

## Course Outline

**DATA5002 Data Science, Ethics and Society**  
**COMS5225 Critical Data Studies**  
**DIGH5902 Special Topics in Digital Humanities**  
**Winter Term 2024**

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### Course Information

**Instructor:** Dr Tracey P. Lauriault, Associate Professor,

Critical Media and Big Data, School of Journalism and Communication

**Contact:** [Tracey.Lauriault@carleton.ca](mailto:Tracey.Lauriault@carleton.ca) DATA5002/COMS5225/DIGH5902 in the subject line

**Student Hours:** Thursdays, 13:30 – 15:30

**Course Website:** <https://brightspace.carleton.ca/d2l/home>.

**Prerequisites:** MA in Data Science, or Data Science, Analytics, & Artificial Intelligence

**Preclusions:** Additional credit for COMS 5225, ITEC 5206.

Brightspace access for University of Ottawa Students; please see information here:

<https://gradstudents.carleton.ca/faculty-of-graduate-and-postdoctoral-affairs-access-to-brightspace/>

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### Course Calendar Description

The ethical, social, political, and environmental implications of data science including the roles and responsibilities of data scientists in contemporary and emerging technological systems and the impact these systems may have at multiple scales, individual, group, institution, across sectors and nation-states.

### Topics Covered and Learning Outcomes

The emphasis is to learn to envision data genealogically, as a social and technical assemblages, as infrastructure and reframe them beyond technological conceptions. During the term we will explore data, facts and truth; the power of data both big and small; governmentality and biopolitics; risk, probability and the taming of chance; algorithmic culture, data governance, dynamic nominalism, categorization and ontologies; the translation of people, space and social phenomena into and by data and software and the role of data in the production of knowledge.

This class format is in person, a graduate MA seminar and a collaborative workshop. We will work with Ottawa Public Health and critically examine the socio-technological data assemblage, and ethical issues pertaining to the testing of wastewater.

## Assessment

1. Data Description & Conceptualization, 3-pages	Week 2 Jan. 19 @08:00	10%
2. Weekly 1-2 page (max) reading reflections - handwritten	Weekly @ end of class	20%
3. In-Class Indigenous Data Map Assignment	Week 8 Mar. 8 @23:59	10%
4. Research Paper and Poster Project	<b>Total 55%</b>	
4.1 Introduction to the GIS Lab in the MacOdrum Library	Week 2 Jan. 19	
4.2 Meeting w/ Ottawa Public Health Community Partner	Week 3 Jan. 26	
4.3 Paper & Poster Project Proposal – Quad Chart	Week 4 Feb. 2	
4.4 Revised Paper & Poster Project Proposal – Quad Chart	Week 5 Feb. 9	5%
4.5 DRAFT Paper outline + Poster Abstract - Peer Review	Week 6 Feb.16	
4.6 Submit Poster Abstract (CULearn & CUIDS w/Consent Form)	TBD	5%
4.7 Draft Poster for In-Class Peer Review	Week 9 Mar. 15	
4.8 Print Final Poster & Submit to CULearn	Week 10 Mar. 22	15%
4.9 Attend Data Day 10.0	Tuesday Mar. 26	
4.10 Submit Final Research Paper to CULearn, 15-20 pages & present poster to the Community Partner	Week 12 Apr. 10	35%
	<b>Total</b>	<b>100%</b>

### 1. Data Description and Conceptualization - Due Week 2, Jan. 19, 08:00 (10%):

Select a dataset related to this year's theme of testing wastewater. In a **total of 3 pages** describe these data in the form of an analytical report to be submitted to an executive who must decide if these data are fit for purpose. Technical descriptions of data generally include the following, but do not be limited to this: format, sample size, headings, metadata, licences and terms of use, data dissemination method/platform, publisher, producing institution, authors, methodology, dates, geography, classifications, models, methods, etc. Be sure to cite the dataset & provide the URL, cite any related documentation, you can use footnotes, images and tables if useful. Get to know these data. You will also conceptually frame these data according to Kitchin's conceptualizations (Week 1 readings) and identify any elements of the socio-technological assemblage. This can be done in a table. How might these data inform your final project? NOTE: Images, tables and references do not go against your page count.

### 2. Weekly Reading Reflections (20%) hand written, accepted in class only.

Students will submit weekly critical reflections of 1 of the compulsory readings and 1 of the thematic readings. Ideally, a reflection might refer to the resource materials, but that is not compulsory. Students are expected to conceptually integrate the readings, identify important concepts, and relate the material to their final project. Each reflection should end with a question for the class.

**3. Indigenous knowledge mapping in-class Assignment Week 7 Mar. 1 (10%)**

This assignment will be conducted during class time in the MacOdrum Library.

**4. Research paper and poster project – Water Testing, Ethics and Society**

Students will demonstrate their familiarity with the course material by applying critical data studies, ethics & society concepts and theories related to this year's theme which is about wastewater testing and public health. This consists of a paper proposal, a conference abstract, a poster to be presented at the Data Day 10.0 Conference on March 26 organized by the Carleton Institute for Data Science and a final research paper. The research paper will aim to address a specific research question identified in the poster. This is evidence informed research which must involve a combination of academic and grey literature and include a series of recommendations for our community partner which is Ottawa Public Health (OPH). The readings can be used.

**4.1 Visit to the MacOdrum Library GIS Lab Week 2 Jan. 19**

This will be a short visit to the lab at the end of the class where students will be introduced to the GIS librarian, software and data resources.

