HUMBER

Course Outline

Course Name: Thinking in Systems: How to Understand and Tackle Complex Problems

Course CODE: SOCI

Academic Year: 2023-2024

Land Acknowledgement

Humber College is located within the traditional and treaty lands of the Mississaugas of the Credit. Known as Adoobiigok [A- doe-bee-goke], the “Place of the Alders” in Michi Saagiig [Mi-Chee Saw-Geeg] language, the region is uniquely situated along Humber River Watershed, which historically provided an integral connection for Anishinaabe [Ah-nish-nah-bay], Haudenosaunee [Hoeden-no-shownee], and Wendat [Wine-Dot] peoples between the Ontario Lakeshore and the Lake Simcoe/Georgian Bay regions. Now home to people of numerous nations, Adoobiigok continues to provide a vital source of interconnection for all.

Equity, Diversity and Inclusion Statement

Humber College and the University of Guelph-Humber (Humber) are leaders in providing a learning, working and living environment that recognizes and values equity, diversity and inclusion in all its programs and services. Humber commits to reflect the diversity of the communities the College serves. Students, faculty, support and administrative staff feel a sense of belonging and have opportunities to be their authentic selves.

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Course Description

Systems Thinking is a way of looking at the world and our place within it, that prioritizes understanding the consequences of interconnectedness. Over the last 80 years, our world has become increasingly interconnected. This is largely the result of technological advances that have brought many benefits but also unintended negative consequences that are bringing us, as a human family, to the brink of an existential social and ecological crisis. What's more, global crises are themselves interconnected and interdependent: pandemics trigger economic crises; pollution deepens social inequalities; a warming climate triggers ideological extremism, and so on. In this course, students learn basic concepts and tools of Systems Thinking and Systems Mapping, and apply them to issues they are passionate about. In doing so, students develop a deeper understanding of how the world works, and how to manage complex problems across disciplines.

Course Rationale

SOCI *Sociology offers students the opportunity to actively observe, to critically engage, and to develop the analytic tools necessary to succeed in the complex and changing world in which they live. Sociology illuminates the collective forces, structural changes, social relationships and interpretive conflicts that they encounter in their everyday lives. Students will examine various facets of the social world such as race, class, gender, sexuality, family, health, media, popular culture, crime, urban life, corporate and consumer society.*

Program Outcomes Emphasized in this Course

If the course being developed will be required for one or more Programs, those Programs (along with their Program Learning Outcomes) are listed here in COSSID and the developer is asked to select which Program Learning Outcomes are supported by the content of the new course being developed. NB: This need not be completed at the mock-up stage.

Course Learning Methods

Action Learning

Problem Based Learning (PBL)

Case Based Learning

Collaborative Learning

Project Based Learning

Group or Teamwork

Lecture

Student-led Learning

Inquiry based learning

Preferred Classroom Type

Flexible/Collaborative Learning Space (Required)

Learning Outcomes and Assessments

Learning Outcomes	Lesson Objectives	Summative Assessments	Formative Assessments
Course Learning Outcomes: 1. Explain the critical importance of systems thinking as a powerful method of analysing and addressing local and global issues	This column does not need to be completed.	Written reflection papers	This column does not need to be completed.
2. Describe in detail specific systems thinking strategies, tools and technologies that increase our ability to understand and address complex systems		Written reflection papers Digital tool assessment	

3. Identify colonial influences in a system and critically analyse how power dynamics operate and are reproduced in that system.		Written reflection papers Visual systems map Written systems analysis	
4. Apply systems thinking strategies, tools and technologies to analyse a complex problem from multiple perspectives in order to identify cognitive biases that restrict understanding, reproduce unwanted dynamics and limit the effectiveness of interventions.		Written reflection papers Visual systems map Written systems analysis	
5. Integrate concepts learned in class through a team project that analyzes and presents the systems nature of a complex challenge (at the local level, the global level or both).		Team contract and problem identification Oral presentation Visual systems map Written systems analysis	
6. Practice presentation and communication skills in the context of raising awareness among a general audience about a complex problem of our time at either a local or global level (or both).		Oral presentation Visual systems map	

Assessment Weighting

Assessment	Weight
Digital tool assessment	5%
Team contract and problem identification	20%
Discussion posts (2 X 5%)	10%

Written analysis of a System (Written assignment)	20%
Bibliography	5%
Visual Analysis / Synthesis of a System (Mapping assignment)	25%
Oral Presentation of a System	15%
TOTAL	**100%**

