



Sungkyunkwan University (SKKU) International Summer Semester (ISS) 2020

Human-Centred Data Science Practice

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SHORT COURSE DESCRIPTION

This course explores contemporary and emerging data science practices through a human-centred lens. We will pay particular attention to human factors and societal concerns at play in the conception, design and deployment of data, analytics and AI. Using case studies and real-life practice contexts, students will interrogate and justify ethical responsibilities related to data selection, access, analysis and governance to create a framework for their own practice. Students will work individually and in group settings to develop a fuller understanding of the ways data and AI-informed technologies may impact society. They will also have opportunities to practice the application of solution ideas on business scenarios directly relevant to their own practice experiences and target industry contexts. Upon successful completion of this course, students will be able to articulate the strengths, weaknesses, limitations and benefits of current and emerging data science concerns from a human-centred perspective. At the conclusion of the course, students will have the opportunity to share their learning achievements in a showcase of their work. We will also explore ways that the techniques acquired for assessing the social implications of data science contexts can help students differentiate themselves on the job market.

READING MATERIALS

The following texts provide excellent background to topics explored in this course. Specific instructions to guide students through reading relevant to each class session will be provided prior to the start of the semester:

- Boyd, D. & Crawford, K. 2012. Critical questions for big data: Provocations for a cultural, technological, and scholarly phenomenon. *Information, communication and society* 15, 5, 662–679.
- Carmy, C. 2017. We are what we measure, *Medium*, 16 Sept 2017, <https://medium.com/@carinecarmy/we-are-what-we-measure-dc0f66aaf68f>
- Dourish, P. 2016. Algorithms and their others: Algorithmic culture in context. *Big Data & Society*, 3, 2, <https://doi.org/10.1177/2053951716665128>
- Fontaine, T., McCarthy, B., & Saleh, T. 2019. Building the AI-Powered organization. *Harvard Business Review*, 63-73. <https://hbr.org/2019/07/building-the-ai-powered-organization>
- Hand, D. 2018. Aspects of Data Ethics in a Changing World: Where Are We Now? *Big Data*, 6, 3, <https://www.liebertpub.com/doi/pdf/10.1089/big.2018.0083>
- Meyer, Eric T. 2014. Examining the Hyphen: The Value of Social Informatics for Research and Teaching. In Pnina Fichman and Howard Rosenbaum (Eds.), *Social Informatics: Past, Present and Future* (pp. 57-74). Cambridge, UK: Cambridge Scholarly Publishers.
- Metcalf, J., & Crawford, K. 2016. Where are human subjects in big data research? The emerging ethics divide. *Big Data & Society*, 3,1, <https://doi.org/10.1177/2053951716650211>
- O’Neil, C. 2016. The Ethical Data Scientist, *Slate: Future Tense* (4 Feb 2016) <https://slate.com/technology/2016/02/how-to-bring-better-ethics-to-data-science.html>
- Taddeo, M. & Floridi, L. (Eds). 2016. Theme issue ‘The ethical impact of data science’ *Philosophical Transactions of the Royal Society* 374, 2083 (28 December 2016) <https://royalsocietypublishing.org/toc/rsta/2016/374/2083>
- Taylor, L. and Purtova, N. 2019. What is responsible and sustainable data science?. A Commentary *Big Data & Society*, 6, 2, <https://doi.org/10.1177/2053951719858114>
- Wallach, H. 2014. Big Data, Machine Learning, and the Social Sciences: Fairness, Accountability, and Transparency. *Medium*. 19 Dec 2014. <https://medium.com/@hannawallach/big-data-machine-learning-and-the-social-sciences-927a8e20460d>

COURSE REQUIREMENTS AND GRADING

Attendance and Preparation: The course is designed as an interactive learning experience in which students are expected to actively prepare for, participate in and contribute to class discussions. Through class discussions, case studies and exercises students will leverage peer-learning opportunities, develop effective strategies for working as a part of a data science team, and gain understanding of the diverse perspectives on many different topics in data science. To successfully complete this course, students must participate actively and achieve a Pass in all assessment tasks.

Grading and Assessment: All ISS classes are pass/fail, based on the student academic achievement evaluated by grades on a scale of 100 points (grade of 60 or above is Pass). SKKU regulations require students to attend at least 80% of all classes. Students will also be expected to maintain standards of academic integrity at all times: cheating, plagiarism or knowingly providing false information are prohibited with penalties applicable.

Grade Distribution (out of 100):

Participation in class activities: 20%

Discussion Paper about a Data Science Trend, Development or Tool (Assignment 1) 35%

Case Study of Ethical Data Science Practice (Assignment 2): 45%

COURSE SCHEDULE

– WEEK I –

Thursday (25 June) Introduction: Identifying themes of interest; Building teams

Friday (26 June) Exploring data science through sociotechnical and philosophical lenses

– WEEK II –

Monday (29 June) Contemporary data science practice: Trends and technologies

Tuesday (30 June) Understanding the social shaping of information and technologies

Wednesday (1 July) Data science philosophy: Society, technology and change

Thursday (2 July) Designing for humans: Principles of human-centred design

– WEEK III –

Monday (6 July) Social and ethical issues associated with data & AI technologies

Tuesday (7 July) Challenges for data collection, representation & interpretation

Wednesday (8 July) Mitigating risks and unintended consequences

Thursday (9 July) Speculating about the implications for future social and work contexts

– WEEK IV–

<u>Monday (13 July)</u>	Institutional and cultural contexts of data science
<u>Tuesday (14 July)</u>	Social transformation in data-intensive societies: Implications for practice
<u>Wednesday (15 July)</u>	Transdisciplinary mindsets for human-centred data science solutions
<u>Thursday (16 July)</u>	Connecting learning to theory & practice of human-centred data science
<u>Friday (17 July)</u>	Imagining data science futures

(please note that this schedule is tentative: as the course delivery involves active class participation, the pace and some specific themes will be shaped by class interaction)