ILLINOIS
School of Information Sciences

IS 597: Responsible Data Science and AI

Term:	Fall 2021
Time:	Friday 9-10.55 am
Location:	zoom
Instructor:	Jana Diesner
Contact:	Email: jdiesner@illinois.edu
Course Units:	2 or 4 GR hours
Office hour:	online, TBA
TA:	Kanyao Han, email: kanyaoh2@illinois.edu

This syllabus may be obtained in alternative formats upon request. Please contact the instructor.

Course Description

This course provides deeper student engagement with the talks and topics presented at the "Responsible Data Science and AI" speaker series (https://jdiesnerlab.ischool.illinois.edu/responsible_ds_ai.html). Students taking this class must attend both the talks and the class sessions. We focus on explainability, reproducibility, biases, data curation and governance, and privacy. In class, students discuss recent research on these topics in depth, analyze papers in the wider context of theories, methods, and findings from their fields, guide or lead discussions, and reflect on the discussed papers in the context of their own research. We will not necessarily discuss the history and foundations of each topic that we cover. Students are expected to have that background or acquire it per topic before each session. We go right into current debates and socio-technical details.
Everybody is expected to read the assigned paper(s) for each week before class, come to class with at least 3 questions, and be able to discuss the paper(s), presentation, and their questions. This class is open to PhD students from across campus. Exceptions can be made for advanced MS students who have a strong focus on research and as per their advisor's and instructor approval.

Week-by-Week Schedule

Schedule subject to change.

- 08/27/2021, Su Lin Blodgett, PhD, Microsoft
- 09/03/2021, Allison Morgan, PhD, Data Scientist at Twitter
- 09/10/2021, Ryan Baker, PhD, Associate Professor, Graduate School of Education, University of Pennsylvania
- 09/17/2021, Lindah Kotut, Assistant Professor, Information School, University of Washington
- 09/24/2021, Pardis Emami-Naeini, PostDoc, School of Computer Science, University of Washington
- 10/01/2021, Rainer Böhme, PhD, Professor for Security and Privacy, Department of Computer Science, University of Innsbruck

    - Also: project proposal
- 10/08/2021, Alexandra Olteanu, PhD, Principal Researcher at Microsoft Research
- 10/15/2021, Babak Salimi, PhD, Assistant Professor, Halıcıoğlu Data Science Institute, University of California, San Diego
- 10/22/2021, Katrin Weller, PhD, Information Scientist at GESIS – Leibniz Institute for the Social Sciences
- 10/29/2021, Julia Stoyanovich, PhD, Assistant Professor, Department of Computer Science and Engineering, Tandon School of Engineering, New York University
    - Also: project progress report
- 11/05/2021, Ceren Budak, PhD, Assistant Professor of Information, School of Information, University of Michigan
- 11/12/2021, Laura Nelson, PhD, Assistant Professor, College of Social Sciences and Humanities, Northeastern University
- 11/19/2021, Ana-Andreea Stoica, PhD student in Computer Science, Columbia University
- 12/03/2021, Tjitze Rienstra, PhD, Assistant Professor, Department of Data Science & Knowledge Engineering, Faculty of Science and Engineering, Maastricht University
    - Also: final project presentation

Pre- and Co-requisites
Nope, none. This is an interdisciplinary course for graduate students from across campus. The course is designed to benefit from the participation of students from any department or program. There are no formal prerequisites. No specific numerical, technical, or programming skills are required. Students are expected to be willing to hone their skills in computational thinking and practice.

 # Credit hours
2 (without project) or 4 (with project)

Student Learning Objectives or Outcomes
Upon successful completion of the course, students will:

- Improve their understanding of fundamental concepts, theories, methods, controversies, and evolution (history and trends) from the fields of human-centered data science and AI.
- Have a solid up-to-date understanding of current issues and cutting-edge research in human-centered data science and AI, machine learning (ML), and computational social science (SC).
- Improve their academic and professional speaking, communication, and presentation skills.
- Scrutinize and improve their research.

Course Context
This course meets a number of learning outcomes connected to program objectives for the MS and PhD programs at the iSchool, which in turn connect to larger iSchool and University of Illinois learning goals.

