



REAL\*4820 Sustainable Real Estate  
Fall 2021  
0.5 Credits

### General Course Information

<b>Instructor:</b>	Rogier Holtermans
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<i>Office Location</i>	MINS 209
<i>Office Hours</i>	By appointment only
<i>Department/School</i>	Marketing and Consumer Studies
<b>Class Schedule:</b>	Mondays 2:30 P.M. – 5:20 P.M., MCKN Room 115
<b>Pre-requisites:</b>	14.00 credits

### Course Description

This course is designed to give students an understanding of how topics in sustainability and climate change affect and are affected by real estate and urban economics. Students will develop an understanding of the reasons for and benefits of sustainability practices in real estate and planning.

### Course Learning Outcomes

**Upon successfully completing this course, you will:**

1. Understand the reasons for and benefits of sustainability in real estate and planning.
2. Be able to identify the commercial, residential, and governmental players in sustainable real estate and their roles.
3. Have developed a knowledge of the major environmental building certification programs worldwide.
4. Have examined the cause and effect of individual real estate decisions on cities in terms of density and sprawl.
5. Have evaluated historic, current, and proposed real estate sustainability solutions.
6. Have strengthened your professional communication skills, including business writing and idea pitching.

### Summary of Course Content and Materials

The structure of this course requires significant individual study and preparation outside of class. Each class session will cover major points and concepts contained in the readings, as well as much material not covered in the readings (e.g. from documentaries, guest speakers, and additional literature). Moreover, class discussion and debate will comprise a large portion of this course. Therefore, **thorough and consistent preparation and participation are necessary to succeed in this class.**

Class	Date	Class Material	Assigned	Assignment Due
1	9/13	<b>Syllabus Review: Introduction to Sustainable Real Estate</b>		Form Groups
2	9/20	<b>Sustainability, Resilience, and Business</b> F1: Climate Change/Climate Risk	C2-R1 to C2-R2 and F1-R1 to F1-R2	
3	9/27	<b>The Value of Environmental Certification in the CRE Market</b> F2: Environmental Building Certification	C3-R1 to C2-R2 and F2-R1 to F2-R2	
4	10/4	<b>Executing Environmental Sustainability in CRE</b> <u>Guest Speaker: Aly Damji – Forum Equity Partners</u> F3: Developing and Managing Sustainable Buildings	C4-R1 to C4-R2 and F3-R1 to F3-R2	
	10/11	<b>NO CLASS</b> – Thanksgiving		
5	10/18	<b>Certified Buildings - Financing and Firm Performance</b> F4: Green Bonds <i>Debate – Proposition A</i>	C5-R1 to C5-R2 and F4-R1 to F4-R2	
6	10/25	<b>Transparency, Reporting, and Benchmarking</b> <u>Guest Speaker: Roxana Isaiu – GRESB</u> <i>Debate – Proposition B</i>	C6-R1 to C6-R2	
7	11/1	<b>Forces of Change: Emerging Technologies</b> <u>Guest Speaker: ??? – Skyline Group of Companies</u> Come prepared to discuss your findings in class.	C7-R1 to C7-R2	Assignment 2
8	11/8	<b>Health and Well-Being in the Built Environment</b> F5: Healthy Buildings <i>Debate – Proposition C</i>	C8-R1 to C8-R2 and F5-R1 to F5-R3	
9	11/15	<b>Government Policy in the Residential Market</b> <u>Guest Speaker: Daniel Ger – Options for Homes</u> F6: Affordable Housing	C9-R1 to C9-R2 and F6-R1 to F6-R3	
10	11/22	<b>Group Presentations</b>		Assignment 3
11	11/29	<b>Urbanization: Sprawl and Density</b> F7: Social Cost of Carbon <i>Debate – Proposition D</i>	C11-R1 to C11-R3 and F7-R1 to F7-F2	
12	12/3	<b>Urbanization: Policy and Solutions</b> F8: Sharing Economy	C12-R1 to C12-R2 and F8-R1 to F8-R2	Assignment 5

Note: The schedule of learning activities may require modification from time to time. Any changes will be announced in class and/or on CourseLink.

