environmental & urban change | YORK

COURSE SYLLABUS

ENVS 6121 “Community, Energy and Planning” 3.0

Summer 2024

Official course description

"Examines the relationship between sustainable communities and sustainable energy systems. In the context of climate change, environmental, ethical, and social concerns, the course considers the flexibility and adaptability of landscape, communities and city-building processes, and integrated and multi-scalar responses and approaches to policy-making and implementation.”

Course director

Dr Lina Brand Correa
Email: brand@yorku.ca
Office: HNE 273

Office hours: Every day the course is running, after class at HNE 273. Or by appointment (arranged by email)

Times and locations

The course will be delivered in person, as long as public health recommendations continue to allow for it. Please review the guidelines at York University’s site Better Together to keep everyone safe during our in-person interactions.

Seminars and in-class exercises: July 2 to July 16 (inclusive). Tuesdays, Wednesdays, Thursdays and Fridays, 13:30-17:20 at HNE 138.

If remotely, you will be able to find Zoom links on eClass.

Course webpage

eClass: eclass.yorku.ca/

Please visit the Student Guide to eClass to familiarise yourself with the system.

Hardware and software requirements

For this course we will be using MS Office, which is available to any York University student. Please visit the Computing for Students website for more information.

If students do not have access to a laptop to bring to class, they should let the course director know as soon as possible, so alternative arrangements can be made for the days in which working on a computer (e.g. for the policy brief and the final project) would be beneficial.

Expanded course description (objectives and learning outcomes)

This course will engage students on energy issues from a social sciences perspective. It will focus primarily on energy use (or energy demand), as opposed to issues around energy supply. It has been widely recognised that the technological options for decarbonising energy supply have already been developed and are now cheaper

that traditional fossil-fuel based options. However, the urgency of climate change means that these are not sufficient to reach Paris Agreement target of staying well below 1.5 degrees of global warming. Therefore, issues of energy demand must be looked at.

With this background in mind, the energy issues covered in this course are stated within the following course objectives:

- Understand global patterns of energy use, including inter and intra country differences.
- Understand the potential of energy demand as a key lever for climate change mitigation.
- Articulate the ways in which energy contributes to wellbeing.
- Identify and evaluate situations where energy injustices might be occurring.
- Recognize what energy poverty looks like, quantitatively and qualitatively.
- Identify elements that constitute energy vulnerability.
- Propose holistic policy interventions for an energy transition.

Future Career Skills

- Ability to search for, download and analyse secondary data, including grey literature and quantitative data
- Ability to work independently and as part of a team
- Experience of working in a fast-paced environment
- Experience of producing advocacy and policy-relevant outputs
- Critical thinking and reflection of own experiences
- Improved written communication skills
- Writing succinct reports of findings

Organization of the course

This course is centred on energy from a social science perspective. Therefore, the focus is on energy as it is used, how is it used, and what it is used for. It is a summer intensive course, therefore it will follow a **fast pace**. Students are expected to attend all classes and actively engage with the course content and activities.

Each class will have 2 basic components (open to flexibility):

a) A seminar on the topic of the week, which involves a presentation from the course director and/or a guest speaker, followed by a discussion. Students are expected to meaningfully participate in the latter, complementing the talk with what they've learnt through the course readings.
b) An in-class exercise, where students consolidate the knowledge they've gained in the course, learn certain methods or techniques that they will need for the course, or work on the course's assessment activities.

The table below presents a summary of the organization of the course, with more details and resources provided on eClass and on the detailed schedule below.

Session	Item	Date	Topic
1	Seminar & *Energy perceptions*	Tue, 2 July	Introduction to course Energy chain: focus on energy use/demand *Drawing energy*
2	Seminar & *Library session*	Wed, 3 July	Energy in a global context: scale, climate change, inequality Energy and wellbeing