Modules of Study

Module	Course Learning Outcomes	Resources	Assessments
Module I Systems Basics Part I. Introduction to Systems Thinking: What is Systems Thinking (and why do we need it now)?	Explain the critical importance of systems thinking as a powerful method of analysing and addressing local and global issues	Goldin, Ian. Inequality is polarizing the world. In *The World Today* (3 December 2021) https://www.chathamhouse.org/publications/the-world-today/2021-12/inequality-polarizing-world Goodchild, M. (2021). Relational Systems Thinking: That's How Change is Going to Come, From Our Earth Mother. *Journal of Awareness-Based Systems Change*, *1*(1), 75–103. https://doi.org/10.47061/jabsc.v1i1.577 Meadows, Donella H. 2008. Thinking in systems: A Primer Chelsea Green Publishing Map the System Student Guide: Third Edition. https://www.mtroyal.ca/nonprofit/InstituteforCommunityProsperity/_pdfs/ssdata_icp_mts_2020.pdf	Digital Assessment Team Formation and problem Identification Written Reflection Paper

Module II Systems Basics Part II: Examining interconnectedness	Explain the critical importance of systems thinking as a powerful method of analysing and addressing local and global issues Describe in detail specific systems thinking strategies, tools and technologies that increase our ability to understand and address complex systems Identify colonial influences in a system and critically analyse how power dynamics operate and are reproduced in that system.	Greene, D. 2016. How Change Happens: Part 2 - Institutions and the Importance of History https://oxfamilibrary.openrepository.com/bitstream/handle/10546/581366/bk-how-change-happens-211016-en.pdf;jsessionid=69B04D52C37756E295D4572FDF3E4EBC?sequence=7 Meadows, Donella H. 2008. Thinking in systems: A Primer Chelsea Green Publishing Map the System Student Guide: Third Edition. https://www.mtroyal.ca/nonprofit/InstituteforCommunityProsperity/_pdfs/ssdata_icp_mts_2020.pdf Mitchell, Melanie & Toroczkai, Zoltan. (2010). Complexity: A Guided Tour. Physics Today. 63. 47-. 10.1063/1.3326990. Seibert, M. 2018. Systems Thinking and How It Can Help Build a Sustainable World. In Solutions Journal. July 11, 2018 https://www.resilience.org/stories/2018-07-11/systems-thinking-and-how-it-can-help-build-a-sustainable-world/	Written Reflection Paper
Module III	Identify colonial influences in a system and critically analyse how	Goodchild, M. (2022). Relational Systems Thinking: The	Written Reflection Paper

Systems Thinking Part III: How systems run themselves. Why are some problems so "sticky" or "wicked"?	power dynamics operate and are reproduced in that system. Apply systems thinking strategies, tools and technologies to analyse a complex problem from multiple perspectives in order to identify cognitive biases that restrict understanding, reproduce unwanted dynamics and limit the effectiveness of interventions.	Dibaajimowin (Story) of Re-Theorizing "Systems Thinking" and "Complexity Science". *Journal of Awareness-Based Systems Change*, *2*(1), 53–76. https://doi.org/10.47061/jabsc.v2i1.2027 Greene, D. 2016. How Change Happens: Part 2 - Institutions and the Importance of History https://oxfamilibrary.openrepository.com/bitstream/handle/10546/581366/bk-how-change-happens-211016-en.pdf;jsessionid=69B04D52C37756E295D4572FDF3E4EBC?sequence=7 Mitchell, Melanie & Toroczkai, Zoltan. (2010). Complexity: A Guided Tour. Physics Today. 63. 47-. 10.1063/1.3326990.	
Module IV Systems Thinking and Critical Thinking: How do we identify power dynamics in systems? How do we identify colonial influences in systems?	Identify colonial influences in a system and critically analyse how power dynamics operate and are reproduced in that system. Apply systems thinking strategies, tools and technologies to analyse a complex problem from multiple perspectives in order to identify cognitive biases that restrict understanding, reproduce unwanted dynamics and limit the effectiveness of interventions.	Goodchild, M. (2022). Relational Systems Thinking: The Dibaajimowin (Story) of Re-Theorizing "Systems Thinking" and "Complexity Science". *Journal of Awareness-Based Systems Change*, *2*(1), 53–76. https://doi.org/10.47061/jabsc.v2i1.2027 Heke, I., Rees, D., Swinburn, B., Waititi, R. T., & Stewart, A. (2019). Systems Thinking and indigenous systems: native contributions to	Written Reflection Paper Written Systems Analysis Bibliography Visual Systems Map Oral Presentation

