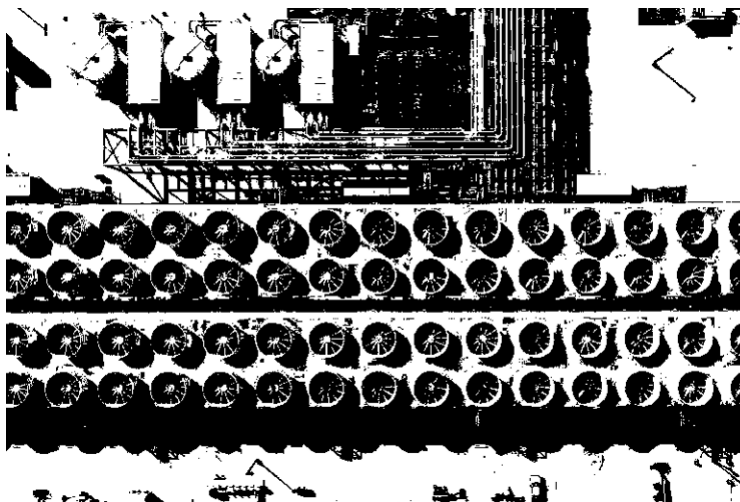


Course Outline

DATA5002 Data Science, Ethics & Society

COMS5225 Critical Data Studies

DIGH5902 Special Topics in Digital Humanities



Fall Term 2026

Green/Sustainable/Carbon Neutral Computing Data Centre Edition

Course Information

Instructor: Dr Tracey P. Lauriault, Associate Professor,

Critical Media and Big Data, School of Journalism and Communication

Contact: Tracey.Lauriault@carleton.ca DATA5002/COMS5225/DIGH5902 in the subject line

Student Hours: Fridays 12:30-15:30, RB4110b

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

Course Format: Lecture 3 hours per week, workshop style seminar with weekly graded experiential learning activities. Attendance is taken.

Community Partners:

- [John Weiglet](#), National Technology Officer, Microsoft Canada
- [Farzam Sepanta](#), Project Manager, Climate Change and Resiliency, Climate Change and Resiliency Services, Strategic Initiatives Department, City of Ottawa
- [Darrell Bridge](#), & [Ben Dick](#), Senior Data Analytics Strategists, City of Ottawa

Prerequisites: MA in Data Science, or Data Science, Analytics, & Artificial Intelligence, MA in Digital Humanities, MA Communication

Preclusions: Additional credit for COMS5225, ITEC5206.

Course Calendar Description

DATA5002 - 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. COMS5225 - Theoretical debates, research approaches and discursive regimes pertaining to the datafication of everyday life, data and living environments, and the quantified control of the future. Emphasis on the production of databased knowledge and the influence data have on the *material* and social world.

Topics Covered and Learning Outcomes

The emphasis is to learn to envision data genealogically, as social and technical assemblages, as infrastructure and reframe them beyond technological conceptions. During the term students explore metrology, 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, data sovereignty and diplomacy, data colonialism, 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 year's theme is Green/Sustainable/Carbon Neutral Computing – The Data Centre Edition.

Students in a team will write an evidence informed research paper, report or policy brief directed at the City of Ottawa to help the city make decisions about Green/Sustainable/Carbon Neutral Computing as it pertains to Data Centres. This may be by way of proposing measures, indicators, policies, frameworks, roadmaps, standards, etc. to do so. Students will apply strategic thinking, leadership, and advisory skills by applying critical data studies – theory and practice - thinking to address this challenges the City of Ottawa.

Assessment

1. Weekly handwritten reading reflections	Weekly - end of class	20%
2. Data Description Report - 3-pages	Sept. 18 @07:30	10%
3. Class Seminar Lead	Date TBD Week 1/2	5%
4. Brief/Report/Paper Project		
4.1. Meeting w/ City & Microsoft Partners	Week 3 Sept. 25 – in-class	
4.2. Brief/Report/Paper Proposal – Quad Chart	Week 4 Oct. 28 @07:30	
4.3. Final Brief/Report/Paper Proposal – Quad Chart	Week 5 Oct.09 @07:30	5%
4.4. Draft Poster	Week 6 Oct. 16 @07:30	
4.5. DRAFT Brief/Report/Paper for In-Class Peer Review	Week 9 Nov.13 @07:30	
4.6. FINAL Brief/Report/Paper	Week 12 Dec 04 @07:30	45%
4.7. FINAL Presentation of Brief/Report/Paper - Poster	Week 12 Dec 04 @07:30	15%
Total		100%

1. Weekly Reading Reflections (20%) handwritten, due at the end of class.

Students will submit weekly critical reflections of 1 of the compulsory readings and 1 of the thematic and/or encyclopedic readings and any of the resources. Students are expected to conceptually integrate the readings, identify important concepts, and ***relate the material to their final project and the class theme***. (i.e. how does this help you think through/inform/analyze and etc. your final project). Each reflection should end with a question for the class to consider. The objective is to share insight with your classmates who have not read what you have. A spreadsheet will be created for students to identify their readings. This is not a summary, it is a reflection and the identification of concepts, theories, indicators, problematizations, philosophies, etc. You need not agree with or like the articles, and you must provide a rationale as to why you do or do not agree with it. End the reflection with a question for the class and relate the reading to your final project somehow.

2. Data Description and Conceptualization - Due Week 2, Sept. 18, @08:30 (10%):

Select a dataset/indicator related to this year's theme. In a **total of 3 pages** describe these data in the form of an analytical report you would submit to an executive who must make the best decision possible based on your evidence about green/sustainable/carbon neutral computing indicators, benchmark or KPI.

Technical descriptions of data generally include the following, but do not be limited to this: a brief abstract that ought to include the reason why the data were collected, for and by whom (i.e. producing institution, authors) and how they were collected (i.e. methodology). Also include data format, sample size; data dissemination method/platform and the publisher; try to download them & explain the process, include links to metadata, licences and terms of use, date range and when published, also include geography, classifications, models, etc. Is there a data dictionary? A methodological guide? Metadata? If so link to these. Essentially you are reporting the who, what, where, how, when and why of the dataset/indicator. End the report with a few sentences discussing whether you think the data are useful, reliable, accurate, factual, trustworthy and if there are any limitations – when doing so provide/point to evidence to support your statement.

Get to know these data/indicators. How are they used? Who uses them? Why do they? Who endorses them or reports them or uses them? Are they a standard? What do they mean? Does anyone critique them? What are their benefits/shortcomings? How do they compare to other like data/indicators?

Be sure to cite the dataset/indicator & provide the URL, cite any related documentation, you can use footnotes, images and tables if useful.

NOTE: Images, tables & references do not go against your page count.

3. Class Seminar Lead – Date TBD during the Week 1 Class (5%)

Each team will lead one class during the term, this includes an agenda, activities, leading discussion about the readings etc. that are planned for that week.

4. Policy Brief, Report or Research paper – Topic related to green/sustainable/or carbon neutral computing as it pertains to data centres (55%)

Students will demonstrate their familiarity with the course material by applying critical data studies, ethics & society theories, concepts and practices related to this year's theme which is about green/sustainable/carbon neutral computing as it pertains to data centres. This consists of a policy brief/report/paper with a poster, that will be shared with the Community Partners. The poster will be of high quality that can be submitted to Data Day in March of 2027. 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, the City of Ottawa that is developing a data centre strategy.

