INFO I502 – Spring 2020
Human-Centered Research Methods in Informatics
Instructor: Dr. Selma Šabanović (selmas@indiana.edu)

Time: Mondays 9:30AM-12:00PM
Room: Informatics West 232
Office Hours: If you have any questions, contact me by email to set up an appointment that fits both our schedules
Associate instructor: Yu Ra Kim (yurakim@iu.edu)

Course description

Informatics research relies on a broad range of methods, some of which come from the social sciences and humanities — psychology, sociology, anthropology, history, and others. These disciplines seek to understand and improve the world of human experience, and can therefore commonly be defined as human-centered research. Human-centered research methods vary on a number of dimensions: some involve highly detailed observations in a small number of specific circumstances (e.g. ethnographic observation of workplace interactions around a database system), while others require coarse observations of low detail from a large number of circumstances (e.g. a survey of a large user group); some involve deep interpretation engaging the researcher's knowledge of the situation being studied (e.g. discourse analysis of information policy documents), while others deemphasize the researcher's specific knowledge of the situation (e.g. quantitative studies of information traffic patterns). No one method suffices to answer all questions within Informatics, and some methods are more appropriate than others for answering certain types of questions, so Informatics researchers need to be conversant with the full range of possibilities available to them.

The primary goal of this course is to survey a broad range of research methods in the humanities and social sciences as they pertain to Informatics topics. We will discuss the theoretical motivations and justifications of different methods, as well as how various research methods may correspond to different research questions. The course will provide a foundation for interpreting and conducting many types of research as well as a starting point for further study of specific research methods. It will also give students an opportunity to relate and apply these methods to their own research interests.

Course Objectives

At the end of this course, students should be able to:
- Appreciate the utility of a range of research methods in addressing the research questions of Informatics;
- Understand how to match a research question with an appropriate method, and how to interpret the results obtained from a variety of research methods;
- Critically evaluate the research methods used in informatics scholarship;
- Understand the role of research ethics in structuring inquiry and selecting appropriate research questions and methods for investigating them;

- Apply human-centered research methods to their own domain of research interest.

Assignments and Grading

Weekly warm-up assignments (25%): Each week I will pose a question and/or give you a task to do related to the weekly course topics. This will be posted in the Assignments tab. Your answer to the question should consist of 2-3 paragraphs, and be about 300-500 words long (unless requested otherwise in the assignment). The reflections should refer to the reading(s) done for that week, and include commentary on your own experiences and research issues. The weekly assignments will give you an opportunity to reflect on the week's readings prior to the class, and prepare for in-class discussion, as well as to forward your thinking about human-centered research related to your research interests. Late submissions will be penalized 50% . Responses will be assigned one of 3 grades: 0 = no response; 1 = Response indicates some understanding of readings but demonstrates no original thought; 2 = Response indicates good understanding of readings and demonstrates original thought.

Weekly discussion questions (5%): Each week you will post 2 short discussion questions (up to 100 words each) based on the discussion topic of the week and the reading assigned for that class period. These will be posted under a thread in the "Discussions" tab, and will be visible to other students. You are welcome to read and comment on each others' questions, and we will also consider some of the student discussion questions during our weekly meeting. These will be **due by 5pm the Sunday before the class meeting**. Late submissions will be penalized 50% . Assignments that are submitted after the start of the class will not be accepted. Responses will be assigned one of 3 grades: 0 = no response; 1 = Response indicates some understanding of readings but demonstrates no original thought; 2 = Response indicates good understanding of readings and demonstrates original thought.