			Grey literature and data searching
3	Seminar & *Brainstorming*	Thu, 4 July	Energy justice Energy poverty (differences between the Global North and South) *Measuring and tackling energy poverty in Canada*
4	Seminar & *Show and tell*	Fri, 5 July	Energy at York University Guest Lecture by Mike Layton *Sharing entries from your reflective diaries*
Reflective diary (sessions 1-4): Due Monday, 8 July, 5pm			
5	Seminar & *Briefing note*	Tue, 9 July	Energy efficiency in Canada: policies, programs and best practices Guest Lecture by Peter Love *Briefing note: Format, data, objective, audience*
6	Seminar & *Campus tour*	Wed, 10 July	Community Energy Planning Guest Lecture by TBC *Tour around the energy facilities at Keele campus*
7	Seminar & *Role-playing*	Thu, 11 July	Energy Poverty Policy in Canada and in Ontario Guest lecture by Zee Bhanji *Making the case for tackling energy poverty*
8	Seminar & *Business Case*	Fri, 12 July	Energy business models Guest Lecture by TBC *Planning a business case: Format, current situation, alternatives and recommendations*
Policy brief: Due Monday, 15 July, 5pm			
Reflective diary (sessions 5-8): Due Monday, 15 July, 5pm			
9	Seminar & *Final project*	Tue, 16 July	Course conclusion: where to go next with energy studies? *Time to work together on the final project*
Team Final Project: Due Friday, 19 July, 5pm			

Course readings

This course draws mainly on academic journal articles as reading materials. These are specified in the detailed schedule of readings below, and are available through York University Library and linked on eClass. The course director might modify the list below as the course progresses.

Evaluation

The grade for the course will be based on the following items weighted as indicated:

Item	**Weight**	**Due date**
Participation	10%	During class
In-class exercises	10%	During class
Reflective diary (sessions 1-4)	15%	8th July, 5pm
Reflective diary (sessions 5-8)	15%	15th July, 5pm
Policy brief	20%	15th July, 5pm
Final Project	30%	19th July, 5pm

Brief description of each assessment activity

Below is a brief description of the assessment activities. Further details and expectations will be provided in

class and posted on eClass.

Participation

Students will be expected to attend and actively participate in class. This includes showing evidence of engaging with course readings (mandatory readings are marked with a *, all other readings are optional), contributions to in-class discussions, and critical questioning of or reflecting on seminar presentations.

Due date

Throughout the course.

Weight (% of final grade)

10%

In-class activities

These are low-stakes exercises and activities that will take place in-class. These activities are designed to consolidate student's knowledge on concepts covered in the course and might include debates, presentations, mind-maps, etc. These exercises will also prepare students for the other assessment activities, and allow them time to work on those.

Due date

During class.

Weight (% of final grade)

10%

Reflective diary: Energy interaction of the day

Students will keep a reflective diary on their daily interaction with the energy system or an energy service for the first 8 sessions of the course. Students are encouraged to be creative in their reflections, and include photos, drawings or videos if appropriate. Each reflection should incorporate at least one concept covered in the course. Reflections should not be more than a page long.

Due date

8th July, 5pm (first half)

15th July, 5pm (second half)

Weight (% of final grade)

30% (15% each half)

Briefing note

Each student will select an institution in Ontario. Institutions can include a municipality, provincial ministry, energy regulator, utility company, etc. Then, each student will review their energy plans and policies. These might be scattered around different documents, including climate emergency declarations, net zero plans, etc. Each student will also search for data to evidence the energy demand situation relevant for that institution, particularly around energy poverty. Based on those two elements, students will write a 2-page briefing note aimed at their selected institution. We will explore ways to share these directly with the institutions (if students wish to do so) once completed and graded (and revised if necessary).

Due date

15th July, 5pm

Weight (% of final grade)

20%

Resources on briefing notes:

Pages 10-11: https://energyefficiencyfundamentals.org/textbook/Fundamentals-of-Energy-Efficiency-2Ed-Sec3.pdf

Blog post: https://www.universityaffairs.ca/career-advice/ask-dr-editor/moving-your-research-results-into-practice-through-policy-briefs/?utm_source=University+Affairs+e-newsletter&utm_campaign=4cd21df04f-EMAIL_CAMPAIGN_2022_11_16_06_30&utm_medium=email&utm_term=0_314bc2ee29-4cd21df04f-425257349

Public Sector Writing: https://publicsectorwriting.com/?page_id=6

Advice: https://www.atlas101.ca/pm/wp-content/uploads/2021/03/How-to-Write-a-Briefing-Note-James-Mitchell-2021.pdf

Final Project: business case for community energy with YU as an anchor institution

As one group, all students in the class will undertake a final project on creating a business case for community energy with York University acting as an anchor institution. The business case will be shared with York University's sustainability office, in order to support their activities.