**4.2 Meeting w/ Ottawa Public Health Community Partner Week 3 Jan. 26**

Cameron McDermaid, Senior Epidemiologist at City of Ottawa, Ottawa Public Health (OPH), is our community Partner. He will give a 45 min. lecture about OPH and present the ethical benefits and challenges of testing waste water for disease and drugs. This will be followed by a 45 min. question and answer period.

**4.3 Poster Project Proposal, 1-p. Quad Chart, Week 4 Feb.2, @08:00**

1. Introduce the wastewater issue you will examine
2. Provide two potential research questions
3. State your theoretical framework, methodological approach, concepts, etc.
4. References

**4.4 Submit revised Paper & Poster Project Proposal – 1-p. Quad Chart, Week 5 Feb. 9 (5%)****4.5 DRAFT Outline of paper & poster abstract for peer review Week 6, Feb. 16**

Follow the CUIDS abstract instructions. Also provide a table of contents of your final research paper.

**4.6 Submit Final Poster Abstract & consent form to CUIDS & Brightspace date TBD (5%)****4.7 Draft of Poster for In-Class Peer Review Week 9 Mar. 15**

See CUIDS poster instructions. A poster is a form of scholarly communication common in science and engineering. You will adapt this format to critical data studies, data science, ethics and society and your topic. Here are some useful guidelines:

- NYU Libraries Guide: <http://guides.nyu.edu/c.php?g=276826&p=1846154>
- Urbana Champaign Library Guide: <http://guides.library.illinois.edu/c.php?g=347412&p=2343433>
- 10 Simple Rules for a Good Poster Presentation: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1876493/>

**4.8 Print poster and submit digital copy to CULearn Week 10 Mar. 22 (15%)**

If your poster is accepted for Data Day 10.0 a printout of your poster will be required. The submission guidelines are to follow. Your grade is not contingent on whether or not your submission is accepted.

**4.9 Attend Data Day 10.0 Poster Session Week 10 Tuesday Mar. 26****4.10 Submit final research paper to Brightspace Week 12 Apr. 10, 35%.**

A copy of the paper and poster will be shared, with your consent to Cameron McDermaid and other officials at OPH. Posters and papers will be presented to OPH during the last class.

**Assignment Submission Instructions:**

Assignments are to be submitted ON TIME to Brightspace and students must use the assignment submission template format, and file naming conventions. Weekly reflections are handwritten and are to be submitted at the end of class ONLY. The class also involves a field trip to the GIS Library, an assignment in the MacOdrum Map Library, meeting with a community partner, a poster presentation at Data Day 10.0. Assignment instructions are provided on Brightspace.

**File naming Convention:**

LastNameFirstName\_COURSEid\_CourseName\_Assignment#\_ddmmyyy

**Document Header:**

COURSEid CourseName, Submitted to: Dr. Tracey P. Lauriault, Assignment #, ddmmyyy,  
First Name Last Name, Student ID

**Format:**

- Format: .doc, .docx, .rtf (**NO** .pdf or Pages)
- Use 12 pt. font, 1.5 line spacing, 1-inch margins, indent paragraphs
- Include page numbers
- captions for figures and tables,
- Format using MS styles

**Abstract:**

- Follow CUIDS requirements and those of this class

**Poster:**

- Follow CUIDS requirements and those of this class

**Citation style:**

- Chicago, Harvard, APA, IEEE, or any other system, just be consistent, footnotes are acceptable.
- **See** Harvey, Gordon. 2017. Writing with Sources: A Guide for Students. Third edition. Indianapolis: Hackett Publishing Company, Inc. [https://ocul-crl.primo.exlibrisgroup.com/permalink/01OCUL\\_CRL/hgdufh/alma991023129233305153](https://ocul-crl.primo.exlibrisgroup.com/permalink/01OCUL_CRL/hgdufh/alma991023129233305153)

## Required Textbook(s) and Other Resources

### Compulsory Readings & Thematic Readings:

Each week there is a set of compulsory readings & thematic readings. Students will pick one set of each and are expected to read these in preparation for class discussion and to inform their weekly reflections submissions. **We will divide the readings among students during the Week 1 class.** There will be on average 2-3 compulsory readings per week per student.

### Resources Materials:

Resources are provided weekly in the course outline and additional resources may include news articles, reports, standards, etc. Peruse these, they will be discussed but are not compulsory reading. They may however be very useful to your final project.

### In-Class Activities, Discussions and Peer Reviewing:

The class is a seminar and a workshop. There will be in-class activities directly related to the Week's topic and readings. Please bring a laptop or other electronic device to class and be prepared to do some group data work! We will also peer review proposals, abstracts and posters during class.

### Library Lab:

The Week 7, Mar. 1, class will be held in the MacOdrum Map Library on the 1st floor. Students will learn to read Atlas of Canada historical and contemporary maps of indigenous topics.

## Schedule:

### Week 1 – Jan. 12 – Introduction – Metrology and critical Data Studies

This week we will get to know each other, discuss course objectives, assignments, expectations and divide the weekly readings among the students. This will be accompanied by a short introductory lecture.

#### *Compulsory Readings:*

Kitchin, Rob. 2022. *The Data Revolution: A Critical Analysis of Big Data, Open Data and Data Infrastructures*. Second edition. London ; SAGE.

- **Chapter 1.** Introducing Data
- **Chapter 2.** Critical Data Studies

Haggart, Blayne and Tusikov, Natasha. 2023. *The New Knowledge : Information, Data and the Remaking of Global Power*, edited by Blayne Haggart and Natasha Tusikov. Digital Technologies and Global Politics. Lanham: Rowman & Littlefield Publishers.

<https://proxy.library.carleton.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=3626576&site=ehost-live>.