4.1 Guest Lecture Week 3, September 25.

[John Weiglet](#), National Technology Officer, Microsoft Canada will discuss MS ESG reporting and the latest on sustainability and data centres. **Farzam Sepanta**, Project Manager, Climate Change and Resiliency, Climate Change and Resiliency Services, Strategic Initiatives Department, City of Ottawa will discuss the City Climate Change Master Plan, he is also an expert [decarbonization and human building interaction](#) and will bring that expertise to your challenge. [Darrell Bridge](#) and [Ben Dick](#), are Senior Data Analytics Strategists, City of Ottawa; will share their expertise on open data, data governance and data management at the City and how those might intersect with decisions about data centres.

4.2 • DRAFT Quad Chart - Brief/Report/Paper Project Proposal for In-Class Peer Review, 1-p. Week 4 Oct.02, @07:30

A quad chart is a proposal style used in science and business. It is a 1 power point slide divided into 4 quadrants. Your proposal must include the following components in addition to basic metadata such as your names, perhaps the name of your firm, title of the project, class information and metadata. In class you will pitch your idea, receive feedback, revise it, and then re-submit a final week 5.

1. What– introduce your idea and the rationale/purpose for it. What data, indicator, kpi, solution, standards, etc. will you be examining? What are the benefits of this? What resources are at stake (water, electrical grid, noise)? What are the trade offs? Etc. Why is this important/useful etc. What is the rationale for your choice? What have others done and how does your proposal align, differ, improve upon?

2. Why – why should the city consider your proposal? Why are carbon Neutral etc. important in data centre decision making for the city? What might be the city's needs? Who are the beneficiaries of your solution, what policies does it align with? Why Ottawa?

3. How - describe your research approach/methodology. How will the data be collected? Data sources? Evidence? How will the City trust your study?

4. References – include scholarly and gray literature.

4.3 Submit FINAL Quad Chart, Week 5 Oct. 09 (5%) @07:30 and present to class

4.4 Draft Poster - Brief/Report/Paper for In-Class Peer Review Week 6 Oct. 66, @07:30

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 digital humanities and your topic. Here are some useful guidelines. Detailed instructions will be provided in Brightspace.

- [NYU Libraries Guide](#)
- [Urbana Champaign Library Guide](#)
- [10 Simple Rules for a Good Poster Presentation](#)

4.5 DRAFT Brief/Report/Paper for In-Class Peer Review Week 9 Nov. 16 @23:59

The DRAFT document needs to be formatted using MS styles and must have a title page, table of contents including list of figures and tables, and the following depending on whether it is a policy brief, an evidence informed report or a research essay: abstract or executive summary, Introduction, theoretical framework, methodology, observations, analysis, conclusion, recommendations and bibliography and possibly appendices. The DRAFT needs to have enough content for the class to be able to provide constructive feedback.

- **Policy Brief Examples:**
 - IDRC [repository](#), their [example briefs](#) and follow the instructions on [how to write a policy brief](#).
 - Young, Eoin, and Lisa Quinn. n.d. [The Policy Brief](#). University of Delaware.
 - Information and Communications Technology Council (ICTC) [Policy Briefs](#)
 - [Elements of Science: What are the elements of a great briefing note?](#), Canadian Science Publishing
- **Evidence Informed Formal Report:** see *Part 4 Writing Formal Reports* and *Part 5 Report Writing Styles and Techniques* in '[Writing Reports to Get Results: Quick Effective, Results Using the Pyramid Method of Writing](#), Third Edition'. n.d.
- **Research Essay:** see Chapter 4 [The Research Essay in Writing for Inquiry and Research](#). University of Illinois Library - Urbana.

4.6 FINAL Brief/Report/Paper Week 12 Dec. 04 (45%) @07:30

4.7 Poster & Presentation to Community Partner Week 12 Dec. 04 (15%) @07:30

Assignment Submission Instructions:

Assignments are to be submitted ON TIME to Brightspace – Except for weekly reflections - 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. For the

Poster see instructions in Brightspace and see the resources provided in section 4.5 of the final project. NO PDFs or PAGES.

File naming Convention:

LastNameFirstName_COURSEid_CourseName_Assignment#_ddmmyyy

In all documents be sure to include:

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

Citation style & Management:

- Chicago, Harvard, APA, IEEE, or any other system, just be consistent, footnotes are acceptable. Also see the resource provided in section 4.5 of the final project.
- **See** Harvey, Gordon. 2017. [Writing with Sources: A Guide for Students](#). Third edition. Indianapolis: Hackett Publishing Company, Inc.
- **Citation Management:** [Zotero](#) is an excellent tool, the [Library](#) provides support and instructions.

Required Textbook(s) and Other Resources**Compulsory Readings & Thematic Readings:**

Each week there is a set of compulsory readings, thematic and/or encyclopaedic readings and resources. Students will pick one from each type and are expected to read these in preparation for in-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 in the course outline and additional resources may include news articles, reports, standards, websites, and .etc. It is suggested to examine at least one for the weekly reflection. These may be especially useful to your final project. Also, do not hesitate to share any.

In-Class Activities, Discussions and Peer Reviewing:

The class is a seminar and a workshop. There will be in-class activities 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 and groups will each lead one class. Collegial and constructive feedback/discussion is key to our collective success.

Schedule:

Week 1 – Sept. 11 – Introduction – Metrology and what is Critical Data Studies?

We will get to know each other, discuss the course format, identify student and instructor expectations, assignments, the community partners and make decisions about how we will work together for the term and schedule when you will lead the seminar. We will also create teams, select readings and identify which week to teams will lead.

A **DATA5002/COMS5225/DIGH5902 GDrive Folder** has been created please join it. We will share documents and schedule readings here.

Select 1 Compulsory Reading and 1 Thematic Reading to discuss for Week 1.

Compulsory Readings:

Hovland, John. 2011. Numbers: Their Relation to Power and Organization, Ch. 1 in Rudinow Saetan, Anne, Mork Lomell, Heidi and Hammer, Svein (eds) [*The Mutual Construction of Statistics and Society*](#), Routledge.

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

Compulsory Thematic Readings:

Mollen, Anne, Jansen, Fieke, Kannengiebert, Sigrid, and Velkova, Julia, eds. 2026. [*AI Infrastructures and Sustainability*](#). 1st ed. Springer Nature.

- **Chapter 1:** Introduction: De-Centring Artificial Intelligence and Rethinking Sustainability
- **Chapter 5:** Aligning Energy Grids, Clouds and Public Values in Sweden

Resource Materials:

[‘Sweden Data Centers’](#). n.d. *atNorth*.

Donoho, David, 2017, [50 Years of Data Science](#), Journal of Computational and Graphical Statistics, 26(4) 745-766.

Microsoft. n.d. [Sustainability](#). Microsoft Datacenters.

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 – Sept. 18 – Indicators – Preparation for meeting the community partner

Indicators are proxy measures, of social, technical and engineering phenomena. They can be used to assess a program or process, to measure outcomes, assess performance, to advance cultural change within and organization and to increase accountability, transparency, and trust. Indicators are also indices, indexes, benchmarks, metrics and part of audits. How are these indicators developed? Does metrology or standards come to play and what forms of expert knowledge decide what gets measured and how this is accounted for.