Due date

19th July, 5pm

Weight (% of final grade)

30%

Important course information for students

All students are expected to familiarize themselves with the following information, available on the Senate Committee on Academic Standards, Curriculum & Pedagogy webpage

- Senate Policy on Academic Honesty and the Academic Integrity Website
- Ethics Review Process for research involving human participants
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities
- Student Conduct Standards
- Religious Observance Accommodation

Intellectual Property Notice

While all individuals are expected to satisfy the requirements of their program of study and to aspire to achieve excellence, the university recognizes that persons with disabilities may require reasonable accommodation to enable them to perform at their best. The university encourages students with disabilities to register with Student Accessibility Services to discuss their accommodation needs as early as possible in the term to establish the recommended academic accommodations that will be communicated to Course Directors through their Letter of Accommodation (LOA). Please let me know as early as possible in the term if you anticipate requiring academic accommodation so that we can discuss how to consider your accommodation needs within the context of this course. Sufficient notice is needed so that reasonable steps for accommodation can be discussed.

Detailed schedule of readings and activities

Session 1: Introduction to course; Energy chain: focus on energy use/demand

In this session we will be thinking about what energy is and how it is understood at different stages of the energy conversion "chain". We will be using concepts from thermodynamics, looking at the relationship between energy use and economic growth and energy use and societal change, and justifying why we are focusing on energy use/demand.

*Core readings (mandatory marked with an *):*

- (*) Creutzig, F., Roy, J., Lamb, W. F., Azevedo, I. M. L., Bruine De Bruin, W., Dalkmann, H., Edelenbosch, O. Y., Geels, F. W., Grübler, A., Hepburn, C., Hertwich, E. G., Khosla, R., Mattauch, L., Minx, J. C., Ramakrishnan, A., Rao, N. D., Steinberger, J. K., Tavoni, M., Ürge-Vorsatz, D., & Weber, E. U. (2018). Towards demand-side solutions for mitigating climate change. *Nature Climate Change*, *8*(4), 268–271. https://doi.org/10.1038/s41558-018-0121-1
- (*) Chapter 1: Pollution Probe. (2016). *Primer on Energy Systems In Canada*. "Energy Systems: How They Work" https://www.pollutionprobe.org/wp-content/uploads/EnergyPrimer2_DigitalLR.pdf
- Fell, M. J. (2017). Energy services: A conceptual review. *Energy Research & Social Science*, *27*, 129–140. https://doi.org/10.1016/j.erss.2017.02.010
- Grübler, A., Johansson, T. B., Mundaca, L., Nakicenovic, N., Pachauri, S., Riahi, K., Rogner, H.-H., & Strupeit, L. (2012). Energy Primer. In *Global Energy Assessment - Toward a Sustainable Future* (pp. 99–150). Cambridge University Press and International Institute for Applied Systems Analysis.
- Cleveland, C. J., Costanza, R., Hall, C. A. S., & Kaufmann, R. K. (1984). Energy and the U.S. Economy: A Biophysical Perspective. *Science*, *225*(4665), 890–897.

In-class exercise:

Energy perceptions - Drawing energy: students will explore their own perceptions of energy, what they imagine energy looks/sounds/feels like. This exercise will get them started on their reflective diary (assessment activity).

Session 2: Energy in a global context: scale and inequality; Energy and wellbeing

In this session we will take a birds-eye view of energy at the global scale. This will reveal issues of the overall scale of energy use, climate change implications through emissions associated to global energy systems, as well as inter and intra country energy use inequalities. We will then zoom in a little on Canada specifically, to understand the geography of Canada's energy systems.