Research article review and presentation (5%): Over the course of the semester (Weeks 3-13) , each student will do one 5-10-minute research article review presentation related to the week's topic. The presentation will be accompanied by a short (around 5 slides) presentation. Students should first identify a research article (that is not required reading on this syllabus, but can be among the optional readings) that exemplifies the method or approach we will be talking about in class. Article summaries may focus on a variety of aspects of the research methodology, such as how the research question is conceptualized, the operationalization and measurement of variables of interest, the choice of data collection and analysis techniques, findings and contributions, methodological critiques, etc. You should consult with the instructor in choosing the course topic and article that you will be working on. We will request students to sign up for their desired presentation slot in the first week of class. At most 2 students can present on any given topic, so make your choices early. The slides for the presentation should be uploaded to Canvas by **5pm on Sunday before class**. Late submissions will be penalized 50%. Assignments that are submitted after the start of the class will not be accepted. No email submissions.

IRB CITI training (5%): To be a responsible consumer and producer of research products, it is important to understand not only the conceptual and pragmatic impacts of research projects, but also the human effects of both the application of methods during the investigation itself, and the subsequent findings. In order to provide an ethical grounding for the course, students are required to complete the Human Subject Research (Social/Behavioral Researcher) course via the CITI module provided by the Office of Research Administration (https://research.iu.edu/training/citi/index.html). Once the course is completed with passing scores (defined as at least 80%), students must save a copy of the Completion Report and submit it via the appropriate Canvas assignment. It you have trouble saving, please do a print screen of the report screen. Take care to select the Social/Behavioral modules, rather than the biomedical modules. If you have completed your CITI training before this class, you do not need to redo it, but must show proof of completion.

Human-centered research proposal and presentation (35%): As we will discuss in this class, proper research design is essential for any rigorous research. Therefore, the primary semester assignment (final project) for this class will be to design a human-centered study in your field of interest. The proposal will allow you to engage with literature on a topic of your choosing, identify a gap in the literature that requires attention, describe the objectives and questions of your particular study, and identify a methodological plan for investigating your questions. The proposal will include all the information you would need to motivate and perform the study, and which would be included in a submission to the Internal Review Board (IRB). This includes a description of the study motivations and aims, a detailed description of the proposed research methods and materials (e.g. study site, main questions, measurement instruments, hypotheses), analytical approach, and sections relating to human subject risks and protections. You should develop a new proposal, not present something which has been previously been written up or submitted to the IRB or another organization (so please don't recycle a proposal for an ongoing or prior project).

   The proposal development process will be supported by assignments throughout the semester, which will include developing research questions, finding and/or constructing measurement instruments appropriate to your research question(s), trying out different data collection methods, piloting some aspects of your study.

Along with submitting a written proposal at the end of the semester (25% of grade), you will also present portions of your work, including an initial draft (5% of grade) as well as the final version of your research proposal (5% of grade), to your peers in class during the semester.

Peer reviews (5%): Peer review is one of the central mechanisms for self-governance in the scientific system. As a scholar, your work will be reviewed by others and you will be asked to review. To practice this, you will be asked to read and briefly comment on the research proposal draft of ate least one of your classmates. These comments should be critical but constructive, meant to help your colleague further develop and improve their proposal. Consider what is strong and/or compelling about your classmate's work, whether their argument is sound and their writing clear, whether there are weaknesses that should be addressed or other ways to improve the assignment, any additional information or resources

that you know that could help them, etc. You will be provided with guidance on how to produce a constructive and professional review. You will be graded on your participation and thoughtful critique.

Informatics colloquium attendance (5%): You should attend an Informatics-related colloquium and/or job talk at least three times during the semester. To verify your attendance, you will need to write up a reflection on the talk, which includes a 1-paragraph summary of the talk and a 1-2 paragraph critique and commentary. We will discuss the colloquia in class every week and those who were in attendance will be asked for their comments. If you find a colloquium or other academic presentation that are relevant to your work or other Informatics scholarship but are not part of the Informatics talk series (e.g. Rob Kling Center, Cognitive Science, Computer Science), let me know what they are so we can decide whether they can be used to fulfill this requirement. The colloquium reflections are each to be submitted only via Canvas no later than **a week after the talk occurred**. Late submissions will be penalized 50% . Assignments that are submitted more than three days after the deadline will not be accepted. No email submissions. Grading will be binary (completed, not completed).

