Revisions Through Sept. 10, 2019

Teachers College
Columbia University
Fall 2019

HUDK4052 – Data, Learning, and Society

Instructor/Scrum Master: Hui Soo Chae 500 Russell Hall hsc2001@columbia.edu Office Hours: Thu, 8:00AM-9:00AM + by appointment	Course Assistant/Developer (User Experience): George Nantwi 500 Russell Hall gn2177@tc.columbia.edu Office Hours: By appointment	Course Designer/Product Owner: Gary Natriello 470 Grace Dodge gjn6@columbia.edu Office Hours: On leave 2019-2020
Course Assistant/ Developer: Yi Chen yc3356@tc.columbia.edu Office Hours: None	Course Assistant/ Developer: Malik Mufau amm2415@tc.columbia.edu Office Hours: None	

COURSE GOALS

This course will introduce students to multiple normative perspectives on the activities connected to progress in our capacity to examine learning and learners, represented most notably by the rise of learning analytics. Students who complete the course will have developed strategies for framing and responding to the range of values-laden opportunities and dilemmas presented to the research, policy, and practice communities as a result of the increasing capacity to monitor learning and learners.

COURSE DESIGN

The course utilizes components of the Agile/Scrum method and has multiple layers of activities designed to encourage active learning through the completion of projects.

Weekly Activities

During each week of the semester there are readings and activities to help you move through the course material. Be sure to complete the weekly activities during the week they are assigned.

Workshop Sessions

There are five full-day workshop sessions where your attendance is required. Because these sessions will involve collaborative activities it is essential for everyone to attend. Note that course fees will cover lunch and other workshop materials.

Projects

We will move through four projects that build on one another and culminate in a final course project for the semester. The weekly background readings and activities are designed to help you prepare for the project work, and the five course workshops provide opportunities for collaborate with your project group and advance your projects.

Project 1 – Working with Individual Learner Data

Learners occupy a key position in any system to generate robust data on learning. Indeed they are essential for learning analytics, and as such they have interests more deeply related to the resulting data than other players. Learners have unique claims to the data generated from their learning activities, and they are also uniquely positioned to receive direct benefits from analyses of their own learning. The position of learners within a learning analytics system is the focus of this first project of the course.

Project 2 – Working with Organizational Data

Analytic systems that gather data on learning inevitably also gather data on the provision of learning opportunities. These data can pertain to a variety of entities involved in the provision of learning, including: individual educators, programs, curricula, media, funders, funding streams, institutions, governance regimes, and any other unit in the education delivery system. These entities, or the people associated with them, have interests in both the opportunities and the liabilities associated with the "social lives" of the data that can be connected to them via analytic systems. In this project we consider the impact of these interests on the design and operation of learning analytic systems.

Middle range or mediating structures increasingly hold data of all kinds, including data on learning and learners. Such structures include organizations in which individuals are members and networks that serve to link individuals together in diverse ways. Students participate in both organizations such as schools and networks of various kinds, and both gather student data on learning and other dimensions.

Project 3 – Working with Governmental Data

The rise of information as a salient element in society brings with it the rise of the informational state, that is, political organization characterized by an emphasis on informational power. Informational states are empowered by the ability to control the creation, assembly, and exchange of data of all types. In particular, data on individual citizens equips the state to provide for the security and welfare of citizens even as it concentrates power and influence. This project considers the role of the state in the information ecology of the information era and considers the advantages and disadvantages of that role in the case of data on learning and learners.

Project 4 – Working to Integrate Data from Multiple Levels

The fifth and final project for the course is to draw on principles developed over the semester through readings, discussion, and earlier projects to design a comprehensive approach to an analytics framework/platform that reflects the perspectives developed in the course. This is your opportunity to review and refine your work on prior projects and integrate them.

COURSE REQUIREMENTS

Weekly Readings and Activities

There are assigned common readings throughout the semester. These are essential for providing perspectives and background for all of our work in the course. Most of the readings are available online through the library course reserve system by following the link from the library homepage: http://library.tc.columbia.edu/

Many of the course readings are journal articles or book chapters that will be online. However, please note that publishers may limit use of an ebook to one student at a time so do NOT wait until the deadline to access ebook readings.

During some weeks there will also be activities to complete.

Design Projects

For the four projects you will draw on principles developed in the readings or discussed during the term. For each project you should consider the normative issues surrounding the growing role of data on learning in contemporary societies. Your group will present on each of the projects during the workshop sessions. In addition, you will discuss your role in each project in your individual learning reflections. Your group will submit a written report on the final integrative project by December 17th.