*Core readings (mandatory marked with an *):*

- (*) Oswald, Y., Owen, A., & Steinberger, J. K. (2020). Large inequality in international and intranational energy footprints between income groups and across consumption categories. *Nature Energy*, *5*(3), 231–239. https://doi.org/10.1038/s41560-020-0579-8
- (*) Chapter 6: Pollution Probe. (2016). *Primer on Energy Systems In Canada*. "The Geography of Canada's Energy Systems" https://www.pollutionprobe.org/wp-content/uploads/EnergyPrimer2_DigitalLR.pdf
- (*) Brand-Correa, L. I., & Steinberger, J. K. (2017). A framework for decoupling human need satisfaction from energy use. *Ecological Economics*, *141*, 43–52. https://doi.org/doi.org/10.1016/j.ecolecon.2017.05.019
- Oxfam. (2021). *Carbon inequality in 2030*. https://42kgab3z3i7s3rm1xf48rq44-wpengine.netdna-ssl.com/wp-content/uploads/2021/11/bn-carbon-inequality.pdf

In-class exercise:

Library session - Grey literature and data searching: during this session, colleagues from YU Library will go through tips and tricks for searching data and grey literature, which will be a key component to include evidence and context information on your chosen institution for the briefing note assignment, as well as in your business case final project.

Session 3: Energy poverty and energy justice

In this class we will be exploring how energy relates to different understandings of wellbeing, how a lack of access to energy services to live a socially acceptable life lead to conditions of energy poverty, and how all of this is related to issues of energy justice (only briefly touching up on energy the supply/production side of energy).

*Core readings (mandatory marked with an *):*

- (*) Blog post: https://www.whatstheproblem.org.uk/blog/energy-poverty-or-just-poverty-a-response-to-whats-the-problem
- (*) Day, R., Walker, G., & Simcock, N. (2016). Conceptualising energy use and energy poverty using a capabilities framework. *Energy Policy*, *93*, 255–264. https://doi.org/10.1016/j.enpol.2016.03.019
- (*) Thomson, H., Bouzarovski, S., & Snell, C. (2017). Rethinking the measurement of energy poverty in Europe: A critical analysis of indicators and data. *Indoor and Built Environment*, *26*(7), 879–901. https://doi.org/10.1177/1420326X17699260
- Pellicer-Sifres, V., Simcock, N., & Boni, A. (2021). Understanding the multiple harms of energy poverty through Nussbaum's theory of central capabilities. *Https://Doi-Org.Ezproxy.Library.Yorku.ca/10.1080/13549839.2021.1952968*, *26*(8), 1026–1042. https://doi.org/10.1080/13549839.2021.1952968
- Samarakoon, S. (2019). A justice and wellbeing centered framework for analysing energy poverty in the Global South. In *Ecological Economics* (Vol. 165, p. 106385). Elsevier B.V. https://doi.org/10.1016/j.ecolecon.2019.106385
- Walker, G., & Day, R. (2012). Fuel poverty as injustice: Integrating distribution, recognition and procedure in the struggle for affordable warmth. *Energy Policy*, *49*, 69–75. https://doi.org/10.1016/j.enpol.2012.01.044

Supplementary readings (if you want to learn more):

- Thomson, H., Day, R., Ricalde, K., Brand-Correa, L. I., Cedano, K., Martinez, M., Santillán, O., Delgado Triana, Y., Luis Cordova, J. G., Milian Gómez, J. F., Garcia Torres, D., Mercado, C., Castelao Caruana, M. E., & Pereira, M. G. (2022). Understanding, recognizing, and sharing energy poverty knowledge and gaps in Latin America and the Caribbean – because conocer es resolver. *Energy Research & Social Science*, *87*, 102475. https://doi.org/10.1016/J.ERSS.2021.102475
- Pachauri, S., & Rao, N. D. (2013). Gender impacts and determinants of energy poverty: are we asking the right questions? *Current Opinion in Environmental Sustainability*, *5*(2), 205–215. https://doi.org/10.1016/j.cosust.2013.04.006
- Walker, G. (2020). Whose energy use matters? Reflections on energy poverty and decolonisation. *People, Place and Policy Online*, 1–7. https://doi.org/10.3351/PPP.2022.3833594884
- Nussbaumer, P., Bazilian, M., & Modi, V. (2012). Measuring energy poverty: Focusing on what matters. *Renewable and Sustainable Energy Reviews*, *16*(1), 231–243. https://doi.org/10.1016/j.rser.2011.07.150
- Pelz, S., Pachauri, S., & Groh, S. (2018). A critical review of modern approaches for multidimensional energy poverty measurement. *Wiley Interdisciplinary Reviews: Energy and Environment*, *7*(6), e304. https://doi.org/10.1002/WENE.304
- Middlemiss, L., & Gillard, R. (2015). Fuel poverty from the bottom-up: Characterising household energy vulnerability through the lived experience of the fuel poor. *Energy Research & Social Science*, *6*, 146–154. https://doi.org/10.1016/j.erss.2015.02.001
- Thomson, H., Snell, C., & Liddell, C. (2016). Fuel poverty in the European Union: a concept in need of definition? *People Place and Policy Online*, *10*(1), 5–24. https://doi.org/10.3351/ppp.0010.0001.0002
- IPCC AR6, WG 3, Chapter 5, Section 5.2: https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/
- Video by Rosie Day:

https://www.youtube.com/watch?v=FuA__YXSPB8&list=PLRES4Ql9K_GgJdyrfofo7_QRFLh4U3Yj5&index=4

- Video by Harriet Thomson: https://www.youtube.com/watch?v=3NGhIPkzHmI&list=PLRES4Ql9K_GgJdyrfofo7_QRFLh4U3Yj5&index=6

In-class exercise:

Brainstorming: Students will brainstorm different ways of measuring energy poverty, focusing on what is captured and what is lots with different measurements.

Session 4: Energy at York University

Guest Lecture by Mike Layton

In this session we will discuss in detail energy at York University, from where it comes from, to how it's used, to it's implications for the institution's emissions commitments.

*Core readings (mandatory marked with an *):*

- Report from the EFI?
- Draft sustainability strategy?
- Other reports?

In-class exercise:

Show and tell: Students will share with each other one entry from their reflective diaries, and we will discuss as a whole group lessons that we can take from the reflections.

Session 5: Energy efficiency in Canada: policies, programs and best practices

Guest Lecture by Peter Love?

*Core readings (mandatory marked with an *):*

- (*) Love, Peter (2022). *Fundamentals of Energy Efficiency*. "Chapters 1, 4 and 5" https://energyefficiencyfundamentals.org/textbook/Fundamentals-of-Energy-Efficiency-2Ed-Sec1.pdf
- (*) Report "Efficiency for All": read/watch at least one thing from here https://www.efficiencycanada.org/low-income-report/
- (*) Dowling, R., McGuirk, P., & Bulkeley, H. (2014). Retrofitting cities: Local governance in Sydney, Australia. *Cities*, *38*, 18–24. https://doi.org/10.1016/J.CITIES.2013.12.004
- Bird, S., & Hernández, D. (2012). Policy options for the split incentive: Increasing energy efficiency for low-income renters. *Energy Policy*, *48*, 506–514. https://doi.org/10.1016/J.ENPOL.2012.05.053
- Knuth, S. (2019). Cities and planetary repair: The problem with climate retrofitting: *EPA: Economy and Space*, *51*(2), 487–504. https://doi.org/10.1177/0308518X18793973

In-class exercise:

Briefing note: Format, data, objective, audience: Students will determine the format, objective and audience of their briefing note, and will have time to search for data to include in them.

Session 6: Community Energy Planning

Guest Lecture by TBC (EUC, York University)

In this class, we will discuss the issues with centralised energy systems, as well as the potential and limitations of community energy for self-reliance and economic democracy. He will focus on community energy planning in the Canadian context.

*Core readings (mandatory marked with an *)::*

- (*) Winfield, M., Wyse, Susan M., and Harbinson, S., "Enabling community energy planning?