Class participation (15%): Class participation includes but is not limited to regular attendance in the class. It is also based on being prepared for class (e.g. by doing readings, assignments) and making contributions to class discussions. A general rubric for evaluating class participation is provided below.

%	MEANING
15	Perfect attendance; displays knowledge of having read and synthesized all readings; engages in in-class activities and discussions; provides thoughtful discussion of the readings and respectful responses to classmate comments.
13	Missed or was late for up to four classes; displays knowledge of the majority of the readings and provides thoughtful commentary in class; engages in in-class activities and discussions; shows respect for peers.
10	Missed or was late for up to six classes; reads some of the readings and makes at least one comment in class; some engagement in in-class activities and discussions; shows respect for peers.
6	Missed or was late for up to eight classes; does not display a thorough knowledge of the readings and does not add to the discussion; little engagement in in-class activities and discussions; shows respect for peers.
3	Missed or was late for up to ten classes; does not displays a knowledge of the readings and does not add to the discussion; no engagement in in-class activities and discussions; shows respect for peers.
0	Missed more than ten classes; does not discuss; shows no respect for peers.

Readings

There is no required textbook for this course. There is a schedule of selected readings (see below; you are not required to read those designed "optional"), with digital versions made available on the course's Canvas site, in the Files/Readings folder. Most of the books we read selections from are available in the IU library, if you want to read further. Let me know if you would like to find additional resources on any topic; I will be happy to help you find them. For two worthwhile discussions of how to read academic texts (particularly in the social sciences and humanities), see:

- Dumit, J. (2012). How I Read (http://dumit.net/how-i-read/)
- Edwards, P. How to Read a Book (http://pne.people.si.umich.edu/PDF/howtoread.pdf).

Course and Reading Schedule

1/13 Introduction: On interdisciplinarity in the sciences

Note: You will not have a chance to read these two pieces prior to the class, but I suggest you take a look at them after our introductory session. This is optional, not required.

- Campbell, D. "Ethnocentrism of Disciplines and the Fish-Scale Model of Omniscience", in Derry, Schun, Gernsbacher (Eds.) *Interdisciplinary Collaboration: An Emerging Cognitive Science*, pp. 3-20.
- Haraway, D. (1998) "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective". *Feminist Studies, 14(3), 575-99.*

More optional reading:

Optional Readings: Doing, "Give me a laboratory and I will Raise a Discipline", and Giere "Cognitive Studies of Science and Technology" from the *Handbook of Science and Technology Studies.*

1/20 MLK Day - No class

1/27 Studying humans in society

- Agar, M. (2013). *The Lively Science , Ch. 1-3,* pp. 1-109.
- Luker, K. (2008). *Salsa Dancing Into the Social Sciences,Ch. 1-2,* pp. 1-39.
- Siever, R. (1968). Science: Observational, experimental, and historical. *American Scientist, 56,* 70-76.

Optional: Davis, M. (1971). That's Interesting! Towards a phenomenology of sociology and a sociology of phenomenology. *Philosophy of Social Sciences,* 1(4), pp. 309-344.

2/03 Research methods and designs

- Creswell, (2013) *Research Design,* Ch. 1 "A Framework for Design", pp. 3-26.
- Luker, K. (2008). *Salsa Dancing Into the Social Sciences,* Ch. 4, pp. 51-76.
- De Villiers, M. R. (2005). Interpretive research models of Informatics: Action research, grounded theory, and the family of design-development research. *Alternation, 12(2), pp. 10-52.*
- Kitchin, Big Data, New Epistemologies, and Paradigm Shifts. *Big Data & Society,* June 2014, pp. 1-12.

2/10 Data collection, interpretation, and ethics
(Andrew Neel, IRB, guest lecture)

- Luker, K. (2008). *Salsa Dancing Into the Social Sciences, Ch. 6,* pp. 99-129.
- CITI Human Subjects research test: http://researchadmin.iu.edu/EO/eo_citi.html.
- Buchanan and Zimmer, "Internet Research Ethics", *Stanford Encyclopedia of Philosophy.*
- Marwick, Blackwell and Lo (2016). Best practices for conducting risky research and protecting yourself from online harassment. Data & Society.