- **Chapter 1:** Defining Knowledge: The Eight Principles.
- **Chapter 4:** Demystifying Data

*Resource Materials:*

Geddes, Bronwen. 2015. "Measuring Wellness: An Indicator Development Guide for First Nations." Ktunaxa Nation: First Nations of British Columbia, held in trust by Ktunaxa Nation Council.

[https://static1.squarespace.com/static/558c624de4b0574c94d62a61/t/574de5d7ab48de9a7db592da/1464722919928/BCFNDGI\\_-\\_INDICATOR\\_DEVELOPMENT\\_GUIDE.PDF](https://static1.squarespace.com/static/558c624de4b0574c94d62a61/t/574de5d7ab48de9a7db592da/1464722919928/BCFNDGI_-_INDICATOR_DEVELOPMENT_GUIDE.PDF).

Gould, Stephen Jay (1996) Measuring Bodies: Two Case Studies on the Apishness of undersireables. Chapter 4 in Gould, Stephen Jay. 1996. The Mismeasure of Man. Rev. and Expanded. New York: Norton.

Musée des Arts et Métiers, 2018, Made to Measure: The World's 7 Units, Catalogue d'exposition, Bureau International des Poids et Mesures et Laboratoire National de Métrologie et d'Essais (LNE), Flammarion.

**Week 2 – Jan. 19 – Data & Wastewater Ethics**

There will be a small field trip to the GIS lab in the MacOdrum Library at the end of the class. You will meet the GIS Librarian Rebecca Bartlet who will introduce you to the facilities and the data resources.

*Compulsory Readings:*

Goltz, Nachshon. 2023. Real World AI Ethics for Data Scientists: Practical Case Studies. Chapman & Hall/CRC Data Science Series. Boca Raton: Chapman & Hall/CRC.

- Chapter 1: Moral Machines
- Chapter 2: Introduction to Ethical Approaches in Data Science

Pinto, Andrew D., and Ross Upshur. 2013. An Introduction to Global Health Ethics.

Abingdon, Oxon: Routledge. <https://doi.org/10.4324/9780203082225>.

- Chapter 2: Ethics and Global Health
- Chapter 4: Human Rights Discourse within Global Health Ethics.

Scassa, Teresa, Pamela Robinson, and Ryan Mosoff. 2022. "The Datafication of Wastewater: Legal, Ethical and Civic Considerations." *Technology and Regulation* 2022 (February): 23–35. <https://doi.org/10.26116/techreg.2022.003>.

Quinn, Michael J. 2016. "Chapter 2: Introduction to Ethics." In *Ethics for the Information Age*, 7th edition. Boston: Pearson.

*Compulsory Thematic Readings:*

Bowes, Devin A., Amanda Darling, Erin M. Driver, Devrim Kaya, Rasha Maal-Bared, Lisa M. Lee, Kenneth Goodman, et al. 2023. "Structured Ethical Review for Wastewater-Based Testing." Preprint. *Medical Ethics*.

<https://doi.org/10.1101/2023.06.12.23291231>.

Hassard, Francis, Lian Lundy, Andrew C Singer, Jasmine Grimsley, and Mariachiara Di Cesare. 2021. "Innovation in Wastewater Near-Source Tracking for Rapid Identification of COVID-19 in Schools." *The Lancet Microbe* 2 (1): e4–5.

[https://doi.org/10.1016/S2666-5247\(20\)30193-2](https://doi.org/10.1016/S2666-5247(20)30193-2).

Hrudey, Steve E., Diego S. Silva, Jacob Shelley, Wendy Pons, Judy Isaac-Renton, Alex Ho-Shing Chik, and Bernadette Conant. 2021. "Ethics Guidance for Environmental Scientists Engaged in Surveillance of Wastewater for SARS-CoV-2." *Environmental Science & Technology* 55 (13): 8484–91. <https://doi.org/10.1021/acs.est.1c00308>.

Meir Rinde. n.d. "The Murky Ethics of Wastewater Surveillance." Science History Institute. Accessed January 3, 2024. <https://www.sciencehistory.org/stories/magazine/the-murky-ethics-of-wastewater-surveillance/>.

O'Keeffe, Juliette. 2021. "Wastewater-Based Epidemiology: Current Uses and Future Opportunities as a Public Health Surveillance Tool." *Environmental Health Review* 64 (3): 44–52. <https://doi.org/10.5864/d2021-015>.

Prouse, Carolyn, Christopher Reimer, and Mohammed Rafi Arefin. 2022. "Targeted Wastewater Surveillance Has a History of Social and Ethical Concerns." *The Conversation*, June 9, 2022. <http://theconversation.com/targeted-wastewater-surveillance-has-a-history-of-social-and-ethical-concerns-183570>.

#### Resource Materials:

Canadian Coalition on Wastewater-related COVID-19 Research. 2020. "Ethics and Communications Guidance for Wastewater Surveillance to Inform Public Health Decision-Making about COVID-19." <https://cwn-rce.ca/wp-content/uploads/COVID19-Wastewater-Coalition-Ethics-and-Communications-Guidance-v4-Sept-2020.pdf>.

D'Aoust, Patrick M., Elisabeth Mercier, Danika Montpetit, Jian-Jun Jia, Ilya Alexandrov, Nafisa Neault, Aiman Tariq Baig, et al. 2021. "Quantitative Analysis of SARS-CoV-2 RNA from Wastewater Solids in Communities with Low COVID-19 Incidence and Prevalence." *Water Research* 188 (January): 116560. <https://doi.org/10.1016/j.watres.2020.116560>.

Grievson, Oliver, Timothy Holloway, and Bruce Johnson, eds. 2022. *A Strategic Digital Transformation for the Water Industry*. IWA Publishing. <https://doi.org/10.2166/9781789063400>.