### Assignment 1: Student Group Facilitation

Throughout the semester we will make use of a “flipped” classroom setting for the majority of the classes. This implies that your group is in charge of facilitating a 45 minute session and moderating the discussion based on an assigned topic. Your group is expected to present a summary and discussion of the topic, linking the different materials and addressing potential differences in their findings and conclusions. The assigned required literature must be covered in the class. You are encouraged to go beyond the assigned literature, using the optional readings and/or related content based on your own research. **Importantly, all students are expected to have read the required literature.**

When you are in charge of the session it is important to be creative. These sessions are supposed to be a group discussion of the topic and the literature, rather than a passive meeting in which the facilitator presents the content. The grading and evaluation of your group's session will reward experimentation.

Your session should last approximately 45 minutes. Every group member is expected to speak, and the presentation and other materials used to facilitate the session should be submitted to CourseLink after the class.

*Groups:* Facilitation of the class should be completed in groups of five students – sign up together on CourseLink once you have formed your group. Efforts will be made to match groups with the desired topics, but there is no guarantee that you will be assigned your preferred topic or week. **Reference your group number on all submitted materials.**

## **Assignment 2: Individual Assignment**

Cities today are healthier, wealthier and more alluring than any time in history. They attract the poor and provide the clearest path from poverty to prosperity. Yet today the urban footprint is overwhelming the natural environment and is accentuating the divide between “haves” and the “have not’s.”

For the first time in the history of mankind, more than half of the world's population calls a city their home. Within a few decades 5 billion people will live in cities, and 500 cities around the world (mostly in Asia and Africa) will each contain more than 1 million people.<sup>1</sup> While city-building is imminent, sustainable city-building must be actively pursued. This brings substantial hurdles and open-ended questions such as:

- How can we make cities better places to live at substantially increased densities by growing up instead of out?
- How will we consume less of everything and reduce waste for the things we need?
- How will we solve the mobility challenge with new models of transportation that can ensure efficient movement of people, goods and services?
- How will we transition from carbon-based fuels to renewable energy and in a relatively short period of time without causing significant economic disruption?
- How do we replace obsolete models of infrastructure that are no longer sustainable?
- How do we address issues of public health, safety and security, and not just health care?
- How could we integrate new technologies and business models that are more efficient at serving urban needs?

In this individual assignment, you will select, research, and explore a new or emerging technology that addresses one of the above questions. Note that “technology” can be something physical (e.g. a widget), or something theoretical, such as a financing model, a business idea, a policy, etc. This should be something that has the potential to be applicable in urban centers across the globe, is scalable, and could be defended as being reasonably practical. Speak to all of these aspects, as well as how the idea fits within a sustainability lens. Describe the feasibility of applying this idea in Toronto or another specific region.

*Logistics:* Each technology may only be completed by one student. The first student that notifies the professor, by email at [rholter@uoguelph.ca](mailto:rholter@uoguelph.ca), of their interest in a technology claims rights to it. Submissions should be no longer than 3 pages text (double spaced, 12-point Times New Roman font, 1” margins). There is no limit on space for visuals and bibliography. Do NOT put your name on the submission (both in the file

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<sup>1</sup> <https://www.unfpa.org/urbanization>

and in the file name); identify yourself by Student ID number only. Submissions will be discussed in class; come prepared to share your findings.

### **Assignment 3: Group Research Paper**

ESG has become vital to investors of all forms in the built world. Increasingly, individual firms are differentiating on their sustainability commitments, both in terms of their organization's year-over-year advancement and target-attainment, and in terms of performance against peer firms.