QUESTIONS TO CONSIDER: What are the best indicators to assess measure the greenness/sustainability, energy and water consumption of a data centre or a computing

process? Who decides, how are these measured, audited and/or overseen and/or monitored? Can we trust those who measure and what is measured and why? Do standards play a role? Are there trusted scientific organizations? Are the current indicators adequate and what are the goals for these measures? What do they say and what do they not say? Anything missing? How is sustainability or carbon neutrality or greenness modeled in these systems? What do you think the City of Ottawa ought to consider?

Class Lead:

Tracey

Compulsory Readings:

Hammer, Svein. 2011. [Governing by Indicators and Outcomes: A Neoliberal Governmentality](#), Ch. 4 in Rudinow Saetan, Anne, Mork Lomell, Heidi and Hammer, Svein (eds) *The Mutual Construction of Statistics and Society*, Routledge.

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*

Lawson, B. T. 2023. [Life of a Number: Measurement, Meaning and the Media](#). Policy Press.

- Chapter 1: Introduction
- Chapter 2: Data Bounds Are Reinforced by Policy
- Chapter 8: Critically Engaging with Data Bounds

Scassa, Teresa, Pamela Robinson, and Ryan Mosoff. 2022. [The Datafication of Wastewater: Legal, Ethical and Civic Considerations](#). *Technology and Regulation* 2022 (February): 23–35.

Shore, Cris, and Susan Wright. 2024. [Audit Culture: How Indicators and Rankings Are Reshaping the World](#). Pluto Press.

- Chapter 1: Introduction: Audit Culture and the New World Order
- Chapter 3: The Big Four Accountancy Firms and the Evolution of Contemporary Capitalism.
- Chapter 8: Conclusion: Repurposing Audit – Restoring Trust, Accountability and Democracy

Compulsory Thematic Readings:

Becker, Christoph. 2023. [In Insolvent: How to Reorient Computing for Just Sustainability](#). The MIT Press.

- Chapter 1: The Design of Sustainability
- Chapter 2: Just Sustainabilities and The Debts of Computing

Bollen, Kenneth A, and Bauldry, Shawn. 2015. [Indicators](#), *International Encyclopaedia of the Social & Behavioral Sciences* (Second Edition), Pages 750-754.

Cutler, Tony. 2015. [New Managerialism and New Public Sector Management](#). In *International Encyclopedia of the Social & Behavioral Sciences* (Second Edition), edited by James D. Wright, 770–75. Oxford: Elsevier.

Fanny Lopez, Cécile Diguët. 2025. Chapter 9, Rising Electricity Consumption and Territorial Destabilization. In *Digital Conquest: Spatiality, Energy and Data Centres*. Bristol University Press. (See ARES)

NVIDIA. [What Is Green Computing?](#)

O'Brien, Isabel. 2024. [Data Center Emissions Probably 662% Higher than Big Tech Claims. Can It Keep up the Ruse?](#) Technology. *The Guardian*, September 15.

Parmar, Rashik, Marc Peters, and Llewellyn D. W. Thomas. 2023. [What Is Responsible Computing?](#) *Harvard Business Review*.

Resource Materials:

GAFAM ESG Reports

- Google. n.d. Our [2026 Environmental Report - Google Sustainability](#). ESG.
- Apple. n.d. [Environment 2026](#). ESG.
- Facebook - META. n.d. [2025 Sustainability Report](#). ESG.
- Amazon. n.d. [Reports - Amazon Sustainability](#). ESG.
- Microsoft. n.d. [2026 Environmental Sustainability Report](#) | Microsoft. ESG No. 2026.

[Corporate Performance & Accountability](#) (CP&A) | World Business Council for Sustainable Development (WBCSD), 2024.

Data Centre Magazine

- June 2025 [Building A Future for AI Data Centres](#) – See 2 sets of indicators
- June 2024 [Data Centre Sustainability Front and Centre](#)

Green Computing Foundation, [Sustainable Tech](#)

Lambert, David and Atkins, Julie. 2015. [New Jersey's Manage By Data Program: Changing Culture and Capacity to Improve Outcomes](#), Improving Performance Series, IBM Centre for the Business of Government.

Public Resources - [Global Enabling Sustainability Initiative](#) (GeSI')

UNAids, [An Introduction to Indicators](#).

Week 3 – Sept. 25 – Dashboards, Data Visualization and Lecture from the Community Partner

According to Stephen Few, one of the key developers and trainers of dashboarding defines dashboards as “a visual display of the most important information needed to achieve one or more objectives; consolidated and arranged on a single screen so the information can be monitored at a glance” ([Data School](#)). They proliferated during the pandemic as public health agencies world wide used them to communicate a variety of indicators, [John Hopkins Corona Virus Resource Centre](#) being the most famous. Following from Week 2, we examine how indicators are disseminated and communicated to the public, we will also examine how companies report their sustainability indicators and consider the fine line between accessible communication and greenwashing.

QUESTIONS TO CONSIDER: Are you considering a dashboard as a communication plan? What KPIs would you communicate? How might you make complex data more accessible? Who might

your target market be? How will you choose what to communicate? Should the City communicate Data Centre Indicators? Should the city report their computational ESG?

PREPARATION: Have an idea about the topic of your final project. Do some background research and identify information you would like to know that you might only be able to get from these data centre, open data, environment and building science experts. Listen carefully, ask for documents, clarification, insight! Consider the city's policies and [Climate Master Plan](#) and MS's reporting.

Class Lead:

Tracey

Compulsory Readings:

Gregg, Melissa, and Yolande Strengers. 2024. [Getting beyond Net Zero Dashboards in the Information Technology Sector](#). *Energy Research & Social Science* 108 (February): 103397.

Mattern, Shannon. 2015. [Mission Control: A History of the Urban Dashboard](#). *Places Journal*, no. 2015 (March).

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.

Compulsory Thematic Readings:

Jacobson, Michael, Mark Perbix, and Karen Lissy. [Designing an Effective Law Enforcement Data Dashboard: Developing a Concept of Operations Document](#). US: Community Oriented Policing Services., n.d.

Kate Crawford; n.d. [Anatomy of an AI System](#).

Resource Materials:

City of Ottawa. n.d. [Open Ottawa Dashboards](#).

City of Ottawa. 2026. [Review of Existing Land-Use Permissions and Developing a Municipal Framework for Artificial Intelligence \(AI\) Data Centres](#) - *City Council - August 26, 2026*. Minutes Meeting #: 84 Date: City of Ottawa, August 26.

City of Ottawa. n.d. [Open Ottawa](#). n.d.

City of Ottawa, and Strategic Initiatives Department. 2025. [Climate Change Master Plan](#) - *Official Plan and Master Plans*.

[Climatiq](#) Product Carbon Footprint API | Simplify PCF Estimates

Few, Stephen. 2005. [Common Pitfalls in Dashboard Design](#), 31.

Government of Ontario. 2026. [Ontario Launches Data Centre Playbook](#). August 13.

Sunbird. n.d. *What Is DCIM Software?* [A Data Center Infrastructure Management Software](#).