		obesity prevention. AlterNative: An International Journal of Indigenous Peoples, 15(1), 22–30. https://doi.org/10.1177/1177180118806383 McIntyre, D.G., Cloutis, G.A. & McCarthy, D. Indigenous trans-systemics: changing the volume on systems. Sustain Sci 18, 1961–1975 (2023). https://doi.org/10.1007/s11625-023-01330-3 https://rdcu.be/dm5XV Mitchell, Melanie & Toroczkai, Zoltan. (2010). Complexity: A Guided Tour. Physics Today. 63. 47-. 10.1063/1.3326990. Deakin University Indigenous Knowledge Systems Lab: "The Other Others" (Podcast) https://podcasters.spotify.com/pod/show/tyson-yunkaporta/episodes/Indigenous-Systems-Thinking-euf2jl/a-a1pvt8	
Module V Systems Mapping: How do we visualize complexity to promote understanding?	Describe in detail specific systems thinking strategies, tools and technologies that increase our ability to understand and address complex systems Apply systems thinking strategies, tools and technologies to analyse a complex problem from multiple perspectives in order to identify		Visual Systems Map Digital Tool Assessment

	cognitive biases that restrict understanding, reproduce unwanted dynamics and limit the effectiveness of interventions.		
Module VI Use a system to change a system: How can we harness systems dynamics to design equitable and sustainable interventions?	Apply systems thinking strategies, tools and technologies to analyse a complex problem from multiple perspectives in order to identify cognitive biases that restrict understanding, reproduce unwanted dynamics and limit the effectiveness of interventions. Integrate concepts learned in class through a team project that analyzes and presents the systems nature of a complex challenge (at the local level, the global level or both). Practice presentation and communication skills in the context of raising awareness among a general audience about a complex problem of our time at either a local or global level (or both).		Written Reflection Paper Written Systems Analysis Visual Systems Map Oral Presentation

Required Resources:

Deakin University Indigenous Knowledge Systems Lab: “The Other Others” (Podcast)
https://podcasters.spotify.com/pod/show/tyson-yunkaporta/episodes/Indigenous-Systems-Thinking-euf2jl/a-a1pvt8

Greene, D. 2016. How Change Happens: Part 2 - Institutions and the Importance of History https://oxfamilibrary.openrepository.com/bitstream/handle/10546/581366/bk-how-change-happens-211016-en.pdf;jsessionid=69B04D52C37756E295D4572FDF3E4EBC?sequence=7

Goldin, Ian. Inequality is polarizing the world. In The World Today (3 December 2021) https://www.chathamhouse.org/publications/the-world-today/2021-12/inequality-polarizing-world

Goodchild, M. (2021). Relational Systems Thinking: That's How Change is Going to Come, From Our Earth Mother. Journal of Awareness-Based Systems Change, 1(1), 75–103. https://doi.org/10.47061/jabsc.v1i1.577

Goodchild, M. (2022). Relational Systems Thinking: The Dibaajimowin (Story) of Re-Theorizing "Systems Thinking" and "Complexity Science". Journal of Awareness-Based Systems Change, 2(1), 53–76. https://doi.org/10.47061/jabsc.v2i1.2027

Heke, I., Rees, D., Swinburn, B., Waititi, R. T., & Stewart, A. (2019). Systems Thinking and indigenous systems: native contributions to obesity prevention. AlterNative: An International Journal of Indigenous Peoples, 15(1), 22–30. https://doi.org/10.1177/1177180118806383

Meadows, Donella H. 2008. Thinking in systems: A Primer Chelsea Green Publishing

Map the System Student Guide: Third Edition. https://www.mtroyal.ca/nonprofit/InstituteforCommunityProsperity/_pdfs/ssdata_icp_mts_2020.pdf

McIntyre, D.G., Cloutis, G.A. & McCarthy, D. Indigenous trans-systemics: changing the volume on systems. Sustain Sci 18, 1961–1975 (2023). https://doi.org/10.1007/s11625-023-01330-3

Supplementary Resources

Colander, D. & Kupers, R. (2014). Complexity and the Art of Public Policy: Solving Society's Problems from the Bottom Up. Princeton University Press. https://doi.org/10.2307/j.ctt6wq04g

Jacobs, Jane (1994) Systems of Survival: A Dialogue on the Moral Foundations of Commerce and Politics.

Marohn, Charles L., Jr. (2019) Strong towns: a bottom-up revolution to rebuild American prosperity

Prior Learning Assessment and Recognition (PLAR)

Prior Learning Assessment and Recognition (PLAR) is the formal evaluation and credit-granting process whereby candidates may obtain credits for prior learning. Prior learning includes the knowledge competencies and skills acquired, in both formal and informal ways, outside of post-secondary education. Candidates may have their knowledge, skills and competencies evaluated against the learning outcomes as defined in the course outline.

The method(s) that are used to assess prior learning for this course are:

Challenge Exam (results recorded as a % grade and added to student's CGPA) (NB: All DBEs are assessed via a Challenge Exam.)

Please contact the Program Coordinator for more details.

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