Notably, not all asset classes of the built world are advancing at the same pace, nor are all geographic markets. For example, office space has adopted environmental building certification much more quickly and deeply than multifamily condominiums, and Western Europe has a reputation for greater ESG adoption than North America. Further, emerging market regions must be held to a different standard than developed regions, as their built world demands differ. These different subgroups often measure their ESG commitments in different ways, utilizing different certification and benchmarking standards. Because of this, an understanding of what qualifies as "best in class" performance by asset class, by region, is key.

Each group will select one "Sector" for study. This Sector will represent one asset class in an associated geographic region. The available Sectors are listed below:

- Office in Asia
- Multifamily in Asia
- Office Market in Oceania
- Retail in Western Europe
- Data Centers in North America
- Industrial Real Estate in North America
- Senior Housing in North America
- Retail in the North America

Once your group's Sector has been assigned, you will complete and present an analysis of the state of that Sector. Consider your audience to be an ESG-savvy organization interested in investing in your studied Sector. They want to understand the state of that Sector with respect to ESG adoption, who the leader and laggard organizations and localities are, and how that is determined and measured historically and on an ongoing basis. Some questions to consider as you prepare your analysis:

- How is ESG and sustainability measured? What are the leading reporting programs utilized?
- What are the dominant certification programs? How has ESG been adopted across the leading and lagging markets in the region?
- What aspects of ESG take precedence in the Sector? Why? What are the market leaders focusing on next?
- How is ESG success measured? What is the level of transparency into the Sector's performance?
- What are the unique aspects of the Sector impacting ESG? How are those addressed?

Be thorough in data collection and analysis, bipartisan in your presentation of the facts, and thoughtful in your evaluation of possible future trends. There are several resources available to inform your analysis; consider GRESB, Preqin, stock exchanges, funding memos, supranational reports, etc. as well as any additional resources you find helpful.

*Logistics:* Each Sector may only be completed by one group. Your group is asked to submit a ranking of the eight Sectors through CourseLink. Efforts will be made to match groups with the desired asset class and

region, but there is no guarantee that you will be assigned your preferred topic. Presentations will occur in-class on November 22, with the associated report due on CourseLink prior to the start of class. Presentations should be 12 to 15 minutes in length, with questions from the class following. Report submissions should be no longer than 10 pages text (double spaced, 12-point Times New Roman font, 1" margins). There is no limit on space for visuals and bibliography.

#### **Assignment 4: Debate**

Student groups as signed-up on CourseLink will each debate one side of a proposed sustainability-related policy. The topics and affirmative/negative positions will be assigned in class. While efforts will be made to match students with the desired scenario, there is no guarantee that you will be assigned your preferred topic or position. This assignment provides students an opportunity to demonstrate their understanding of class concepts and readings, practice discussing issues in a respectful and effective manner, and expand their critical thinking skills.

Student groups should divide up the tasks of presenting underlying issues, the support position, the opposition, and any alternative policies/positions that could arise. Each team member must speak at least once in the debate, and each speaking opportunity must be presented by one team member only (see Format description below for more information). In cases where one team is larger than their opponent, a team member on the smaller team may speak a second time to balance the rebuttals.

This assignment is evaluated completely based on the debate presented in class; there is no report associated with this assignment. **This means that you will have less than 10 minutes total, per person, to earn 15% of your grade. Preparation will be KEY for this assignment.** The debate is evaluated in terms of clarity, use of supporting evidence, effective rebuttals, and overall preparedness. The winner of each debate (which will be determined by the professor, with input from the class) need not represent the concept which may seem a better choice based on our classwork, but rather the team that does a better job of presenting and defending their position. Not winning the debate does not necessarily indicate a poor grade on the debate. However, winning the debate will result in additional marks on the assignment.

In each case, teams represent groups of citizens in support and opposition of the proposed policy, and will debate the topic for the benefit of the specified governing body (represented by the Professor), as the council considers the implementation of this law.