Self-Directed Learning Reflections

Your learning is paramount to the success of the class. Every week you should be taking time to explore course topics and related areas of interest further, and to document/share your thoughts in your group's Rhizr.

Grading

Grades will be determined based on course assignments as follows:
Weekly Self-directed Learning Reflections – 25%
Projects 1-3 – 15% each
Final design project 30%

Schedule of Weekly Readings and Workshop Sessions

Week 1 – Scrum (Week of Sept. 9th)

Vanderjack, B. (2015). *The Agile Edge: Managing Projects Effectively Using Agile Scrum*. New York: Business Expert Press.

Review materials at the following online sites with Scrum resources:

Wikipedia entry - https://en.wikipedia.org/wiki/Scrum_(software_development)

https://www.scrum.org/

https://www.scrumguides.org/index.html
`

Using Scrum for Project Based Learning
https://newlearningtimes.com/cms/article/5937/using-scrum-for-project-based-learning

VIDEO
Introduction to Scrum
https://vialogues.com/vialogues/play/51889

Be sure to review these resources prior to coming to the first meeting on September 10th

Class Session – September 10th – 9:50 AM to 2:50 PM

Week 2 – Individual Data (Week of September 16th)

Booker, E. (2013, Feb. 27). Who owns student data? Information Week.
http://www.informationweek.com/education/policy/who-owns-student-data/240149473

Catalano, F. (2012). How will student data be used. MindShift, July 3.
http://blogs.kqed.org/mindshift/2012/07/how-will-student-data-be-used/

Week 3 – Privacy (Week of September 23rd)

Griffiths, D., et al. (2016). Is privacy a show-stopper for learning analytics: A review of current issues and solutions. LACE
http://www.laceproject.eu/learning-analytics-review/files/2016/04/LACE-review-6_privacy-show-stopper.pdf

Burns, H. (2017, July 27). How to protect your users with the Privacy by Design framework. *Smashing Magazine*. https://www.smashingmagazine.com/2017/07/privacy-by-design-framework/

Vincent, D. (2016). Chapter 5: Privacy and the digital age: 1970-2015. Pp. 123-151 in *Privacy: A short history*. New York: Polity.

Zuboff, S. (2019). Chapter 17: The right to sanctuary. Pp. 475-492 in *The Age of Surveillance Capitalism*. New York: Public Affairs.

VIDEO
Glenn Greenwald – Why Privacy Matters
https://vialogues.com/vialogues/play/51890

Class Session – September 24th – 9:50 AM to 2:50 PM

Week 4 – Selection (Week of September 30th)

Ekowo, M. and Palmer, I. (2016). *The Promise and Peril of Predictive Analytics in Higher Education: A Landscape Analysis*. Washington, DC: New America. https://files.eric.ed.gov/fulltext/ED570869.pdf

O'Neill, C. (2016). Chapter 6: Ineligible to serve, Pp. 105-123 in Weapons of Math Destruction.

Ben Williamson (2016) Digital education governance: data visualization, predictive analytics, and 'real-time' policy instruments, Journal of Education Policy, 31:2, 123-141.

VIDEO
Ethical Use of Predictive Analytics in Higher Education
https://vialogues.com/vialogues/play/51892

Week 5 – Bias (Week of October 7th)

Bozdag, E. (2013). Bias in algorithmic filtering and personalization. *Ethics and Information Technology, 15*(3), 209-227.

Noble, S. (2018). Chapter 5 – The Future of Knowledge in Public (pp. 134-152) and Chapter 6 – The Future of Information Culture (pp. 153-169) in *Algorithms of Oppression: How Search Engines Reinforce Racism*. New York: New York University Press.

De Laat, P. (2018). Algorithmic decision-making based on machine learning from big data: Can transparency restore accountability? *Philosophy & Technology, 31*(4), 525-541.

Lee, N., Resnick, P, and Barton, G. (2019). Algorithmic Bias Detection and Mitigation: Best Practices and Policies to Reduce Consumer Harm. Washington, DC: Brookings. https://www.brookings.edu/research/algorithmic-bias-detection-and-mitigation-best-practices-and-policies-to-reduce-consumer-harms/

VIDEO
Algorithmic Bias: New Research on Best Practices and Policies to Reduce Consumer Harm
https://vialogues.com/vialogues/play/51893

Week 6 – Automation (Week of October 14th)

Webb, A. (2019). Chapter 2 – The Insular World of AI's Tribes (pp. 52-96) and Chapter 3 – A Thousand Paper Cuts: AI's Unintended Consequences, (pp. 97-132) in *The Big Nine: How the Tech Titans and their Thinking Machines Could Warp Humanity*. New York: Public Affairs.

