Refreshing a Curriculum in Systems Thinking and Social Systems Designing for Learners in a Graduate Program

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Agenda

A.	Introduction: Since 2009, 15th offering “Understanding Systems”
B.	Approach: Contextural Appreciative Learning
C.	Recontextualizing: Which influences might we attend to?
D.	Discerning: Why is a factor now drawing attention?
E.	Optioning: Which priorities are to be weighed?
F.	Adapting: When and where can changes be introduced?
G.	Retrospecting: What experiences contribute to learning?
H.	Next: Recontextualizing

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"Understanding Systems" has been core to the Master of Design Strategic Foresight and Innovation (SFI) since 2019

Our strategic innovation model … illustrates the **integration** of **design, business, and futures thinking** through **systems thinking**.

This integration allows our students to move through an iterative design thinking process, understand the business context to ensure viability and develop deeper insights into the challenges a sector or organization might be facing through futures thinking.

Systems thinking and mapping locates these complex challenges in a larger system and **makes clear the patterns and interconnectedness of the issues**; and

visual thinking ensures more **effective communication** of complex data.

Richards, L. (2015), "Understanding of Change, Leading Innovation: OCAD University's Master of Design in Strategic Foresight and Innovation.", Stream 4: Enterprising University, presented at the *Higher Education in Transformation Conference, Technological University for Dublin*, Dublin, Ireland, pp. 358–368.

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The 2009 “Social Systems” course by 2011 was folded into “Understanding Systems”

SFIN 6B04
Understanding Systems

In this second course on systems thinking, students will study non-human systems, specifically the ecosphere, biosphere and technosphere. Applying systems thinking approaches, students will compare these natural and man-made systems and discuss methods for understanding and respecting their interdependencies and interactions. The nature of adaptive life systems will be studied as well as examples of the unintended and often negative impacts of human action. Significant technological inventions and their impact on human and societal development and on the environment will be discussed.
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Required Courses and Timeline
Curriculum: 45 credits

Year One	Year Two
Fall semester (9 credits) SFIN 6B01: Business and Design Thinking (3) SFIN 6C01: Research Methodologies (6)	**Fall semester (9 credits)** SFIN 6B02: Social Systems (3) SFIN 6C02: Foresight and Innovation Studio (6)
Winter semester (6 credits) SFIN 6B03: The Human Factor (3) SFIN 6B04: Understanding Systems (3)	**Winter semester (6 credits)** SFIN 6B06: Strategic Communications (3) SFIN 6B07: Leadership Excellence (3)
Summer semester (3 credits) SFIN 6B05: Business Modeling and Policy Innovation (3)	**Summer semester (12 credits)** SFIN 6E01: Major Project (12)

SFIN 6B02
Social Systems

In this introduction to complex systems, students will examine the dynamic arrangement of three interconnected and adaptive human systems; social, market and political. Developing the essentials of a systems approach, students will study structure, evolution, patterns of behaviour, and the impacts of change in these systems through case study review and systems model analysis.
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OCAD - Graduate Studies. (2010), “Program Requirements (2010)”, MDes in Strategic Foresight and Innovation, 2 November, available at: https://web.archive.org/web/20110103155200/http://www.ocad.ca/programs/graduate_studies/mdes_strategic_foresight_innovation/program_requirements.htm

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Contextural Appreciative Learning ← Inquiring Systems + Appreciative Systems + Action Research

From Action Research:

i. Evaluating, collecting the results of consequences of adaptive action;

ii. Specifying learning, identifying findings that can become inputs to the next cycle



Sweeping in:
Revisiting the framing of the system of interest, responding to both anticipated and unanticipated shifts in other influences

Reality judgments:
”state of the system”
judged on “facts”
both through
internal consistency and external validity

Value judgments:
consideration of priorities weighed, resulting in selection(s) or deselection(s)

Instrumental judgment:
Willful action and/or patience for natural unfolding processes exhibited