#### **Style: Formal Debate**

#### **House Rules: No Grace Periods, No Interruptions, No Heckling, No Visual Aids**

#### **Format:**

1. The first speaker on the affirmative team presents arguments in support of the resolution. (5 – 7 minutes)
2. The first speaker on the opposing team presents arguments opposing the resolution. (5 – 7 minutes)
3. The second speaker on the affirmative team presents further arguments in support of the resolution, identifies areas of conflict, and answers questions that may have been raised by the opposition speaker. (3 – 5 minutes)
4. The second speaker on the opposing team presents further arguments against the resolution, identifies further areas of conflict, and answers questions that may have been raised by the previous affirmative speaker. (3 – 5 minutes)
5. A short recess for teams to prepare their rebuttals. (5 minutes)
6. The opposing team begins with the rebuttal, attempting to defend the opposing arguments and to

- defeat the supporting arguments without adding any new information. (3 – 5 minutes)
7. First rebuttal of the affirmative team (3 – 5 minutes)
  8. Each team gets a second rebuttal for closing statements with the affirmative team having the last opportunity to speak. (3 – 5 minutes each)

*Note:* Steps six and seven will be repeated until every team member has had a chance to speak.

**Guidelines to help you prepare for a debate:** <http://www.sfu.ca/cmns/130d1/HOWTODEBATE.htm>

Propositions which may be debated are:

*Proposition A:*

“The costs of energy efficiency outweigh the benefits in the office market.”

*Proposition B:*

“Environmental building certification is an effective tool to improve real asset ESG transparency.”

*Proposition C:*

“Health and well-being does not impact the performance of commercial real estate.”

*Proposition D:*

“Extending Toronto’s cycling network will have a net negative effect on congestion.”

### **Assignment 5: City Sustainability Analysis**

A sustainable city is designed with consideration given to environmental impact. It is inhabited by people dedicated to minimizing their use of finite resources and waste and emission creation. It should meet the needs of the present occupants without sacrificing the right of the future occupants to meet their own needs. Throughout this class we will see examples of cities from around the world. Good examples (Portland, OR; Singapore), poor examples (cancer villages, China; Atlanta, GA; New York City of the 1970s), and developing examples (Mumbai, India; Beijing, China).

For this assignment, each student will complete an analysis of the sustainability of a midsized city in Ontario. Given the breadth of the concept, each student has great latitude in the completion of this assignment. Some things to consider are:

- Does the community have renewable energy sources? What percent of the power for the city comes from those sources? How are those sources being developed?
- How large an ecological footprint does the city produce? How much pollution and waste is the city creating?
- **What urban planning techniques are currently in place to encourage sustainable building construction, affordable housing, etc.?**
- **What public/mass transit options are currently available/in planning stages?**
- **How are density and sprawl being propagated and managed in the city?**
- What policies has the local government(s) enacted to encourage sustainability? **Where can the city spend the least and make the most difference (geographically, improving walkability, etc.)**
- Are there private sector leaders in the city encouraging sustainability?

This is about analysis, not just reporting. If your selected community has a sustainability plan or statement, do not parrot it, but rather evaluate it. Focusing on the bolded topics is suggested, other areas of analysis

may be determined based on the unique nature of the chosen community. Many case studies of sustainable cities are available online – reading some of these studies may assist you in preparing your own analysis.

*Logistics:* Each student will INDIVIDUALLY complete this analysis for one community. There will be a limit to the number of students which may choose each community. You are welcome to coordinate your research with other students working on the same area. However, your analysis and report must be unique; co-authorship or group-think is considered Academic Misconduct. The cities will be assigned in-class, and while efforts will be made to match students with the desired communities, there is no guarantee that you will be assigned your preferred scenario.

The report should be 4-5 (double-spaced, Times New Roman 12-point font, 1" margins) pages of text PLUS pictures, charts, graphs, maps, and projections, as required. Number the pages in your report and label/reference all exhibits carefully. Include only your student ID number as identification; DO NOT include your name on the report or the file name.