"PHAC Wastewater Monitoring Program for COVID-19." 2023. National Collaborating Centre for Infectious Diseases (blog). November 29, 2023. <https://nccid.ca/wastewater-surveillance-for-covid-19/>.

US Government and Federal Data Strategy. 2020. "Data Ethics Framework." 2020. <https://resources.data.gov/assets/documents/fds-data-ethics-framework.pdf>

#### **Week 3 – Jan. 26 – Dashboards and Ottawa Public Health Community Partner Visit, Cameron McDermaid**

##### Compulsory Readings:

Mattern, Shannon. 2015. "Mission Control: A History of the Urban Dashboard." *Places Journal*, no. 2015 (March). <https://doi.org/10.22269/150309>.

Kitchin, Rob; Lauriault, Tracey P. and McArdle, Gavin (2014) Knowing and governing cities through urban indicators, city benchmarking and real-time dashboards, *Regional Studies and Regional Science*

<http://dx.doi.org/10.1080/21681376.2014.983149>

Matheus, Ricardo, Marijn Janssen, and Devender Maheshwari. 2018. "Data Science Empowering the Public: Data-Driven Dashboards for Transparent and Accountable Decision-Making in Smart Cities." *Government Information Quarterly*, February. <https://doi.org/10.1016/j.giq.2018.01.006>.

#### ***Compulsory Thematic Readings:***

Buttigieg, Sandra C., Adriana Pace, and Cheryl Rathert. 2017. "Hospital Performance Dashboards: A Literature Review." *Journal of Health Organization and Management* 31 (3): 385–406. <https://doi.org/10.1108/JHOM-04-2017-0088>.

Friendly, Michael. 2021. "Chapter 7: The Golden Age of Statistical Graphics." In *A History of Data Visualization and Graphic Communication*. Cambridge, Massachusetts ; Harvard University Press. <https://doi.org/10.4159/9780674259034>.

#### ***Resource Materials:***

Canada, Public Health Agency of. 2022. "COVID-19 Wastewater Monitoring Dashboard - Canada.Ca." Datasets;statistics;education and awareness. Aem. April 29, 2022. <https://health-infobase.canada.ca/covid-19/wastewater/>.

City of Ottawa. 2020. "Daily COVID-19 Dashboard." December 16, 2020. <https://www.ottawapublichealth.ca/en/reports-research-and-statistics/daily-covid19-dashboard.aspx>.

"COVID-19 Wastewater Surveillance in Ontario." n.d. Public Health Ontario. Accessed January 3, 2024. <https://www.publichealthontario.ca/en/Data-and-Analysis/Infectious-Disease/COVID-19-Data-Surveillance/Wastewater>.

Tkacz, Nathaniel and Bartlet, Jaimie. 2017. "Governance by Dashboard." Demos. <https://demos.co.uk/wp-content/uploads/2017/04/Demos-Governance-by-Dashboard.pdf>.

Few, Stephen. 2005. "Common Pitfalls in Dashboard Design," 31.

#### **Week 4 – Feb. 2 – Facts**

##### ***Compulsory Readings:***

Feinberg, Melanie. 2022. "Objectivity." In *Everyday Adventures with Unruly Data*. Cambridge, Massachusetts: The MIT Press.

Gitelman, Lisa. 2013. "*Raw Data*" Is an Oxymoron. MIT Press. <https://ieeexplore-ieee-org.proxy.library.carleton.ca/book/6451327>.

- Chapter 5: "facts and Facts": Abolitionists' Database Innovations,
- Chapter 1: Data Before the Fact

Latour, Bruno and Woolgar, Steve (1986) *The Construction of a Fact: The Case of TRF*, Ch. 3 in *Laboratory Live: The Construction of Scientific Facts*, Princeton University Press. pp. 105-150.



- Saetnan, Ann Rudinow, Heidi Mork Lomell, and Svein Hammer. 2010. "Introduction: By the Very Act of Counting - The Mutual Construction of Statistics and Society." In *The Mutual Construction of Statistics and Society*. London, UNITED KINGDOM: Taylor & Francis Group. <http://ebookcentral.proquest.com/lib/oculcarleton-ebooks/detail.action?docID=574460>.
- Shapin, Steven. 2015. "Truth and Credibility in Science." In *International Encyclopedia of the Social & Behavioral Sciences (Second Edition)*, edited by James D. Wright, 673–78. Oxford: Elsevier. <https://doi.org/10.1016/B978-0-08-097086-8.85039-4>.
- Wihbey, John P. n.d. "Chapter 3: Social Facts and Contested Knowledge." In *The Social Fact: News and Knowledge in a Networked World*. Cambridge, MA: MIT Press. Accessed January 5, 2024. <https://ieeexplore-ieee-org.proxy.library.carleton.ca/document/8686276>.
- Wootton, David. 2016. "Chapter 7: Facts." In *The Invention of Science: A New History of the Scientific Revolution*, First Harper Perennial edition. New York, NY: Harper Perennial.

