Discussion 1

Week 8. Oct 12 Coupling System 2: Interactive Behavior and Exploration-Exploitation Tradeoff
Peer Lecture and Discussion 2

Week 9. Oct 19 Special Topic: Misinformation
Peer Lecture and Discussion 3

Week 10. Oct 26 Special Topic: Learning, Algorithms, and Computer-Based Learning
Environments
Peer Lecture and Discussion 4

Week 11. Nov 2 Special Topic: Metacognition
Peer Lecture and Discussion 5

Week 12. Nov 9 Special Topic: Human Performance and Aging
Peer Lecture and Discussion 6

Week 13. Nov 16 Presentation on Research Design and Critics

Week 14. Nov 23 Fall Break (No Class)

Week 15. Nov 30 Special Topic: Human Performance and Automation
Peer Lecture and Discussion 7

Week 16. Dec 7 Final Presentation

Accessibility Statement

To obtain accessibility-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TTY), or e-mail a message to disability@uiuc.edu.

To ensure disability-related concerns are properly addressed from the beginning of the semester, I request that students with disabilities who require assistance to participate in this class contact me as soon as possible to discuss your needs and any concerns you may have. The University of Illinois may be able to provide additional resources to assist you in your studies through the office of Disability Resources and Educational Services(DRES). This office can assist you with disability-related academic adjustments and/or auxiliary aids. Please contact them as soon as possible by visiting the office in person: 1207 S. Oak St., Champaign; visiting the website: <http://disability.illinois.edu>; calling (217) 333-4603 (V/TTY); or via e-

mail disability@illinois.edu. NOTE: I do not require a letter from DRES in order to discuss your requested accommodations.

Emergency Planning Statement

Plan for emergency situations in the classroom by reviewing the important material found at <http://police.illinois.edu/emergency-preparedness/>. The more prepared you are, the safer you will be.

Land acknowledgement Statement

Adopted by the University of Illinois in 2018

More information: https://chancellor.illinois.edu/land_acknowledgement.html

As a land-grant institution, the University of Illinois at Urbana-Champaign has a responsibility to acknowledge the historical context in which it exists. In order to remind ourselves and our community, we will begin this event with the following statement. We are currently on the lands of the Peoria, Kaskaskia, Peankashaw, Wea, Miami, Mascoutin, Odawa, Sauk, Mesquaki, Kickapoo, Potawatomi, Ojibwe, and Chickasaw Nations. It is necessary for us to acknowledge these Native Nations and for us to work with them as we move forward as an institution. Over the next 150 years, we will be a vibrant community inclusive of all our differences, with Native peoples at the core of our efforts.

Land Acknowledgement Statement Suggested by Native American House:

I/We would like to begin today by recognizing and acknowledging that we are on the lands of the Peoria, Kaskaskia, Piankashaw, Wea, Miami, Mascoutin, Odawa, Sauk, Mesquaki, Kickapoo, Potawatomi, Ojibwe, and Chickasaw Nations. These lands were the traditional territory of these Native Nations prior to their forced removal; these lands continue to carry the stories of these Nations and their struggles for survival and identity. As a land-grant institution, the University of Illinois has a particular responsibility to acknowledge the peoples of these lands, as well as the histories of dispossession that have allowed for the growth of this institution for the past 150 years. We are also obligated to reflect on and actively address these histories and the role that this university has played in shaping them. This acknowledgement and the centering of Native peoples is a start as we move forward for the next 150 years.

Library Resources

<https://www.library.illinois.edu/infosci/>

Writing and Bibliographic Style Resources

The campus-wide Writers Workshop provides free consultations. For more information see <http://www.cws.illinois.edu/workshop/>

The iSchool sponsors a Writing Resources Moodle site
<https://courses.ischool.illinois.edu/course/view.php?id=3389>

And provides access to writing coaches who offer free consultations here:
<https://publish.illinois.edu/ischoolwritingresources/>