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|-------------|--------------|----------------|
| 1. Calgary  | 5. Kitchener | 9. Quebec City |
| 2. Edmonton | 6. London    | 10. Victoria   |
| 3. Hamilton | 7. Oshawa    | 11. Windsor    |
| 4. Halifax  | 8. Ottawa    | 12. Winnipeg   |

## Course Assessment

Performance will be evaluated based on the following:

	Weight	Description	Associated Learning Outcomes	Due Date
<i>Assignment 1:</i>	15%	Student Group Facilitation	LO 1-6	On-going
<i>Assignment 2:</i>	15%	Individual Assignment	LO 1-5	November 1
<i>Assignment 3:</i>	25%	Group Research Paper	LO 1-6	November 22
<i>Assignment 4:</i>	15%	Government Policy Debate (individual)	LO 1-6	On-going
<i>Assignment 5:</i>	30%	Individual City Analysis	LO 1-6	December 3
<b>Total</b>	<b>100%</b>			

**Assignments are due in Dropbox on CourseLink at the beginning of class.** Assignments are not accepted after they have been discussed in class. Readings quizzes will frequently be administered at the beginning of class. The lowest quiz grade will be dropped.

## Teaching and Learning Practices

This is structured as a readings course, and the quality will depend largely on what each student puts into the class. A large portion of the course consists of a “flipped” classroom, which means that student groups are in charge of facilitating sessions. Most of the assignments in this course are focused on interactive learning, through class discussions, debates, and presentations. Do not mistake a lack of examinations for an easier course.

## Course Resources

This course uses a variety of materials and resources. One of your primary resources will be the course website (<http://courselink.uoguelph.ca>). All announcements, required and optional readings, assignments and updates will be posted here. Check this site often.