Sunbird. n.d. [Top 30 Data Center Sustainability Metrics](#).

Telegeography. n.d. [Data Center Research Service](#).

Telegeography. n.d. [What to Know About the Cloud and Data Centers in 2026](#). Video

Tkacz, Nathaniel and Bartlet, Jaimie. 2017. [Governance by Dashboard](#). Demos.

Tkacz, Nathaniel. [*Being with Data: The Dashboarding of Everyday Life*](#). Cambridge, England; Polity Press, 2022.

White-Crummey, Arthur. 2026. [City of Ottawa to Draw up Data Centre Policy, but Supporters Say It's Not a Ban](#). *CBC News*, August 26.

Week 4 – Oct. 02 – Facts – Review DRAFT Proposals

Often it is assumed that data are facts, and as facts they must be true, unbiased, and objective. Once a fact is determined to be a true fact, then what of misinformation and disinformation, alternative facts, and hallucinated facts? How do you know that something is true and trustworthy? This week we will discuss the following questions: What is true? A fact? Evidence? Are data objective? Are there alternative facts? Are data a unique arrangement of facts? What criteria are required to attest that evidence is factual? Or are fact social constructions contingent upon definitions, methods, instruments, systems, or science?

QUESTIONS TO CONSIDER: How do you distinguish fact from fiction when it comes to Green/Sustainable/Carbon Neutral Computing as it pertains to Data Centres? What is a good measure and what is true and who says that it is? How do you know?

Class Leads:

Names

Compulsory Readings:

Gitelman, Lisa. 2013. [*Raw Data Is an Oxymoron*](#). MIT Press.

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

Graves, J. L. 2015. [Why the Nonexistence of Biological Races Does Not Mean the Nonexistence of Racism](#), *American Behavioral Scientist*, 59(11), pp. 1474–1495.

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.

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.

Compulsory Thematic Readings:

Aronczyk, Melissa, Patrick McCurdy, and Chris Russill. 2024. [Greenwashing, Net-Zero, and the Oil Sands in Canada: The Case of Pathways Alliance](#). *Energy Research & Social Science* 112 (June): 103502.

- Broda, Elena, and Jesper Strömbäck. 2024. [Misinformation, Disinformation, and Fake News: Lessons from an Interdisciplinary, Systematic Literature Review](#). *Annals of the International Communication Association* 48, no. 2, 139–66.
- 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.
- Gatti, Lucia, Ludovico Giacomo Conti, and Peter Seele. 2025. [A Comprehensive Guide to Greenwashing Phenomena, Contexts, and Trends](#).
- Lemieux, Victoria L., ed. 2022. Trust and Its Discontents. In: *Searching for Trust: Blockchain Technology in an Age of Disinformation*. Cambridge University Press; 2022:29-48. (see ARES)

Resource Materials:

- Coalition for Content Provenance and Authenticity (C2PA). n.d. [Providing Origins of Media Content](#). Media Content.
- Global Finance & Technology Network (GFTN). n.d. [How to Build Trust in ESG Data and Disclosures](#).
- [Global Electronics Council](#). n.d. and [Electronic Product Environmental Assessment Tool \(EPEAT\)](#)
- [The Green Grid](#)'. n.d.
- [Green Software Foundation](#)'. n.d.
- Greenly [Discover Our Sustainable Suite](#)
- Greenly. [Everything You Need to Know About Green IT in 2025](#)
- 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.
- National Academy of Science. 2018. Executive Summary, [The Irreproducibility Crisis of Modern Science: Causes, Consequences, and the Road to Reform](#), April 17.
- Statistics Canada. 2019. [Statistics Canada's Trust Centre](#). March 6.
- Sustainable Web Design. n.d. [Estimating Digital Emissions](#).

Week 5 – Oct. 09 – Social Sorting, The Making of Categories and Data Brokers – Final Quad Chart Proposals are due

This week we discuss the practice of socially sorting people and systems and the process of creating categories and classification systems. Once a category is created those people or things categorized are aggregated in a group that can be surveilled, tracked, and observed. Categories are often so normalized that they eventually make up people and things that we then govern or control. Some of the most fraught categories are ethnicity, race, religion, gender and more. This week we look at the infrastructures and processes of categorization and how the categories become part of systems and the role of AI in that process. And how is meaning mapped in semantic media?

QUESTIONS TO CONSIDER: Can categories be changed? Do we lose access to the past if the categories are changed? How do people who have been categorized resist being categorized or reclaim categories? If race does not exist, then how come there is racism, and we still use old racial categories? Do those categorized fit the profile of the category? How do theories of classification relate to your projects? Are there categories of data centres, ESG data centre indicators?

Class Lead:

Names

Compulsory Readings:

- Beatty, Joel and Hristova, Stefka. 2018. [Articulating Race: Redding Skin Colour As taxonomy and as Numerical Data](#) Ch. 2 in Flynn, Susan and Mackay, Antonia, *Surveillance, Race, Culture*, Palgrave, pp. 21-41.
- 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*, pp.285-317.
- Criado Perez, Caroline. 2019. [Invisible women: Data Bias in a World Designed by Men](#), Abrams Press
- Introduction: The Default Male pp1.-25
 - Being Worth Less than a Shoe, pp.128-142
- 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:

- Benjamin, Ruha. 2022. Chapter 1: Weather. In [Viral Justice: How We Grow the World We Want](#). Princeton, New Jersey: Princeton University Press.
- 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.
- Bliss, Catherine. 2012. Chapter 3: The Sociogenomic Paradigm. In [Race Decoded: The Genomic Fight for Social Justice](#). Redwood City: Stanford University Press.
- Iliadis, Andrew. 2023. [Semantic Media: Mapping Meaning on the Internet](#). Polity Press.
- **Chapter 1:** Introduction
 - **Chapter 2:** A History of Semantics
- Lauriault, Tracey P. [Ontologizing the City](#). In *Data and the City*. Routledge, 2017.
- Phillips, Gwen. 2017. [Keynote: Indigenous Data Sovereignty and Reconciliation, Keynote](#), Data Power 2017 Conference.

Reference Material:

Baggiony-Taylor, Megan. 2026. [Top 10: Data Centre Companies in Canada](#). *Data Centre Magazine*, January 14.

Bryan, Timothy. 2022. [Wortley Report Research Committee's Report, Collection of Race-Based Police Data in Nova Scotia](#). Nova Scotia Human Rights Commission.

[Green500](#), n.d.

Natural Resources Canada, Service. 2025. [Climate and Environmental Hazards](#). August 6. [Monitoring Exposure to Climate-Related Hazards: Indicator Methodology and Key](#)

[Results](#). 2022. OECD Environment Working Papers No. 201. Vol. 201. OECD Environment Working Papers.

[The Paris Agreement](#) | UNFCCC. n.d.

Week 6 – Oct. 16 – Administrative and Survey Data & Draft Posters

The administration of organizations require data, consider budgets and accounting, human resources, procurement, the counting of what it is that is being administered whether it be the number of students who receive student loans, taxation, the recipients of grants and how many guns and what kind came back from gun exchange programs, and more. These data were not intended for researchers to analyze, but, with the advent of [open data](#), [new policies](#), more [administrative data](#) are being made available and new statistical [data linkage programs](#) are being developed to distill insight from them. This week we discuss the production and use of administrative data and what happens when data science foxes (DOGE) are cut loose in the hen house of administrative data?