Optional: Bakardjieva, M., & Feenberg, A. (2000). Involving the virtual subject. Ethics and Information Technology, 2(4), 233-240; boyd, d. & Crawford, K. (2012). Critical Questions for Big Data. *Information, Communication and Society, 15*(5), pp. 662-279; Zimmer, M. (2010). But the Data is Already Public. *Ethics and Information Technology, 12*(4), pp. 313-325.

2/17   Surveys and questionnaires

- Hampton, K., Sessions, L.F., Her, E.J. (2011). "Core Networks, Social Isolation, and New Media: How Internet and Phone Use is Related to Network Size and Diversity." *Information, Communication, & Society 14(1).*
- Go to http://www.pewinternet.org/datasets/august-2008-personal-networks-and-communities/ (Links to an external site.) and download and view the dataset Hampton et al. used to see the kinds of questions they posed, data organization, analysis and reporting, etc.
- Salganik, M.J. (2018). Bit by bit: Social Research in the Digital Age. Chapter 3, "Asking Questions, pp. 85-141.
- Schulz, A. J., Parker, E. A., Israel, B. A., Becker, A. B., Maciak, B. J., & Hollis, R. (1998). Conducting a participatory community-based survey for a community health intervention on Detroit's east side. *Journal of Public Health Management and Practice*, *4*, 10-24.
- Collins, D. (2003). Pretesting Survey Instruments: An Overview of Cognitive Methods. *Quality of Life Research*, Vol. 12, No. 3 (May, 2003), pp. 229-238.

Optional: Heerink, M., Krose, B., Evers, V., Wielinga, B. (2010). Assessing Acceptance of Assistive Social Agent Technology by Older Adults: The Almere Model. *International Journal of Social Robotics 2,* 361-375; Ivancevic, V., Knezevic, M., & Lukovic, I. (2017). Personality questionnaires as a basis for improvement of university courses in applied computer science and informatics. Brain-Broad Research in Artificial Intelligence and Neuroscience, 8(2), 96-108.

2/24   Experimenting with technology

- Salganik, M.J. (2018). Bit by bit: Social Research in the Digital Age. Chapter 4, pp. 147-231.
- Graelis-Garrido, E., Ferres, L., Caro, D., & Bravo, L. (2017). The effect of Pokemon Go on the pulse of the city: a natural experiment. (Links to an external site.) EPJ Data Science, 6(23).

- Barkhuus, L. & Rode, J.A. (2007). [From Mice to Men – 24 Years of Evaluation in CHI.](#) *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems.* (also has a video here: [http://dl.acm.org/citation.cfm?id=2180963](#))
- Greenberg & Buxton (2008). [Usability Evaluation Considered Harmful (Some of the Time)](#). *Proceedings of CHI 2008*

Optional: Gray & Salzman (1998). Damaged Merchandise: A review of experiments that compare usability evaluation methods. *Human-Computer Interaction Journal, 13(3)*, pp. 203-261; Campbell & Stanley, (1963). *Experimental & Quasi-Experimental Designs for Research.* 171-246. (Skim through this to become familiar with different types of experiments; Nass, Steuer, & Tauber (1994). [Computers are Social Actors.](#) *Proceedings of CHI'94*, pp. 72-78

3/02 Participant and non-participant observation
- Nippert-Eng, C. (2015). [Watching Closely: A guide to ethnographic observation.](#) pp. 18-53.
- Salganik, M.J. (2018). [Bit by bit: Social Research in the Digital Age. Chapter 2](#): pp. 13-85.
- '[Making Sense of Teen Life: Strategies for Capturing Ethnographic Data in a Networked Era](#)' in Hargittai and Sandvig (eds.) Digital research confidential: the secrets of studying behavior online. Massachusetts, USA: MIT Press. pp. 79-103.
- Tanaka, Cicourel & Movellan (2007). [Socialization between children and robots at an early childhood education center.](#) *Proceedings of the National Academy of Science*, 104(46): 17954-17958.