#### *Compulsory Thematic Readings:*

- Campbell, Rebecca; Shaw, Jessica and Fehler–Cabral, Giannina (2015) *Shelving Justice: The Discovery of Thousands of Untested Rape Kits in Detroit, City & Community*, 14 (2) 2, pp.151–166. DOI: 10.1111/cico.12108
- Kragh-Furbo, Mette, Mackenzie, Adrian, Mort, Maggie, and Roberts, Celia. n.d. In *Quantified: Biosensing Technologies in Everyday Life*, edited by Dawn Nafus. IEEE Xplore. Cambridge, MA: MIT Press. Accessed January 5, 2024. <https://ieeexplore-ieee-org.proxy.library.carleton.ca/book/7580015>.
- Chapter 1: Do Biosensors Biomedicalize? Sites of Negotiation in DNA-Bases Biosensing Data Practices.
  - Chapter 10: Field Notes in Contamination Studies
- Stevens, Hallam. 2013. *Life out of Sequence: A Data-Driven History of Bioinformatics*. Chicago ; The University of Chicago Press.
- Chapter 5: Ordering Objects
  - Chapter 6: Seeing Genomes
- Yang, Zhugen, Gaolian Xu, Julien Reboud, Barbara Kasprzyk-Hordern, and Jonathan M. Cooper. 2017. "Monitoring Genetic Population Biomarkers for Wastewater-Based Epidemiology." *Analytical Chemistry* 89 (18): 9941–45. <https://doi.org/10.1021/acs.analchem.7b02257>.

#### *Reference Materials:*

- Longpre, Shayne, Robert Mahari, Anthony Chen, Naana Obeng-Marnu, Damien Sileo, William Brannon, Niklas Muennighoff, et al. 2023. "The Data Provenance Initiative: A Large Scale Audit of Dataset Licensing & Attribution in AI." arXiv. <http://arxiv.org/abs/2310.16787>.
- National Academy of Science (2018) Executive Summary, *The Irreproducibility Crisis of Modern Science: Causes, Consequences, and the Road to Reform*, April 17, [https://www.nas.org/projects/irreproducibility\\_report/the\\_report](https://www.nas.org/projects/irreproducibility_report/the_report)

**Week 5 – Feb.9 – Social Sorting and the Making of Categories***Compulsory Readings:*

- Berk, Bernard B. 2015. "Labeling Theory, History Of." In International Encyclopedia of the Social & Behavioral Sciences (Second Edition), edited by James D. Wright, 150–55. Oxford: Elsevier. <https://doi.org/10.1016/B978-0-08-097086-8.03161-5>.
- Bowker, Geoffrey C. and Leigh Star, Susan (2002) Categorical Work and Boundary Infrastructures: Enriching Theories of Classification, Ch. 9 in *Sorting Things Out: Classification and its Consequences*, p.285-317.
- Galster, George C. 2012. "The Mechanism(s) of Neighbourhood Effects: Theory, Evidence, and Policy Implications." In *Neighbourhood Effects Research: New Perspectives*, edited by Maarten Van Ham, David Manley, Nick Bailey, Ludi Simpson, and Duncan Maclennan, 23–56. Dordrecht: Springer Netherlands.  
[https://doi.org/10.1007/978-94-007-2309-2\\_2](https://doi.org/10.1007/978-94-007-2309-2_2).
- Hacking, Ian, 1986, Making Up People, in *Reconstructing Individualism*, ed., T. Heller et al., Stanford, Calif.: Stanford University Press, pp. 222-236.
- Zuberi, Tukufu (2001) *Thicker Than Blood: How Racial Statistics Lie*, University of Minnesota Press.
- Chapter 1: The Evolution of Racial Classification
  - Chapter 7: Deracializing the Logic of Social Statistics Chapters

*Compulsory Thematic Readings:*

- Beaty, Joel and Hristova, Stefka (2018) Articulating Race: Reading Skin Colour As taxonomy and as Numerical Data Ch. 2 in Flynn, Susan and Mackay, Antonia, *Surveillance, Race, Culture*, Palgrave, pp. 21-41.
- Benjamin, Ruha. 2022. "Chapter 1: Weather." In *Viral Justice: How We Grow the World We Want*. Princeton, New Jersey: Princeton University Press.
- Bliss, Catherine. 2012. "Chapter 3: The Sociogenomic Paradigm." In *Race Decoded: The Genomic Fight for Social Justice*. Redwood City, UNITED STATES: Stanford University Press. <http://ebookcentral.proquest.com/lib/oculcarleton-ebooks/detail.action?docID=879036>.
- Maras, Marie-Helen, and Wendy O'Brien. 2023. "Discrimination, Stigmatization, and Surveillance: COVID-19 and Social Sorting." *Information & Communications Technology Law* 32 (1): 122–48. <https://doi.org/10.1080/13600834.2022.2101295>.
- Walter, Maggie, and Chris Andersen. 2013. "Chapter 1: Deficit Indigenes." In *Indigenous Statistics: A Quantitative Research Methodology*. Walnut Creek, UNITED STATES: Taylor & Francis Group. <http://ebookcentral.proquest.com/lib/oculcarleton-ebooks/detail.action?docID=1418425>.

*Reference Material:*

- Novas, Carlos. 2015. "Biocitizenship." In International Encyclopedia of the Social & Behavioral Sciences (Second Edition), edited by James D. Wright, 610–12. Oxford: Elsevier. <https://doi.org/10.1016/B978-0-08-097086-8.85059-X>.

**Week 6 – Feb. 16 – Administrative and Survey Data***Compulsory Readings:*

- Alonson, William and Starr, Paul (Eds) Chapter 14 Who will have the Numbers? The Rise of the Statistical Services Industry and the Politics of Public Data, in *The Politics of Numbers*, New York: Russel Sage Foundation, pp. 415-447
- Desrosieres, Alain (2011) Words and Numbers: For a Sociology of the Statistical Argument, Ch. 2 in Rudinow Saetan, Anne, Mork Lomell, Heidi and Hammer, Svein (eds) *The Mutual Construction of Statistics and Society*, Routledge.
- Fantuzzo J., Culhane D., (2015) *Actionable Intelligence: Using Integrated Data Systems to Achieve More efficient, and Ethical Government*. Palgrave Macmillan, New York.
- Introduction to the Actionable Intelligence Model. p. 1-38
  - Ethical Use of Administrative Data for Research Purposes. pp. 125-155
- Foucault, Michel, Governmentality, in Faubion, James D. Ed. (1994) *Power*, New York: The New Press, pp.201-222.
- Marks, John, 2008, Michel Foucault: Biopolitics and Biology, Chapter 4 in Morton, Stephen and Stephen Bygrave, eds. 2008, *Foucault in an Age of Terror: Essays on Biopolitics and the Defence of Society*, New York, Palgrave Macmillan, pp. 88-104.