QUESTIONS TO CONSIDER: Should administrative data be used by data brokers or by Large Language Models? If these data are collected for the purpose of administering a government program, should these data then be proactively shared/disclosed to the public? What kind of administrative data ought a government publish about its digital footprint? What kind of administrative data are associated with data centres? Are there environmental administrative data if not are there some data that can be used as proxies?

*Class Lead:***Names***Compulsory Readings:*

Alonson, William and Starr, Paul (Eds). 1987. 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

Eubanks, Virginia. 2018. [From Poorhouse to Database](#). In *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*, First Edition. New York, NY: St. Martin's Press.

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:

- Johns, Fleur. 2023. Populations: From Statistics to Data Science. In [#Help: Digital Humanitarianism and the Remaking of International Order](#), Oxford University Press.
- 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.
- Lauer, Josh. 2020. [Plastic Surveillance: Payment Cards and the History of Transactional Data, 1888 to Present](#). *Big Data & Society* 7 (1).
- McKelvey, Fenwick. 2026. [The Modeled American Voter](#). In *SimPolitics: America's Quest to Solve Politics with Computers*.
- 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.
- Thompson, Erica. 2022. The Atmosphere Is Complicated. In [Escape from Model Land: How Mathematical Models Can Lead Us Astray and What We Can Do about It](#). Basic Books.
- Thorvaldsen, Gunnar. 2018. Census Technology. In [Censuses and Census Takers](#), 1st ed. Routledge.

Reference Materials:

- Christen, Peter, Thilina Ranbaduge, and Rainer Schnell. 2020. Introduction. In [Linking Sensitive Data: Methods and Techniques for Practical Privacy-Preserving Information Sharing](#), edited by Peter Christen, Thilina Ranbaduge, and Rainer Schnell, 3–25. Cham: Springer International Publishing.
- Cole, Shawn, Iqbal Dhaliwal, Anja Sautmann, and Lars Vilhuber. 2021. [Handbook on Using Administrative Data for Research and Evidence-Based Policy](#). MIT.
- Christl, Wolfie. 2017. [Corporate Surveillance in Everyday Life](#). *How Companies Collect, Combine, Analyze, Trade, and Use Personal Data on Billions*.
- Statistics Canada. 2022. [Climate Change Statistics](#).
- Government of Canada. n.d. [Canadian Climate Data and Scenarios](#).
- Statistics Canada. n.d. [Administrative Data](#).
- Statistics Canada. [Administrative Data Requests for Information](#).
- Statistics Canada. n.d. [Directive on Microdata Linkage](#).

Vale, Steve. 2011. [*Using Administrative Sources: A Handbook of Principles and Practices*](#). UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE. New York, NY, USA: UNStats.

Week 7 – Oct. 23 – Standards

Standards and interoperability are the bread and butter of data infrastructures and are silent arbiters of power. Metrology is about the science of measurement and once determined processes are normalized and often become standards or defacto practices. In terms of organizations, the [International Standards Organization](#) (ISO), the [Canada Canadian General Standards Board](#) (CGSB), [Standards Council of Canada](#) (SCC), and [Open Geospatial Consortium](#) (OGC), are but some of many standards bodies that govern data and their related technologies. In terms of green/sustainable/carbon neutral computing, what are the standards?

QUESTIONS TO CONSIDER: Who sits at standards making tables? What standards govern this terms topic? How do standards influence data processes, classifications, management? In terms of your projects are there any standards to consider? Is there interoperability between state and corporate data? Are standards related to your final project? Is there an environmental, social and governance (ESG) standard for computing? Data centres? What standards ought the City consider?

Class Lead:

Names

Compulsory Readings:

Edwards, Paul .2010. Standards and Networks: International Meteorology and the Reseau Mondial ch.3 in [A Vast Machine](#), MIT Press.

Florence Millerand. 2009. Metadata Standards: Trajectories and Enactment in the Life of an Ontology, in [Standards and their stories: how quantifying, classifying, and formalizing practices shape everyday life](#), Ithaca: Cornell University Press, pp.149-177.

Lampland, Martha, and Star, Susan Leigh, 2009. Reckoning with Standards, in [Standards and their stories: how quantifying, classifying, and formalizing practices shape everyday life](#), Ithaca: Cornell University Press, pp.3-35

Merricks White, James. 2020. [Standardising the city as an object of comparison: The promise, limits and perceived benefits of ISO 37120](#), *Journal of Telematics and Information*.

Merricks White, James. 2019. Thinking About Standards, Ch. 2 in [Standardising the city: A material-discursive genealogy of CPA-I 001, ISO 37120 and BSI PAS 181](#), Unpublished PhD Dissertation, Maynooth University,

Compulsory Thematic Materials:

Candler, Craig. 2021. Chapter 11: Standing Our Ground: Putting Indigenous Standards to Work in Environmental Assessment. In [The Social Life of Standards: Ethnographic](#)

[Methods for Local Engagement](#), edited by Janice E. Graham, Christina Holmes, Fiona McDonald, and Regna Darnell. Vancouver: UBC Press.

Doctorow, Cory. 2023. Chapter 5: Standards and Mandates: What's Behind the Shield of Progress. In [The Internet Con: How to Seize the Means of Computation](#). London; Verso.

Shore, Cris, and Susan Wright. 2024. Chapter 4: Global Governance through Standards, Seduction and Soft Power. In [Audit Culture: How Indicators and Rankings Are Reshaping the World](#). Pluto Press.

Resource Materials:

[Corporate Sustainability Reporting Directive](#) - European Commission.

Catalyst. 2025. [Sustainable Data Centers: ESG, Compliance, and Futureproofing for Success](#). GRESB, May 12.

[CARE Principles](#) for Indigenous Data Governance -

[FAIR Principles](#)

[GODAN](#)

[Government of Ontario Anti-Race](#) Directorate Standard

Government of Canada. n.d. [Directive on the Management of Procurement](#).

[IATI](#)

[OCAP Principles](#)

[Open Corporates Data standard for company registers](#) – Open Corporates

Transparency International – [Beneficial Ownership](#)

Study Break Oct. 26-30

Week 8 – Nov. 06 – Spatial Data & Maps – Field Trip to the Library

Maps and related spatial data reflect the vision of their creators. The 'god's eye view' of the world is also challenged in [counter mapping](#), [volunteer geographic information](#) and a subfield called [critical cartography](#) or [GIS](#). There are many kinds of spatial data and Canada is renowned for its [remote sensing](#) and having 'eyes in the sky' is a strategic advantage to governing the nation state, it has its own [systems of systems](#) and there is a [Remote Sensing Act](#) in Canada.

QUESTIONS TO CONSIDER: Is there a spatial component to your project? What critical considerations might you consider in the making of maps? Is there a geography to the digital economy? Is spatial location analysis done to locate data centres? Are there places in the world where your data might be safer than others? How does a spatial understanding change the way you see the information economy? Does geography matter when it comes to data centres? What of the geopolitical concerns with locating data centres? Does sovereignty matter? What geographic concepts might be useful?