Optional: Pearce, A.M. (2017). Exploring performance of gendered identities through language in World of Warcraft. International Journal of Human-Computer Interaction, 33(3), 180-189; Su (2014). The Social Life of Tunes: Representing the Aesthetics of Perception. *Proceedings of the 13th European Conference on Computer-Supported Cooperative Work ECSCW'13*, pp. 207-228; boyd, d. (2016). Williams & Irani, There's Methodology in the Madness: Towards Critical HCI Ethnography. *CHI 2010 Workshop on Alt.ernative methods.;* Bell, G. (2006). [The Age of the Thumb.](#) *Knowledge, Technology and Policy*, 19(2): 41-57; Helmreich, S. (). [An Anthropologist Underwater: Immersive soundscapes, submarine cyborgs, and transduction ethnography](#). *American Ethnologist*, 34 (4): 621-641.

3/09 Interviewing & analyzing content
- Charmaz, [Qualitative Interviewing and Grounded Theory Analysis](#)
- Herring, S.C. (2010). [Web content analysis: expanding the paradigm. (Links to an external site.)](#) The International Handbook of Internet Research.
- Meeks, L. (2018). [Tweeted, deleted: theoretical, methodological, and ethical considerations for examining politicians' deleted tweets.](#) Information Communication & Society, 21(1), 1-13.
- MacLeod, H., Jelen, B., Prabhakar, A., Oehlberg, L., Siek, K., Connelly, K. (2016). [Lessons Learned from Conducting Group-Based Research on Facebook.](#) In *CHI 2016 Case Studies.*

Optional: Kenney, M., Coulthart, S., & Wright, D. (2017). Structure and performance in a violent extremist network: The small-world solution. Journal of Conflict Resolution, 71(10), 2208-2234; Zyskowski, Morris, Bigham, Gray, Kane (2013). Accessible Crowdwork: Understanding the Value in and Challenge of Microtask Employment for People with Disabilities. *CSCW 2015;* Lewis, Zamith, & Hermida (2013). Content Analysis in an Era of Big Data: A Hybrid Approach to Computational and Manual Methods; Carter, D. & Sholler, D. (2016). Data science on the ground: Hype, criticism, and everyday work. JASIST, 67(10), 2309-2319.

3/13 Due: First Draft of Research Proposal

3/16 Spring Break

3/23 Peer Review Class
In class: Discuss peer reviews

3/30 Case studies
- Baxter and Jack, Qualitative Case Study Methodology.
- Yates and Paquette (2011). Emergency knowledge management and social media technologies: A case study of the 2010 Haitian Earthquake. *International Journal of Knowledge Management, 31,* 6-13.
- Williams (2014). Multi-sited design: An analytical lens for transnational HCI. *Human-Computer Interaction*, 29(1), pp.78-108.
- Yazan (2015) Three Approaches to Case Study Methods in Education. *The Qualitative Report,* 20(2), 134-152.

Optional: Yin, *Case Study Research*, Sage Publications; Benbasat, Goldstein and Mead (1987). The Case Research Strategy in Studies of Information Systems. *MIS Quarterly.*

4/6 Critical perspectives
- Rode, J. A. (2011). A theoretical agenda for feminist HCI. Interacting with Computers, 23(5), 393-400.
- Shaowen Bardzell and Jeffrey Bardzell. (2011). Towards a Feminist HCI Methodology: Social Science, Feminism, and HCI. *Proceedings of CHI'11: World Conference on Human Factors in Computing Systems. ACM: New York.*
- Irani et al (2010). Postcolonial Computing, *CHI 2010.*
- Oliver L. Haimson, Jed R. Brubaker, Lynn Dombrowski, and Gillian R. Hayes. 2016. Digital Footprints and Changing Networks During Online Identity Transitions. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*(CHI '16). ACM, New York, NY, USA, 2895-2907

Optional: Strait, M., Ramos, A. S., Contreras, V., & Garcia, N. (2018, August). Robots Racialized in the Likeness of Marginalized Social Identities are Subject to Greater Dehumanization than those racialized as White. In *2018 27th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)* (pp. 452-457). IEEE.