Grodzinsky, F., Miller, K., and Wolf, M. (2009). The ethics of designing artificial agents. *Ethics and Information Technology, 10*(2-3), 115-121.

Luciano Floridi and Sanders, J. (2004). On the Morality of Artificial Agents. *Minds and Machines*, 14(3): 349–379.

Week 7 – Organizations (Week of October 21st)

Daniel, B. (2015). Big Data and analytics in higher education: Opportunities and challenges. *British Journal of Educational Technology, 46*(5), 904–920.

Clayton, M. and Halliday, D. (2017). Big data and the liberal conception of education. *Theory and Research in Education,15*(3), 290–305.

Macfadyen, L., Dawson, S., Pardo, A., and Gasevic, D. (2014). Embracing big data in complex educational systems: The learning analytics imperative and the policy challenge. *Research and Practice in Assessment, 9*(2), 17-28.

Mandinach, E., and Gummer, E. (2015). Data-driven decision making: Components of the enculturation of data use in education. *Teachers College Record, 117*(4), 1-12.

Class Session – October 22nd – 9:50 AM to 2:50 PM

Week 8 – Control/Governance (Week of October 28th)

Hartong, S., & Förschler, A. (2019). Opening the black box of data-based school monitoring: Data infrastructures, flows and practices in state education agencies. *Big Data and Society 6*(1), 1-12.

Redden, J. (2018). Democratic governance in an age of datafication: Lessons from mapping government discourses and practices. *Big Data and Society, 5*(2), 1-13.

Williamson, B. (2016). Digital methodologies of education governance: Pearson plc and remediation of methods. *European Journal of Education, 15*(1), 34-53.

Week 9 – Surveillance (Week of November 4th)

Gilliom, J. and Monahan, T. (2012). Surveillance in Schools. Pp. 72-88 in *SuperVision: An Introduction to the Surveillance Society*. Chicago: University of Chicago Press.

Lindh, M. and Nolin, J. (2016). Information we collect: Surveillance and privacy in the implementation of Google apps for education. *European Educational Research Journal, 15*(6), 644-663.

Lyon, D. (2018). Introduction: The Culture of Surveillance Takes Shape (pp. 9-28) Part 1 – Culture in Context (pp. 29-51) in *The Culture of Surveillance: Watching as a Way of Life*. New York: Polity Press.

VIDEO
Surveillance Capitalism - 1
https://vialogues.com/vialogues/play/51894

Surveillance Capitalism - 2
https://vialogues.com/vialogues/play/51895

Week 10 – Social Impact and Political Action (Week of November 11th)

Harper, T. (2017). The big data public and its problems: Big data and the structural transformation of the public sphere. *New Media & Society, 19*(9), 1424-1439.

Brady, H. (2019). The challenge of big data and data science. *Annual Review of Political Science, 22*, 297-323.

Milan, S. (2018). Political agency, digital traces, and bottom-up data practices *International Journal of Communication, 12*, 507-525
Available at SSRN: https://ssrn.com/abstract=3055569

Helbing, D. , et al. (2017). Will democracy survive big data and artificial intelligence? *Scientific American*, Feb. 25.
https://www.scientificamerican.com/article/will-democracy-survive-big-data-and-artificial-intelligence/

Week 11 – Information Policy (Week of November 18th)

Braman, S. (2006). An introduction to information policy. Chapter 1 (pp. 1-8) in S. Braman. *Change of State: Information, Policy, and Power*. Cambridge, MA: MIT Press.

Braman, S. (2006). Forms and phases of power: The bias of the informational state. Chapter 2 (pp. 9-38) in S. Braman. *Change of State: Information, Policy, and Power*. Cambridge, MA: MIT Press.

Braman, S. (2011). Defining information policy. *Journal of Information Policy*, *1*, 1–5.

Washington, A, (2016). Government information policy in the era of big data. *Review of Policy Research, 31*(4), 319-325.