Class Lead:

Tracey

Compulsory Readings:

- Anderson, B., 1991, Census, Map, and Museum; in [*Imagined Communities: Reflections on the Origin and Spread of Nationalism*](#). Revised Edition, Verso, New York.
- Harley, J. B. 1989. [Deconstructing the Map](#). *Cartographica*, 26 (2), pp.1-20.
- Kitchin, Rob; Lauriault, Tracey and Wilson, Matt (2017) [Chapter 1](#), *Understanding Spatial Media*, Sage: London.
- Peluso, N.L. 1995. [Whose Woods are These? Counter-Mapping Forest Territories in Kalimantan](#), Indonesia. *Antipode*. 4. 27: 383–406.
- Pualani Louis, Renee, Johnson, Jay T., Hadi Pramono, Albertus. 2012. [Introduction: Indigenous Cartographies and Counter-Mapping](#), *Cartographica*, Volume 47 Issue 2, Summer 2012, pp. 77-79.
- Sparke, Matthew. 1998. [A Map that Roared and an Original Atlas: Canada, Cartography, and the Narration of Nation](#), *Annals of the Association of American Geographers*, Volume 88, Issue 3:463–495.

Compulsory Thematic Readings (NOTE – only peruse the complete books for goodies)

- Dodge, M. and Kitchin, R. 2008. [Atlas of Cyberspace](#).
- Goldsmith, Jack and Wu, Tim. 2006. Chapter 4. Why Geography Matters in [Who Controls the Internet? Illusions of a Borderless World](#), Oxford University Press, p.49-64.
- Graham, Mark, and William H. Dutton. 2019. [Society and the Internet: How Networks of Information and Communication Are Changing Our Lives](#). Second edition. Oxford Scholarship Online. University Press.
- Kitchin, Rob. 2011. *Code/Space: Software and Everyday Life*. 1st ed. With Martin Dodge. Software Studies. MIT Press.
- Fanny Lopez, Cécile Diguët. 2025. [Digital Conquest: Spatiality, Energy and Data Centres](#). Bristol University Press.
- Chapter 4: Scales, Typologies and Siting Strategies for Data Centres
 - Chapter 5: In the Dense City
 - Chapter 6: In Urban Outskirt, Growing Digital Zones
 - Chapter 7: Isolated Rural Zones
- Zook, Matthew A. 2005. [The Geography of the Internet Industry: Venture Capital, Dot-Coms, and Local Knowledge](#). The Information Age Series. Blackwell Pub.

Resources:

2024. [Semiconductor Manufacturing Facilities Map](#). Substack newsletter. *Technology in Global Affairs*, May 27.
- Canadian Radio-television and Telecommunications Commission (CRTC). 2021. [Communications Market Reports](#). Reports. December 15.
- City of Ottawa. Planning, Development and Building Department. 2025. [Geospatial Analytics, Technology and Solutions](#).
- Data Centre Map. n.d. [Canada Data Centers](#) - 292 Facilities from 241 Operators. n.d.
- Geomatics and Cartographic Research Centre, [Atlases](#), Carleton University. n.d.. January 7, 2024.

Government of Canada, Natural Resources. 2016. [North American Energy Maps](#).

Interactive App | [Electricity Maps](#). n.d.

[Native Lands](#). n.d.

[Open Data / Hydro-Québec](#). n.d.

[TeleGeography](#). n.d. [Cloud Infrastructure Map](#) | Telecom Market Research'.

Week 9 – Nov. 13 – Probability/AI & Draft Final Project Paper

Wanting to control the future, predict outcomes, anticipate actions, and preempt harm are the rationales for the use of AI and predictive processes. AI is du jour and there are [hundreds of principles and ethical guidelines](#) are being developed, there are [new laws](#) and [ethical initiative databases](#) being created. Canada is investing billions in to the [AI industry](#), and the [three fathers of AI](#) are based in Canada, with a recent [Nobel Prize](#) putting us on the map, while the winner, in hindsight is [sounding the alarm](#). There are many social and technical processes involved and this week we discuss some of the issues related to AI, [predictive policing](#); predictive markets, algorithmic democracy, data brokers and how a new discursive regime emerged with the advent of probabilistic thinking during the enlightenment.

QUESTIONS TO CONSIDER: How are AI and the environment related? What is the relationship of AI and sustainability? How to reduce the ecological footprint of AI? Can there be a sustainable AI? What does your solution offer? Is there a relationship between AI and data centres? Should the recommendation to the city only cover data centres? What of cloud computing centres? What is pushing demand for data centres?

Class Lead:

Names

Compulsory Readings:

Buolamwini, Joy and Gebru, Timnit. 2018. [Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification](#), *Conference on Fairness, Accountability, and Transparency, Proceedings of Machine Learning Research* 81:1–15, 2018.

Crawford, Kate. 2017. [The Trouble with Bias](#) - *NIPS 2017 Keynote* - #NIPS2017, García-Marzá, Domingo, and Patrici Calvo. 2024. *Algorithmic Democracy: A Critical Perspective Based on Deliberative Democracy*. Vol. 29. Philosophy and Politics - Critical Explorations. Springer International Publishing. (see Ares)

- Chapter 9: A Critique of Algorithmic Reason
- Chapter 12: Institutional Design for the Development of Algorithmic Democracy

Guzic, Keith. 2009. [Discrimination by Design, Predictive Data Mining as Security Practice in the United States 'War on Terrorism](#), in *Surveillance Systems*, 7(1) pp. 1-20.

Hacking, Ian. 1990. [The Taming of Chance](#), Cambridge University Press.

- Chapter 1: The Argument and
- Chapter 23: The Universe of Chance

Kerr, Ian and Earle, Jessica. 2013. [Prediction, Preemption, Presumption](#). *Stanford Law Review*. September 3, 2013.

McKelvey, Fenwick. 2026. [Political Forecasting and the Scientific Study of Elections](#). In *SimPolitics: America's Quest to Solve Politics with Computers*.

Compulsory Thematic Readings

Attard-Frost, Blair, Ana Brandusescu, and Kelly Lyons. 2024. [The Governance of Artificial Intelligence in Canada: Findings and Opportunities from a Review of 84 AI Governance Initiatives](#). *Government Information Quarterly* 41 (2): 101929-.

Bolón-Canedo, Verónica, Laura Morán-Fernández, Brais Cancela, and Amparo Alonso-Betanzos. 2024. [A Review of Green Artificial Intelligence: Towards a More Sustainable Future](#). *Neurocomputing* 599 (September): 128096.

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.

Luccioni, Sasha. n.d. [Generative AI and Climate Change Are on a Collision Course](#). Tags. *Wired*.

Mantello, Peter. 2016. [The machine that ate bad people](#): The ontopolitics of the precrime assemblage, *Big Data & Society* 3(2).

Renda, Andrea. 2020. Europe: Toward a Policy Framework for Trustworthy AI. In [The Oxford Handbook of Ethics of AI](#), by Andrea Renda, edited by Markus D. Dubber, Frank Pasquale, and Sunit Das, 649–66. Oxford University Press.

Zewe, Adam. 2025. [Explained: Generative AI's Environmental Impact](#). *MIT News / Massachusetts Institute of Technology*, January 17.