Polycentricity, governance frameworks, and community energy planning in Canada". *Canadian Planning and Policy* / Aménagement et politique au Canada, Volume 2021, Special issue: Community Energy Planning in Canada. https://ojs.library.queensu.ca/index.php/cpp/article/view/14405/9684

- Mitchell, T. (2009). Carbon democracy. *Economy and Society*, *38*(July 2015), 399–432. https://doi.org/10.1080/03085140903020598
- Creamer, E., Eadson, W., van Veelen, B., Pinker, A., Tingey, M., Braunholtz-Speight, T., Markantoni, M., Foden, M., & Lacey-Barnacle, M. (2018). Community energy: Entanglements of community, state, and private sector. *Geography Compass*, *12*(7). https://doi.org/10.1111/GEC3.12378
- Calvert, K., Kantamneni, A., & McVey, I. (2021). The emergence and evolution of community energy planning in Canada: Introduction to a special issue. *Canadian Planning and Policy / Aménagement et Politique Au Canada*, *2021*, 1–10. https://doi.org/10.24908/CPP-APC.V2021I2.13934
- CEKAP Report on "ON THE PATH TO NET-ZERO COMMUNITIES: INTEGRATING LAND USE AND ENERGY PLANNING IN ONTARIO MUNICIPALITIES": https://www.cekap.ca/resources/research-report-OCC_Full%20Report-Aug11.pdf
- The Crosswalk Document - "A municipal climate planning tool for inter-departmental alignment & stakeholder engagement. Developer's Guide": https://www.cekap.ca/PDF/resources-facilitating-cross-departmental-alignment-on-climate-and-energy-planning.pdf

In-class exercise:

Campus tour: Tour of York's energy facilities.

Session 7: Energy Poverty Policy in Canada and in Ontario

Guest lecture by Zee Bhanji (LIEN - Low Income Energy Network)

In this class, Zee Bhanji will share her reflexions and analysis of the successes that LIEN has achieved in terms of changing provincial energy policy to tackle energy poverty, as part of their advocacy work. These will include the role of having a combination of a tenants' advocacy organization and an environmental advocacy organization as core partners. Zee will use a pyramid framework, showing how LIEN managed to effectively advocate for the policy elements established in their framework.

*Core readings (mandatory marked with an *)::*

- (*) Chapter 5: Pollution Probe. (2016). *Primer on Energy Systems In Canada*. "Financial and Economic Dimensions of the Canadian Energy System" https://www.pollutionprobe.org/wp-content/uploads/2023/11/EnergyPrimer2_DigitalLR.pdf
- (*) Riva, M., Kingunza Makasi, S., Dufresne, P., O'Sullivan, K., & Toth, M. (2021). Energy poverty in Canada: Prevalence, social and spatial distribution, and implications for research and policy. *Energy Research & Social Science*, *81*, 102237. https://doi.org/10.1016/j.erss.2021.102237
- Das, R. R., Martiskainen, M., Bertrand, L. M., & Macarthur, J. L. (2022). *A review and analysis of initiatives addressing energy poverty and vulnerability in Ontario, Canada*. https://doi.org/10.1016/j.rser.2022.112617
- Wyse, S. M., Das, R. R., Hoicka, C. E., Zhao, Y., & McMaster, M. L. (2021). Investigating Energy Justice in Demand-Side Low-Carbon Innovations in Ontario. *Frontiers in Sustainable Cities*, *3*, 75. https://doi.org/10.3389/FRSC.2021.633122/BIBTEX

In-class exercise:

Role-playing: Students will switch between a decision-maker and an energy poverty advocate, the latter trying to convince the former of the importance of tackling energy poverty.

Session 8: Energy business models

Guest Lecture by TBC

In this session we will review the different business model options for energy provision.

*Core readings (mandatory marked with an *)::*

- TBC on community energy
- TBC on ESCOs

In-class exercise:

Business case: Students will start working together on the course's final project - planning a business case for community energy that includes York University as an anchor institution. To start with, students will decide on a format, discuss the current situation, any alternatives and potential recommendations.

Session 9: Course conclusion: where to go next with energy studies?

In this class we will make a broad summary of what we've learnt on the course, how energy demand is an issue of minima *and* maxima, and how both "floors" and "ceilings" are important for energy and climate justice.

*Core readings (mandatory marked with an *):*

- (*) Rao, N. D., & Wilson, C. (2021). Advancing energy and well-being research. *Nature Sustainability 2021 5:2*, *5*(2), 98–103. https://doi.org/10.1038/s41893-021-00775-7
- IPCC AR6, WG 3, Chapter 5, Section 5.4: https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/

In-class exercise:

Time to work on the final project.