Abbreviation	Reference
C2-R1	Bernstein, A., Gustafson, M. T., & Lewis, R. (2019). Disaster on the horizon: The price effect of sea level rise. <i>Journal of financial economics</i> , 134(2), 253-272.
C2-R2	Addoum, J.M., Eichholtz, P., Steiner, E., & Yönder, E. (2021) Climate Change and Commercial Real Estate: Evidence from Hurricane Sandy. Working paper.
C2-O1	Rajapaksa, D., Wilson, C., Managi, S., Hoang, V., & Lee, B. (2016). Flood risk information, actual floods and property values: a quasi-experimental analysis. <i>Economic Record</i> , 92, 52-67.
C2-O2	Hindlian, M., Lawson, S., Banerjee, S., Duggan, D., & Hinds, M. (2019). Taking the Heat: Making cities resilient to climate change. <i>Goldman Sachs</i> .
F1-R1	Measurabl Webinar (2020). <a href="#">How Real Estate Can Adapt and Prepare for Climate Risks</a> . Minutes 0-40.
F1-R2	Smart, L. (2020). <a href="#">Understanding and Navigating Climate Risk at the Asset Level</a> . S&P Global Market Intelligence Report.
F1-O1	Koerth, M. (2019). <a href="#">How To Understand Natural Disasters In A Climate Change Age</a> . FiveThirtyEight.
C3-R1	Eichholtz, P., Kok, N., & Quigley, J. M. (2010). Doing well by doing good? Green office buildings. <i>American Economic Review</i> , 100(5), 2492-2509.
C3-R2	Holtermans, R., & Kok, N. (2019). On the value of environmental certification in the commercial real estate market. <i>Real Estate Economics</i> , 47(3), 685-722.
C3-O1	Bond, S. A., & Devine, A. (2016). Certification matters: Is green talk cheap talk?. <i>The Journal of Real Estate Finance and Economics</i> , 52(2), 117-140.
F2-R1	Miller, J. (2013) <a href="#">Green building and property value - A primer for building owners and developers</a> . Report
F2-R2	Measurabl. (2020) <a href="#">Top ten green building certifications</a> . Report.
F2-O1	Holtermans R., Kok, N., & Levy, S. (2019). <a href="#">Green Building Adoption Index for Office Buildings 2019</a> . Report.
F2-O2	Holtermans R., Kok, N., & Levy, S. (2019). <a href="#">Green Building Adoption Index for Multifamily Buildings 2019</a> . Report.
C4-R1	Eichholtz, P., Holtermans, R., & Kok, N. (2019). Environmental Performance of Commercial Real Estate: New Insights into Energy Efficiency Improvements. <i>The Journal of Portfolio Management</i> , 45(7), 113-129.
C4-R2	Clayton, J., Devine, A., & Holtermans, R. (2021) Beyond building certification: The impact of environmental interventions on commercial real estate operations. <i>Energy Economics</i> , 93, 105039.
C4-O1	Devine, A., & Kok, N. (2015). Green certification and building performance: Implications for tangibles and intangibles. <i>The Journal of Portfolio Management</i> , 41(6), 151-163.
F3-R1	CaGBC (2019). <a href="#">Making the case for building to zero carbon</a> . Report.
F3-R2	World Economic Forum (2016). <a href="#">Environmental sustainability principles for the real estate industry</a> . Report
F3-O1	Chegut, A., Eichholtz, P., & Kok, N. (2019). The price of innovation: An analysis of the marginal cost of green buildings. <i>Journal of Environmental Economics and Management</i> , 98, 102248.
C5-R1	Eichholtz, P., Kok, N., & Yönder, E. (2012). Portfolio greenness and the financial performance of REITs. <i>Journal of International Money and Finance</i> , 31(7), 1911-1929.
C5-R2	Eichholtz, P., Holtermans, R., Kok, N., & Yönder, E. (2019). Environmental performance and the cost of debt: Evidence from commercial mortgages and REIT bonds. <i>Journal of Banking &amp; Finance</i> , 102, 19-32.
C5-O1	An, X., & Pivo, G. (2020). Green buildings in commercial mortgage-backed securities: The effects of LEED and Energy Star certification on default risk and loan terms. <i>Real Estate Economics</i> , 48(1), 7-42.
C5-O2	Eichholtz, P., Barron, P., & Yönder, E. (2018). REIT environmental performance and the cost of equity. <i>The Routledge REITs Research Handbook</i> .
F4-R1	<a href="#">What is the point of green bonds?</a> <i>The Economist</i> , September 19, 2020.
F4-R2	Flammer, C. (2018). <a href="#">Green Bonds Benefit Companies, Investors, and the Planet</a> . <i>Harvard Business Review</i> .
F4-O1	GRESB (2015). <a href="#">Green Bond Guidelines for the Real Estate Sector</a> .
F4-O2	Climate Bonds Initiative (2020). <a href="#">Green Infrastructure Investment Opportunities (GIIO) Programme</a> .
C6-R1	Fink, L. (2020). <a href="#">A Fundamental Reshaping of Finance</a> . BlackRock CEO annual letter to CEOs.
C6-R2	Ellis, M. (2020). <a href="#">GRESB, Explained</a> . Blogpost.
C6-R3	Mooney, J. & Yanushevsky, C. (2017). <a href="#">Real estate heavyweights line up behind sustainability score</a> . S&P Global Market Intelligence.
C6-O1	Bosteels, T. & Sweatman, P. (2016). <a href="#">Sustainable real estate investment: Implementing the Paris Climate Agreement - An Action Framework</a> . United Nations Environment Finance Initiative.
C6-O2	Bentall Kennedy, REALPAC, UNEPFI (2016). <a href="#">Global ESG Real Estate Investment Survey Results</a> . UNEPFI.