Resource Materials:

Secretariat, Treasury Board of Canada. 2025. [AI Strategy for the Federal Public Service 2025-2027: Overview](#). March 4.

[Green AI Institute](#). n.d.

Secretariat, Treasury Board of Canada. 2025. [Canada's Digital Ambition 2024-25](#). February 26.

Berkman Klein Center. 2020. [Principled Artificial Intelligence](#).

Fink, Charlie. n.d. [AI Turns Polls And Prediction Markets Into A New Battleground](#). *Forbes*.

Goldman & Sachs. [AI Is Poised to Drive 160% Increase in Data Center Power Demand](#). n.d.

Government of Canada. 2018c. [Responsible Use of Artificial Intelligence \(AI\)](#). November 22, 2018.

Government of Canada. 2023. [The Artificial Intelligence and Data Act \(AIDA\)](#) – Companion Document. 2023. Innovation, Science and Economic Development Canada. March 13, 2023.

Lamdan, Sarah. 2022. In [Data Cartels: The Companies That Control and Monopolize Our Information](#), Stanford University Press.

Meaker, Morgan. n.d. [The Big-Tech Clean Energy Crunch Is Here](#). Tags. *Wired*.

Montgomery, Blake, Nick Robins-Early, and Dara Kerr. 2026. [Big Tech's Lofty Climate Goals Wrecked by Energy-Hungry AI](#). Technology. *The Guardian*, July 7.

Trewin, Shari, Sara Basson, Michael Muller, Stacy Branham, Jutta Treviranus, Daniel Gruen, Daniel Hebert, Natalia Lyckowski, and Erich Manser. 2019. [Considerations for AI Fairness for People with Disabilities](#). *AI Matters*, 5 (3): 40–63.

Week 10 – Nov. 20 – Data Infrastructure

All data require some sort of infrastructural system throughout their [lifecycle](#). Infrastructure is social, environmental, and technological, involving people, policies, laws, organizations, the environment, and technologies – some suggest infrastructure is the underpinning of a civilizations. This week we examine storage, big computing, platforms, portals, and archives and the lifecycle of data. In addition, we will discuss the [environmental impact of data and their related infrastructures](#) and discuss [green computing strategies](#). Students will also examine large data infrastructures such as [open smart cities](#), [digital twins](#) and [spatial data infrastructures](#) and [preservation](#), and of course, data centres.

QUESTIONS TO CONSIDER: What is the state of Canada's AI infrastructure? Green IT Infrastructure? Is there an environmental consideration in terms of IT/AI deployment? What environmental concerns ought the City consider as it pertains to data in its strategic plan, digital strategy, data governance, etc.? Should users of big compute like resources report their ecological footprint in their papers? Are data centres critical infrastructure? Is there a relationship between data centers, cities and the state/national politics? Who pays?

Class Lead

Names

Compulsory Readings:

Bratton, Benjamin H. 2015. [The Stack: On Software and Sovereignty](#), MIT Press.

- Platform and Stack pp.41-74
- City Layer pp. 147-190.

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.

Edwards, Paul, 2010, Chapter 6: Numerical Weather Predictions. in a [Vast Machine](#). MIT Press.

Harvey, Penelope, Casper Jensen, and Atsuro Morita, eds. 2016. [Infrastructures and Social Complexity: A Companion](#). Routledge.

- Chapter 25: Downscaling: From global to local in the climate knowledge
- Chapter 26: The problem of action: Infrastructure, planning and the informational environment

Hughes, Thomas P. 1989. The Evolution of Large Technological Systems, Ch.3 in Bijker, Wiebe E., Hughes, Thomas and Pinch, Trevor (eds) [*The Social Construction of Technological Systems*](#), MIT Press.

Compulsory Thematic Materials:

Ada Lovelace Institute. [*Computing Commons*](#). n.d.

Alms, Natalie, and David DiMolfetta. 2024. [*White House Probes the Collision of AI and Personal Data*](#). Nextgov.Com, October 15.

Innovation, Science, and Economic Development Canada (ISED). 2025. [*Artificial Intelligence Ecosystem*](#). Innovation, Science and Economic Development Canada, May 23.

Loescher, Henry W., Rodrigo Vargas, Michael Mirtl, et al. 2022. [*Building a Global Ecosystem Research Infrastructure to Address Global Grand Challenges for Macrosystem Ecology*](#). *Earth's Future* 10 (5): e2020EF001696.

Macaulay, Tyson. 2008. Critical Infrastructure: What, Who Cares, and Why. In [*Critical Infrastructure*](#). CRC Press.

Pulsifer, Peter L., Kontar, Yekaterina, Berkman, Paul Arthur. 2020. and D. R. Fraser Taylor, [*Information Ecology to Map the Arctic Information Ecosystem*](#) in Ch. 12 in O. R. Young et al. (eds.), *Governing Arctic Seas: Regional Lessons from the Bering Strait and Barents Sea, Informed Decision Making for Sustainability*.

Wolf, Kristina, Richard J. Dawson, Jon P. Mills, Phil Blythe, and Jeremy Morley. 2022. [*Towards a Digital Twin for Supporting Multi-Agency Incident Management in a Smart City*](#). *Scientific Reports* 12 (1): 16221–16221.

Resource Materials:

ASDI. 2016. [*Spatial Data Infrastructure \(SDI\) Manual for the Arctic*](#).

Digital Research Alliance of Canada. [*The Alliance Applauds the Federal Government's Launch of the Canadian Sovereign AI Compute Strategy*](#), December 6, 2024.

McKinsey. [*The Cost of Compute Power: A \\$7 Trillion Race*](#)

Public Safety Canada. [*Canada's Critical Infrastructure*](#).

TBIJ. 2024 [*How Your Data Ends up in AI Training Sets*](#).

Week 11 – Nov. 27 – Data Governance & Data Sovereignty Data diplomacy & Data embassy

According to [*David Plotkin*](#) data governance is “the exercise of decision making and authority for data-related matters. It’s a system of decision rights and accountabilities for information-related processes, executed according to agreed-upon models which describe who can take what actions with what information, and when, under what circumstances, using what methods.” It is about “making sure that people are properly organized and do the right things to make their data understood, trusted, of high quality, and, ultimately, suitable and usable for the enterprise’s purposes.” [*Data Governance*](#) is related to [*data diplomacy*](#), is interrelated with [*digital strategies*](#), and about the executive authority to guide data management. It includes

organizational structures, roles and responsibilities, accountability and transparency, a road map, business models, impact assessment and agreements.

QUESTIONS TO CONSIDER: Does Canada have data governance and digital strategy and roadmap? How are systems and data governed? Are infrastructure and data governance related? What of data sovereignty in terms of national sovereignty and Indigenous data sovereignty? Does location matter? What if the community wants to create their own datasets, how ought these be governed? Can data centres be communally owned? Ought there be a data centre infrastructure plan for the country?