*Compulsory thematic Readings:*

- Farrell, Molly. 2016. "The Death and Life of Colonial Mortality Bills." In *Counting Bodies: Population in Colonial American Writing*, O. Oxford University Press.  
<https://doi.org/10.1093/acprof:oso/9780190277314.003.0005>.
- Johns, Fleur. 2023. "Populations: From Statistics to Data Science." In *#Help: Digital Humanitarianism and the Remaking of International Order*, O. Oxford University Press. <https://doi.org/10.1093/oso/9780197648872.003.0002>.
- Crato, Nuno. 2023. "Chapter 6 From Lack of Data to Data Unlocking Computational and Statistical Issues in an Era of Unforeseeable Big Data Evolution." In *Handbook of Computational Social Science for Policy*, edited by Eleonora Bertoni, Matteo Fontana, Lorenzo Gabrielli, Serena Signorelli, and Michele Vespe. Cham, SWITZERLAND: Springer International Publishing AG.  
<http://ebookcentral.proquest.com/lib/oculcarleton-ebooks/detail.action?docID=7186257>.
- Eubanks, Virginia. 2018. "The Digital Poor House." In *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*, First Edition. New York, NY: St. Martin's Press.
- Hill, Dustin T., and David A. Larsen. 2023. "Using Geographic Information Systems to Link Population Estimates to Wastewater Surveillance Data in New York State, USA." *PLOS Global Public Health* 3 (1): e0001062. <https://doi.org/10.1371/journal.pgph.0001062>.
- Sandvik, Kristin Bergtora. 2023. "Chapter 1: Digital Bodies in Aid." In *Humanitarian Extractivism: The Digital Transformation of Aid*. Manchester, United Kingdom: Manchester University Press.

Shepherd, Elizabeth, Anna Sexton, Oliver Duke-Williams, and Alexandra Eveleigh. 2019. "Risk Identification and Management for the Research Use of Government Administrative Data." *Records Management Journal* 30 (1): 101–23.  
<https://doi.org/10.1108/RMJ-03-2019-0016>.

*Reference Materials:*

- Anderson, B., 1991, *Census, Map, and Museum*; in *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. Revised Edition, Verso, New York.  
<https://ocul-crl.primo.exlibrisgroup.com>
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**Study Break Feb. 19-23**

**Week 7 – Mar. 1 – Spatial Data, Maps & Indigenous Knowledge – In-Library***Compulsory Readings:*

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## Week 8 – Mar. 8 – Standards

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**Week 9 – Mar. 15 – Probability and Data Analytics**

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## **Week 10 – Mar. 22 – Data Infrastructure**

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- Dourish, Paul and Genevieve Bell, 2007, The Infrastructure of Experience and the Experience of Infrastructure: Meaning and Structure in Everyday Encounters with Space, Environment and Planning B: Planning and Design, V.34, pp. 414-430.
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  - Chapter 2: Just Sustainabilities and The Debts of Computing
- Holt, J. and Vondereau, P. 2015, "Where the Internet Lives": Data Centers as Cloud Infrastructure, Chapter 3 in Signal Traffic: Critical Studies of Media Infrastructures eds. By L. Parks and N. Starosielski.
- Hoeyer, Klaus. 2023. "Chapter 2: Data Living." In Data Paradoxes: The Politics of Intensified Data Sourcing in Contemporary Healthcare, 1st ed. Infrastructures Series. Cambridge, Massachusetts: The MIT Press.

Monserate, Steven Gonzalez. 2022. "The Cloud Is Material: On the Environmental Impacts of Computation and Data Storage." MIT Case Studies in Social and Ethical Responsibilities of Computing, no. Winter 2022 (January).

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Bentley. n.d. "How Water Infrastructure Digital Twins Enhance Utility Service By Uncovering New Ways to Predict and Simulate Current System Conditions and Performance." Accessed January 9, 2024. <https://www.bentley.com/wp-content/uploads/eBook-Water-Infrastructure-Digital-Twins-EN.pdf>.

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### Data Day 10.0 Tuesday March 26

#### Week 11 – Apr. 5 – Data Governance & Data Sovereignty

##### Compulsory Readings:

Dewar, Jonathan. 2019. "First Nations Data Sovereignty in Canada." *Statistical Journal of the IAOS* 35 (1): 47-69. <https://doi.org/10.3233/SJI-180478>.

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- Chapter 4: The Responsible Data Science Framework
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Edvinsson, Hakan. 2020. *Data Diplomacy: Keeping the Peace and Avoiding Data Governance Bureaucracy*. Basking Ridge, NJ: Technics Publications.

<https://technicspub.com/diplomacy/>.

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- Ville de Montréal, n.d. "Digital Data Charter in the Service of the Community." Accessed August 21, 2023. <https://montreal.ca/en/articles/digital-data-charter-service-community-26084>.