<b>C7-R1</b>	Wilson, Sonsini, Goodrich, & Rosati (2014) <a href="#">I3 Quarterly Innovation Monitor - Smart Buildings</a> .
<b>C7-R2</b>	International Council for Science (2005). <a href="#">Harnessing Science, Technology and Innovation for Sustainable Development</a> . A report from the ICSU-ISTS-TWAS Consortium <i>Ad hoc</i> Advisory Group.
<b>C7-O1</b>	McKinsey (2018). <a href="#">Smart cities: Digital solutions for a more livable future</a> . Report.
<b>C7-O2</b>	Renewal Energy Policy Network for the 21 <sup>st</sup> century. <a href="#">Renewables 2019: Global Status Report</a> .
<b>C7-O4</b>	Pinsent & Masons (2018). <a href="#">The Evolution of Infratech: How Technology is Shaping the Future of Infrastructure</a> .
<b>C8-R1</b>	Allen, J. G., MacNaughton, P., Satish, U., Santanam, S., Vallarino, J., & Spengler, J. D. (2016). Associations of cognitive function scores with carbon dioxide, ventilation, and volatile organic compound exposures in office workers: a controlled exposure study of green and conventional office environments. <i>Environmental health perspectives</i> , 124(6), 805-812.
<b>C8-R2</b>	Palacios, J., Eichholtz, P., & Kok N. (2020). Moving to productivity: The benefits of healthy buildings. <i>PLoS ONE</i> 15(8)
<b>C8-O1</b>	Palacios, J., Eichholtz, P., Kok, N., & Aydin, E. (2020). The impact of housing conditions on health outcomes. <i>Real Estate Economics</i> .
<b>C8-O2</b>	Harvard University (2020). <a href="#">The impact of green buildings on cognitive health</a> . Website.
<b>F5-R1</b>	IWBI (2019). <a href="#">Global Research Agenda: Health, Well-being and the Built Environment</a> . <i>International Well Building Institute</i> .
<b>F5-R2</b>	WSP (2019). <a href="#">WELL or Fitwel? Getting to Know Healthy Building Certification Systems</a> . GRESB.
<b>F5-R3</b>	Allen, J. & Macomber, J. (2020). <a href="#">Tenants and Investors Will Be Looking for Healthy Buildings</a> . <i>Urban Land</i> , HBS, Spring 2020.
<b>F5-O1</b>	World Green Building Council (2018). <a href="#">Doing right by planet and people: The business case for health and well being in green building</a> . Report.
<b>C9-R1</b>	Bond, S. A., & Devine, A. (2016). Incentivizing green single-family construction: Identifying effective government policies and their features. <i>The Journal of Real Estate Finance and Economics</i> , 52(4), 383-407.
<b>C9-R2</b>	Chegut, A., Eichholtz, P., & Holtermans, R. (2016). Energy efficiency and economic value in affordable housing. <i>Energy Policy</i> , 97, 39-49.
<b>C9-O1</b>	Rana, A., Sadiq, R., Alam, M. S., Karunathilake, H., & Hewage, K. (2021). Evaluation of financial incentives for green buildings in Canadian landscape. <i>Renewable and Sustainable Energy Reviews</i> , 135, 110199.
<b>F6-R1</b>	<i>The Economist</i> (2020). <a href="#">Special Report: Housing</a> .
<b>F6-R2</b>	Smith, N. (2021). <a href="#">U.S. Cities Are at a Crossroads</a> . <i>Bloomberg</i>
<b>F6-R3</b>	Urban Land Institute Webinar (2020). <a href="#">Beyond the Pandemic: The Importance of Social Value</a> .
<b>F6-O1</b>	Institute for Market Transformation (2019) Comparison of U.S. commercial building energy benchmarking and transparency policies. Overview
<b>F6-O2</b>	Campbell, K. (2020). <a href="#">Why Rockport is building a \$2.5 bn single-family rental platform</a> . PERE.
<b>C11-R1</b>	Thompson, D. (2013) <a href="#">Suburban sprawl: Exposing hidden costs, identifying innovations</a> . Report.
<b>C11-R2</b>	OECD (2018). <a href="#">Rethinking Urban Sprawl: Moving towards Sustainable Cities</a> .
<b>C11-R3</b>	Lall, S., Lebrand, M., & Park, H. (2021). <a href="#">Slums, sprawl, and skyscrapers</a> . <i>Brookings Institute</i> .
<b>C11-O1</b>	Condon, P.M. (2004). Canadian cities American cities: Our differences are the same. Report
<b>C11-O2</b>	Diamond, J., Thompson, D. (2013). The true costs of suburban sprawl. Opinion
<b>F7-R1</b>	Rennert, K. and Kingdon, C. (2019). <a href="#">Social Cost of Carbon 101</a> . <i>Resources for the Future</i> .
<b>F7-R2</b>	Environmental Defense Fund (2020). <a href="#">The true cost of carbon pollution</a> .
<b>C12-R1</b>	Gilderbloom, J. I., Riggs, W. W., & Meares, W. L. (2015). Does walkability matter? An examination of walkability's impact on housing values, foreclosures and crime. <i>Cities</i> , 42, 13-24.
<b>C12-R2</b>	MacCleery, R., Peterson C., and Stern, J.D. <a href="#">Shifting Suburbs: Reinventing Infrastructure for Compact Development</a> . Urban Land Institute. 2012.
<b>C12-O1</b>	Arcadis. Citizen Centric Cities: <a href="#">The Sustainable Cities Index 2018</a> .
<b>C12-O2</b>	Stockholms stad (2013). <a href="#">Stockholm: A Sustainable Growing City</a> .
<b>F8-R1</b>	Yaraghi, N. & Ravi, S. (2017) <a href="#">The Current and Future State of the Sharing Economy</a> . Brookings India IMPACT Series No. 032017.
<b>F8-R2</b>	Silver, N., Fischer-Baum, R. (2015). Public transit should be Uber's new best friend. Report
<b>F8-O1</b>	Hall, J. D., Palsson, C., & Price, J. (2018). Is Uber a substitute or complement for public transit?. <i>Journal of Urban Economics</i> , 108, 36-50.