Course learning goals:

Program Learning Outcomes

- Have an awareness of the rapid change in the evolving information professions, the change in technologies and methods deployed, evolving ethical principles around information use, and the need to be continually learning new skills and sub-specializations in order to be a valuable member of a multidisciplinary team
- Use evidence to help address information problems, meet information needs
- Understand relationships among people, information, and technology
- Understand fundamental mathematical and programming tools for solving problems of information modeling, expression, and transformation
- For those doing a project:
    - Apply various approaches to research in the information sciences, including social science methods, data and text mining, and others
    - Apply critical analytical skills to information issues and core ethical principles to professional practice
    - Apply appropriate analytic approaches to the needs of a given problem and understand how aspects of logic, statistical analysis and broader domain knowledge can inform the interpretation and confidence in their analyses

iSchool Goal

This course meets the following goal:

- Maintain global leadership in education for the information professions

University of Illinois Campus-Wide Learning Goals

This course meets the following goals):

- Intellectual Reasoning and Knowledge
- Creative Inquiry and Discovery
- Effective Leadership and Community Engagement
- Social Awareness and Cultural Understanding
- Global Consciousness

Course materials

Weekly readings and any other course material will be announced on the course website.

Bio of Instructor

Jana Diesner is an Associate Professor at the School of Information Sciences at the University of Illinois Urbana-Champaign, where she directs the Social Computing Lab. Dr. Diesner's basic and applied research in human-centered data science and responsible computing combines the benefits of machine learning, AI, network analysis and natural language processing with the consideration of social science theories, contexts and culture, and ethical concerns. Her research has been supported by the U.S. government agencies (ARL, DHS, DHS) and foundations (Ford, MacArthur). Diesner received her PhD from Carnegie Mellon University's School of Computer Science.

Assignments and Methods of Assessment

1. All assignments are required for all students. Completing all assignments is not a guarantee of a passing grade.
2. All work must be completed to pass this class.
3. 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).
4. 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 material protected by intellectual property rights.
    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/s/sx7arobhr0gfw12teaetmp1qq32ifdrd
Please see the Student Code for full details: http://studentcode.illinois.edu/article3/part1/3-104/

Course Requirements

1. **Reading and Discussions:** Readings are posted on the course website. Students are expected to read the assigned papers BEFORE each session.
2. **Participation:** Students are expected to attend and participate in all talks and seminar sessions. Students are invited to initiate or engage in discussions on the course website.
3. **Project:** Students have the option to conduct a research project on their own or as part of project team. The learning goal with the project is to put the knowledge gained in the talks and seminar into action and to provide students with practical research experience. The instructor will provide guidance and advice throughout this process. The project can be self-defined; alternatively, we have a selection of projects available.

Evaluation and grading policy

Students without project

Deliverable	Grade
Meaningful participation	100%

Students with project

Deliverable	Grade
Meaningful participation	50%
Project (detailed breakdown below)	50%

Grading Scale
99-100 = A+
94-98 = 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

Details on project
Report structure and evaluation

1. Title
2. Name(s) of author(s).
3. Keywords (self –defined)
4. Abstract
    a. 150 to 250 words.
    b. Motivate and state your research question.
    c. Focus on what you have learned (key findings).
5. Introduction
    a. Why does your research question matter?
    b. Develop your research question or research problem.
6. Background
    a. Discuss and synthesize prior work such that you identify a gap in prior research, a conflict between prior results, or a lack of knowledge with respect to understanding the problems centric to this course. Start by drawing from the course readings and expand with additional readings.
7. Data
    a. Describe the dataset you use. This description should include:
        i. How the data was collected (by who, from whom, when, what methods).
        ii. Size.
        iii. Reliability.
        iv. Limitations.
8. Method
    a. How do you analyze the data (unit of analysis, metrics, etc.).
9. Results
    a. Describe your findings. Add in figures, tables and visualizations as needed.

10. Conclusions
    a. Interpret your findings with respect to your research question.
    b. What new knowledge was gained from this study?
    c. How can your findings be expected to generalize?
    d. For whom might your findings be relevant, who can use the knowledge you have gained?
11. Limitations and Future Work
    a. State all limitations that apply to the data, methods and results.
    b. How could your work be extended and why would that be useful?
12. References

Schedule of project deliverables:

Deliverable	**What to write up/ prepare**	**Grading criteria**
Project proposal: (10 pts)	1-2 pages: - Team (2.) - Project idea/ research question (4.) - Rough draft of background section (5.) - Data section (6.)	Content: - Synthesis of relevant background work (substantive question or quantitative problem) - Identify an interesting research question - Understand your dataset (how it was collected, properties, limitations) Writing (same criteria apply to all writing deliverables for the report): - Clarity (flow, transitions, consistent use of terminology) - Coherence and logic
Project progress report (30 pts)	Additional 2-4 pages: - Update on previous sections if applicable and based on feedback - Methods section (7.), incl: - Data analysis: strategy and operationalization - Preliminary results (8.)	Content: - Demonstrate ability to select and apply an analysis method (qualitative, quantitative, metrics, etc.) that is appropriate and feasible given the research question, dataset, and scope of the project.
- In-class project presentation (20 points)	- Presentation: poster or slides	In-class project presentation: - Every team member is able to present - Respond to questions from class and instructor
- Final project report (40 points)	- Final report (1. – 11.)	Report: - Update on previous sections if applicable and based on feedback All sections completed (1.-11.)