4/13 Participatory approaches to computing
- Kensing & Blomberg (1998). [Participatory Design: Issues and Concerns](#). *Computer Supported Cooperative Work*7: 167–185.
- Carroll, J. M. (2001). [Community computing as human-computer interaction](#). Behaviour & Information Technology, 20(5), 307-314.
- Heeks, R. (2008). [ICT4D 2.0: The next phase of applying ICT for international development.](#) *Computer*, *41*(6).
- Virginia Eubanks, ["Deconstructing the Digital Divide,"](#) talk on *Digital Dead End: Fighting for Justice in Information Age*. MIT Press.

Optional: Hayes, G. (2011) The Relationship of Action Research to HCI, TOCHI 18(3).

4/20 Student presentations

4/27 Student presentations & wrap-up

5/04 Final paper due

Course policies

Attendance: You are expected to attend every class. We can't learn from you if you are not present, and you miss out on contributions by your peers. Attendance will be noted and will make up part of your final grade for the course. You will have two discretionary absences during the semester, which will not count negatively toward your participation. Let me know beforehand if you need to miss class due to a professional, medical, or other reason. If you miss class, any assigned work is due before the class. You are responsible for obtaining class notes for any missed classes from a classmate.

In accordance with university policies, any student who wishes to receive an excused absence for religious observation must submit a request form for each day of absence. This form must be presented to a course instructor by the end of the second week of this semester. A separate form must be submitted for each day of class you will be missing. The form must be signed by an instructor, a copy made, and the original returned to the student. Information about the policy on religious observation can be found at the following web site: http://www.iub.edu/~vpfaa/welcome/forms.shtml#religious.

Email etiquette: Give course instructors up to 24 hours to reply to your emails, and we will do the same for you. We cannot guarantee that we will be able to respond to your queries and concerns over the weekend, so make sure to contact us Monday to Friday for a prompt reply.

Honor code: This class, as all classes at Indiana University, requires that students abide by the "Code of Student Rights, Responsibilities and Conduct." Please familiarize yourself with this document: *[http://www.iu.edu/~code/ (Links to an external site.)](#)*. Students found to be engaging in plagiarism, cheating, or other types of dishonesty may receive a grade of an F on the assignment in question and may be reported to the Dean's Office for appropriate action. In

particular, please understand the various nuances of plagiarism and avoid engaging in this type of behavior. If you have any questions, it is your responsibility to meet with me in advance.

For written work submitted for grading: Deadlines will be stated clearly. Any late assignment, if accepted at all, will be downgraded (10% per day late for the first 3 days, after which it will not be accepted). If a student cannot complete an assignment (or presentation) on the assigned date, it is the student's responsibility to discuss their situation with the instructor. Graded work in this course will be evaluated according to four criteria:

- Written and/or oral clarity, spelling and grammatical correctness
- Insight into the concepts and issues addressed in the course
- Originality in interpretation and analysis
- Appropriate use of relevant literature

All material submitted for this course should be typewritten and legible, with appropriate references in a consistent format of your choice (e.g. MLA, APA, Chicago). If you want some help with writing, IUB has an excellent Writing Center on campus with staff who can assist with all phases of the writing process (https://wts.indiana.edu/)/ (Links to an external site.).

Syllabus changes:
The weekly schedule is a road map; it is not the journey itself, so be flexible about changes that might occur as we travel together. Changes to the syllabus will be announced in class, via email, and in the "Announcements" section of Canvas. You are responsible for keeping up with any changes that are made.