Class Lead:

Names

Compulsory Readings:

- Ariel Aaronson, Susan. 2024. [The Age of AI Nationalism and Its Effects](#). *Centre for International Governance Innovation*, September 30.
- Budka, Philipp. 2015. [From Marginalization to Self-Determined Participation: Indigenous Digital Infrastructures and Technology Appropriation in Northwestern Ontario's Remote Communities](#). *Journal Des Anthropologues* 2015/3 (142–143): 127–53.
- Dewar, Jonathan. 2019. [First Nations Data Sovereignty in Canada](#). *Statistical Journal of the IAOS* 35 (1): 47-69.
- Floridi, Luciano. 2023. [Chapter 6: Soft Ethics and the Governance of AI](#). In *The Ethics of Artificial Intelligence: Principles, Challenges, and Opportunities*. Oxford, UK: Oxford University Press.
- Plotkin, David. 2021. Chapter 1: Data Stewardship and Data Governance: How They Fit Together. In [Data Stewardship](#) - 2nd Edition, 2nd ed., 1-23. Academic Press.

Compulsory Thematic Materials:

- e-Estonia. 2024. [Data Embassy](#). June 7.
- Beaumier, Guillaume, Originally published on Policy Options and 2025. n.d. [How Canada Could Achieve Digital Sovereignty](#). *Policy Options*.
- European Commission. 2026. [Strengthening Europe's Tech Sovereignty | Shaping Europe's Digital Future](#). August 7.
- European Commission. n.d. [Green Cloud and Green Data Centres | Shaping Europe's Digital Future](#).
- ODI. n.d. [Designing a Framework for Responsible Data Stewardship](#).
- OECD. n.d. [Assessing National Digital Strategies and Their Governance](#) | En | OECD.
- OPC, Office of the Privy Council. 2018. [Report to the Clerk of the Privy Council: A Data Strategy Roadmap for the Federal Public Service](#).
- Toronto, City of. 2021. [Digital Infrastructure Strategic Framework](#). City of Toronto. City of Toronto. Toronto, Ontario, Canada. April 15, 2021.
- US Government and Federal Data Strategy. 2020. [Data Governance Playbook](#).

Resource Materials:

ASDI. n.d. [Arctic SDI | Arctic SDI](#).

[Data Access Support Hub](#) (DASH). n.d.

Edvinsson, Hakan. 2020. [Data Diplomacy: Keeping the Peace and Avoiding Data Governance Bureaucracy](#). Basking Ridge, NJ: Technics Publications.

Earley, Susan, Deborah Henderson, and Data Management Association. 2017. [DAMA-DMBOK: Data Management Body of Knowledge](#). 2nd edition. Basking Ridge, New Jersey: Technics Publications.

Eryurek, Evren, Uri Gilad, Valliappa Lakshmanan, Anita Kibunguchy, and Jessi Ashdown. [Data Governance: The Definitive Guide](#). O'Reilly Media, Inc., 2021.

[First Nations, Inuit and Métis \(FNIM\) Data and Technology Circle](#). n.d. Toronto.Ca. [Governance | Population Data BC](#). n.d.

Ladley, John. 2019. [Data Governance: How to Design, Deploy, and Sustain an Effective Data Governance Program](#). Second edition., 2nd ed. San Diego, CA, USA: Elsevier Science.

ODI. n.d. [The Softer Side of Data Governance: A Playbook for Non-Technical Users](#).

Soares, Sunil. 2014. [The Chief Data Officer Handbook for Data Governance](#).

Ville de Montréal, n.d. [Digital Data Charter in the Service of the Community](#).

Week 12 – Dec. 04 – Critical Data Studies, Data Science, Ethics & Society – Final Presentations

How does it all add up? What does a critical data studies look like and how does it afford this type of think afford you in your respective fields? How might you change the way you work in the future?

*Class Lead:***Names***Compulsory Readings:*

D'Ignazio, Catherine, and Lauren F. Klein. 2020. [Data Feminism](#). The MIT Press.

- *Introduction*
- *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.

Luci Pangrazio and Neil Selwyn. 2023. [Critical Data Literacies](#). Cambridge, MA: MIT Press.

- Chapter 4: Toward a New Approach: Toward Critical Data Literacies
- Chapter 7: Reappropriating and Resisting Digital Data: Collective Tactics and Activism

Compulsory Thematic Readings:

- Bliss, Catherine. 2012. Chapter 6: Activism and Expertise. In [Race Decoded: The Genomic Fight for Social Justice](#). Redwood City, UNITED STATES: Stanford University Press.
- Williams, Sarah. 2020. Hack It! Using Data Creatively. In [Data Action: Using Data for Public Good](#). Cambridge, UNITED STATES: MIT Press.
- Platform Cooperativism Consortium. 2026. [Platform Cooperativism Consortium](#) | *A Hub That Helps You Start, Grow, or Convert to Platform Co-Ops*. July 20.

Exam Week December 13-23**University Policies****Land Acknowledgement**

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

University Policies**Deferred Final Exam:**

See [Deferred final exams](#) rules.

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. Carleton uses an alphabetical grading system ([Undergraduate Academic Regulations Section 5.4](#)).

Grade appeals:

See <https://carleton.ca/registrar/appeal-of-grade/>

Academic Integrity

See the [Academic Integrity and Academic Offences section](#) of the Faculty teaching regulations for further information and Carleton's [Academic Integrity Policy](#).

GenAI

The use of **generative artificial intelligence tools (e.g. ChatGPT)** is not permitted, either generally or for a specific assignment, any use of generative AI tools to produce assessed content is considered a violation of academic integrity standards.

Plagiarism:

Plagiarism is “*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
- failing to acknowledge sources with 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 follows a rigorous [process for academic integrity allegations](#), including reviewing documents and interviewing the student, when an instructor suspects a violation has been committed. Penalties for violations may include a final grade of "F" for the course.

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).

Statement on Student Conduct

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 it is determined an assignment has been submitted more than once, it will not receive credit.

Statement on Student Mental Health

As a 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. For more information, please consult <https://wellness.carleton.ca/>

Emergency Resources (on and off campus)

- Suicide Crisis Helpline: call or text 9-8-8, 24 hours a day, 7 days a week.
- For immediate danger or urgent medical support: call 9-1-1

Carleton Resources

- Mental Health and Wellbeing: <https://carleton.ca/wellness/>
- Health & Counselling Services: <https://carleton.ca/health/>
- Paul Menton Centre: <https://carleton.ca/pmc/>
- Academic Advising Centre (AAC): <https://carleton.ca/academicadvising/>
- Centre for Student Academic Support (CSAS): <https://carleton.ca/csas/>
- Equity & Inclusivity Communities: <https://carleton.ca/equity/>

Off Campus Resources

- Distress Centre of Ottawa and Region: call 613-238-3311, text 343-306-5550, or connect online at <https://www.dcottawa.on.ca/>
- Mental Health Crisis Service: call 613-722-6914 or toll-free 1-866-996-0991, or connect online at <http://www.crisisline.ca/>
- Empower Me Counselling Service: call 1-844-741-6389 or connect online at <https://students.carleton.ca/services/empower-me-counselling-services/>
- Good2Talk: call 1-866-925-5454 or connect online at <https://good2talk.ca/>
- The Walk-In Counselling Clinic: for online or on-site service <https://walkincounselling.com>

Requests for Academic Accommodations

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes, including information about the Academic Consideration Policy for Students in Medical and Other Extenuating Circumstances, are outlined on the [Academic Accommodations website](#), and please fill out the [Academic Consideration for Coursework form](#).