Expectations:
You can expect me to provide you with feedback on any deliverable, to answer your emails within 24 hours, and to point you to further learning resources if you are interested.

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/

1. If you have an emergency, communicate with the instructor as early as possible to prevent negatively impacting your grade.
2. Enrollment in this course includes expectation of regular attendance. If you find you must miss (or have missed) class, contact the instructor as soon as possible. Students may miss one class session with no penalty; thereafter, each unexcused absence will result in your grade being lowered by one step (for example, an A- will become a B+). Repeated tardiness or leaving sessions early may be considered an unexcused absence unless alternate arrangements have been made with the instructor.

Class conduct:

3. Students share some of the responsibility for fostering an inclusive classroom. Students are expected to be respectful of others' perspectives and lived experiences during class discussion.
4. 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 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/

1. Please review and reflect on the academic integrity policy of the University of Illinois, http://studentcode.illinois.edu/article1/part4/1-401/ 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.
2. If, in the course of your writing, you use the words or ideas of another writer, proper acknowledgement must be given.. 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. Religious Observance Accommodation Request form:
https://cm.maxient.com/reportingform.php?UnivofIllinois&layout_id=19
Other accommodations may be available.

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 333-1970 (V/TTY), or e-mail a message to disability@illinois.edu.

To insure 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.

Land acknowledgement Statement
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.

Resources for our students:

Writing Resources

For Undergraduate Students:

Undergraduate Academic Support & Tutoring
https://go.ischool.illinois.edu/BSIStutoring
Students will find a variety of Academic and Support Services on-campus and within the community. We encourage you to engage with these resources early and often. Most of these services are of no charge. Our iSchool offices are always happy to help connect you with the correct resources to ensure you are receiving support (ischool-is@illinois.edu). Your academic career, professional development, and your physical and mental health is very important to us.

The Writers Workshop (https://writersworkshop.illinois.edu/) provides writing support to students, including individual consultations, workshops, and resources. In response to the ongoing COVID-19 pandemic, all Writers Workshop consultations are currently offered online (https://writersworkshop.illinois.edu/services/consultations/online/).
To request disability-related accommodations for our services, please contact Dr. Carolyn Wisniewski at wow@illinois.edu or call 217-333-8796.

For Graduate Students:

The iSchool Writing Resources is the in-house writing support team for graduate students at the iSchool. They are here to help you with your writing and help you feel more comfortable and confident in your skills. The writing consultants are not professors or evaluators. They simply know the struggles of graduate and undergraduate-level writing and want to help you learn how to succeed and improve your writing skills. The iSchool writing consultants can help you with every step of the writing process. For detailed information on our services please visit our website: https://publish.illinois.edu/ischoolwritingresources/

Additional Resources:

- Center for Innovation in Teaching & Learning
    - Purposes of a Syllabi,https://citl.illinois.edu/citl-101/teaching-learning/resources/teaching-strategies/creating-a-syllabus
    - Guidelines to the Organization and Contents of a Syllabus, https://citl.illinois.edu/docs/default-source/default-document-library/organization-of-syllabus.pdf?sfvrsn=2
    - CITL resources on grading: https://citl.illinois.edu/citl-101/measurement-evaluation/exam-scoring/assigning-course-grades
    - Course and syllabus design: http://cte.illinois.edu/resources/topics/course_plan.html
- Student Learning Outcomes (SLOs): https://provost.illinois.edu/assessment/learning-outcomes-assessment/illinois-student-learning-outcomes/.
- University of Illinois Student Learning Outcomes https://provost.illinois.edu/assessment/learning-outcomes-assessment/assessment-at-illinois/campus-student-learning-outcomes/
- Graduate College, requirements and recommendations for syllabi: http://www.grad.illinois.edu/courses-syllabi
- Inclusion by Design:

    - About: https://www.facultyfocus.com/articles/course-design-ideas/inclusion-by-design-tool-helps-faculty-examine-teaching-practices/
    - Tool: https://drive.google.com/file/d/0B0ulz5eHbyjYdmY0eF9ablRRcHM/view
- Diversity checklist: https://racebridgesstudio.com/creating-a-classroom-diversity-checklist/
- Graduate college guidelines for participation/discussion grades: https://grad.illinois.edu/content/participation-grade-guidelines