## Week 12 – Apr. 10 – Critical Data Studies, Data Science, Ethics & Society

### Compulsory Readings:

- D'Ignazio, Catherine, and Lauren F. Klein. 2020. *Data Feminism*. The MIT Press. <https://doi.org/10.7551/mitpress/11805.001.0001> (*Introduction and Conclusion*)
- Kitchin, R. and Lauriault, T. P. (2018) Towards Critical Data Studies: Charting and Unpacking Data Assemblages and Their Work Chapter 1 in Eckert, J., Shears, A. and Thatcher, J. (eds) *Thinking Big Data in Geography: New Regimes, New Research*, University of Nebraska Press. pp. 3-21. [https://web-s-ebsohost-com.proxy.library.carleton.ca/ehost/ebookviewer/ebook/bmxlYmtfXzE3MTU5ODRfX0FOO?sid=59208697-59cb-4788-9068-4a00e90ad4d6@redis&vid=0&format=EB&lpid=lp\\_xi&rid=0](https://web-s-ebsohost-com.proxy.library.carleton.ca/ehost/ebookviewer/ebook/bmxlYmtfXzE3MTU5ODRfX0FOO?sid=59208697-59cb-4788-9068-4a00e90ad4d6@redis&vid=0&format=EB&lpid=lp_xi&rid=0)
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- Chapter 4: Toward a New Approach: Toward Critical Data Literacies
  - Chapter 7: Reappropriating and Resisting Digital Data: Collective Tactics and Activism

### Compulsory Thematic Readings:

- BC's Office of the Human Rights Commissioner (BCOHR). n.d. "Disaggregated Data Collection in B.C.: The Grandmother Perspective." Accessed August 28, 2023. <https://bchumanrights.ca/publications/datacollection/>.
- Bliss, Catherine. 2012. "Chapter 6: Activism and Expertise." In *Race Decoded: The Genomic Fight for Social Justice*. Redwood City, UNITED STATES: Stanford University

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Floridi, Luciano. 2023. "Chapter 10: How to Deliver a Good AI Society: Some Recommendations." In *The Ethics of Artificial Intelligence: Principles, Challenges, and Opportunities*. Oxford, UK: Oxford University Press. <https://academic-oup-com.proxy.library.carleton.ca/book/46748/chapter/413294967>.

Hintz, Arne, Lina Dencik, and Karin Wahl-Jorgensen. 2019. "Chapter 6: Challenging Datafication." In *Digital Citizenship in a Datafied Society*. Cambridge, UK ; Polity Press.

Williams, Sarah. 2020. "Hack It! Using Data Creatively." In *Data Action: Using Data for Public Good*. Cambridge, UNITED STATES: MIT Press. <http://ebookcentral.proquest.com/lib/oculcarleton-ebooks/detail.action?docID=6426279>.

### **Exam Week April 13-25**

#### **SCS Computer Laboratory**

Students taking a COMP course can access the SCS computer labs. The lab schedule and location can be found at: <https://carleton.ca/scs/tech-support/computer-laboratories/>. All SCS computer lab and technical support information can be found at: <https://carleton.ca/scs/tech-support/>. Technical support staff may be contacted in-person or virtually, see this page for details: <https://carleton.ca/scs/tech-support/contact-it-support/>.

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## **University Policies**

### **Land Acknowledgment:**

Carleton University acknowledges the location of its campus on the traditional, unceded territories of the Algonquin nation.

### **Diversity Statement:**

Carleton University supports an inclusive learning environment where diverse communities and perspectives are recognized and respected. Our goal as a community is to always ensure a safe learning environment that welcomes open and honest dialogue. We do not allow any form of discrimination, including but not limited to those based on color, age, race, religion, disability, gender, gender identity, gender expression and sexual orientation. Faculty and students are expected to commit to creating a learning environment that encourages inquiry and self-expression, while also demonstrating diligence in respecting how other students may have different viewpoints than their own.

## Approval of final grades:

Standing in a course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by an instructor may be subject to revision. No grades are final until they have been approved by the Dean. The system of grades used, with corresponding grade points is as follows.

Percentage	Letter grade	12-point scale	Percentage	Letter grade	12-point scale
90-100	A+	12	67-69	C+	6
85-89	A	11	63-66	C	5
80-84	A-	10	60-62	C-	4
77-79	B+	9	57-59	D+	3
73-76	B	8	53-56	D	2
70-72	B-	7	50-52	D-	1

## Statement on Student Conduct (Class Etiquette/Netiquette):

As part of a learning community, it is our responsibility to contribute to an engaging, inclusive, and safe learning environment. During all class-related activities, please engage in respectful and courteous communication and follow Carleton's [Student Rights and Responsibilities Policy](#). Harassment of any kind will **not** be tolerated in this class.

Do not cut and paste, screenshot, share course content, or post the words of your classmates, TA, or Instructor outside of class without permission. **Students are not permitted to take photographs, screenshots, or record other students, TAs, or instructors unless they obtain explicit permission from the professor and all other students.**

All work submitted in this course must be uniquely your own. When submitting assignments and/or completing exams, you are expected to articulate responses in your own words rather than cutting and pasting from course materials without permission.

Communication and Media Studies does not allow students to turn in work that has been submitted for academic credit more than once without permission from their instructors. Examples of unauthorized resubmission of work might include but are not limited to submission of the same paper, written passages, arguments, or ideas submitted for academic credit to another class. Minor changes of phrasing or addition of new written passages to existing work is not enough to constitute new work. Please contact your instructor if there is any question about whether your submission of coursework constitutes a violation of the policy. If an assignment has been submitted more than once, it will not receive credit.