VIDEO
Sandra Braman on Information Policy, Power, and the Informational State
https://vialogues.com/vialogues/play/51896

Class Session – November 19th – 9:50 AM to 2:50 PM

Week 12 – Cross-National Issues (Week of November 25th)

Chang, C. and Chen, J. (2017). The information ethics perception gaps between Chinese and American students: A Chinese guanxi perspective. Information Technology & People, 30(2), 473-502.

Capurro, R. (2005). Privacy: An intercultural perspective. *Ethics and Information Technology, 7*(1), 37-47.

Nakada, M. (2005). Japanese conceptions of privacy: An intercultural perspective. *Ethics and Information Technology, 7*(1), 27-36.

Yao-Huai, L. (2005). Privacy and data privacy issues in contemporary China. *Ethics and Information Technology, 7*(1), 7-15.

VIDEO

Digital Dystopia in China
https://vialogues.com/vialogues/play/51897

Week 13 – Freedom (Week of December 2nd)

Beer, S. (1973). *Designing Freedom* (Massey Lectures) (pp. 1-43)
http://ada.evergreen.edu/~arunc/texts/cybernetics/beer/book.pdf

MacKinnon, R. (2012). Facebookistan and Googledom. Pp. 149-165 in *Consent of the Networked: The Worldwide Struggle for Internet*. New York: Basic.

Zuboff, S. (2019). Chapter 6 – Hijacked: The division of learning in society. Pp, 176-195 in *The Age of Surveillance Capitalism*. New York: Public Affairs.

VIDEO
Your Data or Your Freedom
https://vialogues.com/vialogues/play/51898

Week 14 – Final Iteration (Week of December 9th)

Class Session – December 10th – 9:50 AM to 2:50 PM

Week 15 – Retrospective (Week of December 16th)

The Provost and Dean of the College in conjunction with the Faculty has adopted the following statements to be included on all Teachers College syllabi.

1. **Accommodations** – The College will make reasonable accommodations for persons with documented disabilities. Students are encouraged to contact the Office of Access and Services for Individuals with Disabilities (OASID) for information about registration. You can reach OASID by email at oasid@tc.columbia.edu, stop by 301 Zankel Building or call 212-678-3689. Services are available only to students who have registered and submit appropriate documentation. As your instructor, I am happy to discuss specific needs with you as well. Please report any access related concerns about instructional material to OASID and to me as your instructor.
2. **Incomplete Grades** – For the full text of the Incomplete Grade policy please refer to http://www.tc.columbia.edu/policylibrary/Incomplete Grades
3. **Student Responsibility for Monitoring TC email account** – Students are expected to monitor their TC email accounts. For the full text of the Student Responsibility for Monitoring TC email account please refer to http://www.tc.columbia.edu/policylibrary/Student Responsibility for Monitoring TC Email Account
4. **Religious Observance** – For the full text of the Religious Observance policy, please refer to http://www.tc.columbia.edu/policylibrary/provost/religious-observance/
5. **Sexual Harassment and Violence Reporting** – Teachers College is committed to maintaining a safe environment for students. Because of this commitment and because of federal and state regulations, we must advise you that if you tell any of your instructors about sexual harassment or gender-based misconduct involving a member of the campus community, your instructor is required to report this information to the Title IX Coordinator, Janice Robinson. She will treat this information as private, but will need to follow up with you and possibly look into the matter. The Ombuds officer for Gender-Based Misconduct is a confidential resource available for students, staff and faculty. "Gender-based misconduct" includes sexual assault, stalking, sexual harassment, dating violence, domestic violence, sexual exploitation, and gender-based harassment. For more information, see http://sexualrespect.columbia.edu/gender-based-misconduct-policy-students.
6. **Emergency Plan** – TC is prepared for a wide range of emergencies. After declaring an emergency situation, the President/Provost will provide the community with critical information on procedures and available assistance. If travel to campus is not feasible, instructors will facilitate academic continuity through Canvas and other technologies, if possible.
    1. It is the student's responsibility to ensure that they are set to receive email notifications from TC and communications from their instructor at their TC email address.
    2. Within the first two sessions for the course, students are expected to review and be prepared to follow the instructions stated in the emergency plan.
    3. The plan may consist of downloading or obtaining all available readings for the course or the instructor may provide other instructions.
7. Students who intentionally submit work either not their own or without clear attribution to the original source, fabricate data or other information, engage in cheating, or misrepresentation of academic records may be subject to charges. Sanctions may include dismissal from the college for violation of the TC principles of academic and professional integrity fundamental to the purpose of the College.