## Course Policies

### Grading Policies

Unless you have discussed an extension well ahead of the due date with the instructor, late penalties of 5% of the total grade earned per day (including weekends) will be assigned to any assessment (i.e. deducted from the total mark). Extensions will only be granted on the basis of valid medical or personal reasons, and need to be requested via email to the instructor as soon as possible. Late assignments will not be accepted once graded assignments have been returned officially to the class at large, unless circumstances permit and alternative arrangements have been made.

Students who find themselves unable to meet course requirements by the deadlines or the criteria expected because of medical or personal reasons, should review the regulations on academic consideration in the Academic Calendar and discuss their situation with the instructor, program counselor or other academic counselor as appropriate.

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-grds.shtml>

#### *Missed Assignments:*

A grade of zero will be assigned if you fail to submit an assignment, unless you are ill or have other compassionate reasons. Please read your Undergraduate Calendar for the regulations regarding illness and compassionate grounds. Please note, vacation travel, moving house, or outside work commitments will not be accepted as valid reasons for missing deadlines.

If you have religious observances which conflict with the course schedule or if you are registered with Student Accessibility Services, please contact the course instructor in order to make arrangements for your assessment if appropriate.

## University Policies

### Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for Academic Consideration:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

### Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity

of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

### **Accessibility**

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email [sas@uoguelph.ca](mailto:sas@uoguelph.ca) or see the website:

<https://wellness.uoguelph.ca/accessibility/>

### **Course Evaluation Information**

Please refer to the [Course and Instructor Evaluation Website](#)

### **Recording of Materials**

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

### **Drop date**

The last date to drop one-semester courses, without academic penalty, is December 3, 2021. For regulations and procedures for Dropping Courses, see the Academic Calendar:

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

### **Illness**

The University will not normally require verification of illness (doctor's notes) for fall 2020 or winter 2021 semester courses. However, requests for Academic Consideration may still require medical documentation as appropriate.

### **Disclaimer**

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings and academic schedules. Any such changes will be announced via CourseLink and/or class email. All University-wide decisions will be posted on the [COVID-19 website](#) and circulated by email.