## Course Copyright:

Classroom teaching and learning activities, including lectures, discussions, presentations, etc., by both instructors and students, are copyright protected and remain the intellectual property of their respective author(s). All course materials, including PowerPoint presentations, outlines, and other materials, are also protected by copyright and remain the intellectual property of their respective author(s).

Students registered in the course may take notes and make copies of course materials for their own educational use only. Students are not permitted to reproduce or distribute lecture notes and course

materials publicly for commercial or non-commercial purposes without express written consent from the copyright holder(s).

### **Declining Online Imaging and Recording Statement:**

This course may include classes or sessions that use video conferencing platforms, such as Zoom, MS Teams and BigBlueButton. This raises some important privacy considerations. To foster an active learning environment where you and your classmates are fully engaged in-class, your instructor may prefer that you keep your camera on during class. However, you are not required to turn your camera on and may decide to turn it on or off at any time. Classes or sessions will not be recorded by the instructor.

### **Statement on Plagiarism:**

The University Academic Integrity Policy defines plagiarism as “*presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one’s own.*” This includes reproducing or paraphrasing portions of someone else’s published or unpublished material, regardless of the source, and presenting these as one’s own without proper citation or reference to the original source. Examples of sources from which the ideas, expressions of ideas or works of others may be drawn from include but are not limited to: books, articles, papers, literary compositions and phrases, performance compositions, chemical compounds, artworks, laboratory reports, research results, calculations and the results of calculations, diagrams, constructions, computer reports, computer code/software, material on the internet and/or conversations.

Examples of plagiarism include, but are not limited to:

- any submission prepared in whole or in part, by someone else, including the unauthorized use of generative AI tools (e.g., ChatGPT);
- using ideas or direct, verbatim quotations, paraphrased material, algorithms, formulae, scientific or mathematical concepts, or ideas without appropriate acknowledgment in any academic assignment;
- using another’s data or research findings without appropriate acknowledgement;
- submitting a computer program developed in whole or in part by someone else, with or without modifications, as one’s own; and
- failing to acknowledge sources using proper citations when using another’s work and/or failing to use quotations marks.

Plagiarism is a serious offence that cannot be resolved directly by the course’s instructor. The Associate Dean of the Faculty conducts a rigorous investigation, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They can include a final grade of “F” for the course.

### **Academic Accommodation:**

You may need special arrangements to meet your academic obligations during the term. Please visit the [process for academic accommodation requests](#) website for more information. For an accommodation request the processes are as follows:

### **Academic consideration for medical or other extenuating circumstances:**

Students must contact the instructor(s) as soon as possible, and normally no later than 24 hours after the submission deadline for course deliverables. Students may also consult [Course Outline Information on Academic Accommodations](#) for more information. More information on the procedure for requesting academic consideration under this policy can be found [here](#), including for longer-term requests and for student appeals of accommodation decisions.

**Pregnancy obligation:**

write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For accommodation regarding a formally scheduled final exam, you must complete the Pregnancy Accommodation Form ([click here](#)).

**Religious obligation:**

write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details [click here](#).

**Academic Accommodations for Students with Disabilities:**

The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a formal evaluation. If you are already registered with the PMC, please request your accommodations for this course through the [Ventus Student Portal](#) at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (*if applicable*). Requests made within two weeks will be reviewed on a case-by-case basis. For final exams, the deadlines to request accommodations are published in the [University Academic Calendars](#). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodation for the formally scheduled exam (if applicable).

**Survivors of Sexual Violence:**

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: <https://carleton.ca/equity/sexual-assault-support-services>

**Accommodation for Student Activities:**

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation will be provided for students who compete or perform at the national or international level. Write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

**Statement on Student Mental Health:**



As a University student you may experience a range of mental health challenges that significantly impact your academic success and overall well-being. If you need help, please speak to someone. There are numerous resources available both on- and off-campus to support you.

## **Student Resources:**

### **Emergency Resources (on and off campus):**

<https://carleton.ca/health/emergencies-and-crisis/emergency-numbers/>

### **Carleton Resources:**

- Carleton Wellness Services Navigator: <https://carleton.ca/wellness/>
- [Carleton Health and Counselling Services](#) | 613-520-6674)
- [The Centre for Student Academic Support \(CSAS\)](#) | 613-520-3822
- [Academic Advising Centre \(AAC\)](#)
- [International Students Support Office \(ISSO\)](#) | 613-520-6600
- [Centre for Indigenous Initiatives](#) | Indigenous@carleton.ca
- [Ojigkwanong Indigenous Student Centre](#) | Indigenous@carleton.ca
- [Equity and Inclusive Communities \(EIC\)](#) | 613-520-2600 X5622
- [Trans Resource Hub](#) | 613-520-2600 X5622
- [Accessibility Supports](#) | 613-520-2600 X7323
- [Campus Safety](#) | Emergency: 613-520-4444
- [Paul Menton Centre](#) for Students with Disabilities | 613-520-6608
- [Sexual Assault Support Centre](#) | 613-520-5622
- CUSA Gender and Sexuality Resource Centre | 613-560-2600 X3723
- CUSA Womyn's Centre | 613-560-2600 x 2712
- CUSA Foot Patrol | 613-520-4066
- Carleton Communications Student Society | @cucomssociety | [carletoncuss@gmail.com](mailto:carletoncuss@gmail.com)

### **Off-Campus Resources**

- [Distress Centre of Ottawa and Region](#) | CALL (613) 238-3311 or TEXT: 343-306-5550
- [Mental Health Crisis Service](#) | (613) 722-6914, 1-866-996-0991,
- [Empower Me](#) | 1-844-741-6389
- [Good2Talk](#) | 1-866-925-5454
- [The Walk-In Counselling Clinic](#)