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Week	Winter 2010	Winter 2015	Winter 2018	Winter 2020	Winter 2025
1	Intro to Understanding Systems, Systems Basics	Systems Fundamentals: Understanding the Systems Perspective	Systems Fundamentals: Understanding the Systems Perspective	Systems Thinking: Understanding the Systems Perspective	Introduction to Complex Problems and Systems Thinking
2	Design and Systems Approaches	Systemic Design – Systems Applications, Methods	Systemic Design – Systems Application Methods	Systems Change	History and Evolution of Systems Thinking
3	Systems Approach and Mapping Systems	Applied Systems Thinking	Applied Systems Research	Applied Systems Research	Systems Approaches: System Dynamics
4	Systems: Biosphere, ecosphere, technosphere	Systems Models, Modeling, & Systemic Foresight	Natural Systems & Design for Ecology	Ecological & Natural Systems	Systems Approaches: Soft Systems Methodology
5	Defining and Analyzing System Behavior	Natural Systems and Design for Ecology	Systems Models, Modeling, & Systemic Foresight	Sociotechnical & Service Systems	Systems Approaches: Viable System Model & Team Syntegrity
6	Biomimetics and Sustainable Ecologies	Project One Presentations	Project One In-studio Work	Systems Analysis & Modelling	Reading Week
7	Reading Week	Reading week	Project One Presentations	Study Week	Project 1 Presentations
8	Technosphere: Humans and Technology Systems	Workshop week	Reading Week	Systemic Design for Complex Social Systems	Systemic Design – Introduction to Synthesis Mapping
9	Technosphere: Information Systems and Networks	Social Systems and Design Methodologies	Social Systems and Design Methodologies	Language, Language Action, Constructivism	Systems Approaches: Critical Systems Practice (Explore)
10	Systems and Implementation	Languaging - The Cognitive Basis of Social Systems	Organizational and Service Systems	Dialogic Design Workshop I	Systems Changes Learning
11	Systems and Foresight	Organizational and Service Systems	Languaging: The Cognitive Basis of Social Systems	Dialogic Design II	Cybernetics & Action: Conversations for Design
12	(after Good Friday Holiday) Systems - Tools & Methods	Social Systems Design: Dialogic Design Engagement and systemic design method	Social Systems Design: Dialogic Design	Design for Complexity & Emergence, Policy, Process & Innovation	Synthesis Map Studio Workshop
13	Individual Case studies presentations	Structured Dialogic Design: Workshop 2	Structured Dialogic Design: Workshop 2	Project Two: Synthesis map prep & working studio	Synthesis Map Presentations & Critiques
14	Individual Case studies presentations	Project Two Presentations & Critique Day	Design for Complexity & Emergence	Project Two: Synthesis map presentations and final critiques	...
15	...	Project Two Presentations & Critique Day	...	...	...

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Without altering course description, choices: (i) minor increments to legacy, or (ii) discontinuous opportunity to restructure content

The nature of the course had evolved with program growth and experience

- Systems course 2011 == 3 of 45 credits
- Systems course 2015 == 0.5 of 9.0 credits
- SFI program 2009 for part-time students, classes Thursdays + Fridays
- SFI 2013 part-time 22 students, full-time 22 students
- International students at OCADU 22% at 2019-2020, 48% at 2023-2024
- SFIN-6011 2025 == 24 part-time, 17 full-time

Post-pandemic return to normalcy with new course leader

- 2019-2019: Jeremy Bowes + Peter Jones
- 2020: Peter Jones + David Ing + Lorraine Randell (10 weeks completed before COVID)
- 2021-2024: Lorraine Randell (online during COVID)
- 2025: Stephen Davies (with David Ing as volunteer)

Resources for the university remain tight

- Of 22 publicly funded universities in Ontario, OCADU was one of ten operating at a budget deficit
- Compared nationally, Ontario government provides 57% of average per-student provincial funding
- OCADU $7,200 / student
- Emily Carr $14,900 / student
- Nova Scotia $9,200 / student

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SFIN-6011 has traditionally covered a broad range of alternative systems approaches + guiding visual design of Synthesis Maps

Contemporary Systems Research encourages multimethodology

- SFI alumni (informally) recall only (i) causal loop diagrams, and (ii) leverage points
- "Rethinking Systems Thinking" (Ing 2013) criticizes as stuck in 1980s
- Authentic systems approaches recognize variety of perspectives, methods embrace pluralism
- Defining systems of interest ⟹ boundary critique
- Uniqueness of situation and/or intervention → multimethodological approach

Systemic Design has evolved with RSD

- Design thinking complexity scale:
  - Design 1.0 e.g. logos, posters
  - Design 2.0 e.g. products, services
  - Design 3.0 e.g. organizations
  - Design 4.0 e.g. communities
- 2012 first RSD symposium, Oslo
- RSD4 Banff → Systemic Design book
- 2018 Systemic Design Association
- Gigamaps (Sevaldson 2011, 2018)
- Synthesis Maps (Jones, Bowes 2017)
- 2023 Design Council UK Framework for Innovation, Systemic Design Toolkit

Interest in systems thinking continues to be locally strong

- Systems Thinking Ontario monthly meetings since 2012
- OCADU hosting, with Utoronto and York U
- SFI students presenting synthesis maps in summer

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E. Optioning: Which priorities are to be weighed?

Introductory course of 13 weeks, reading week midway through, capstone synthesis map, yet interim grading is required

Systems foundations emphasized in articles sequenced earlier, toolkit later

- Systems learning via work products: (i) artifacts, (ii) methods, (iii) theory and history as supplemental
- Weeks 2-5: Idealized Design, System Dynamics, Soft Systems Methodology, Viable Systems Model, via Ramage & Shipp (2020) *Systems Thinkers*
- Week 8: Systemic Design, Intro to Synthesis Mapping
- Week 9: Critical Systems Practice
- Week 10: Systems Changes Learning
- Week 11: Language Action Perspective
- Omitted: Resilience and Panarchy
- Studio time, presentations, reflection paper

Graduate students learning as peers in group method talks

- Inverted classroom approach
- Teams of 3 to 5 individuals
- Full-time in 4 groups, part-time in 6 groups
- Ideal method talk:
  - System of interest
  - Typical artifacts
  - Methods applied
  - Theoretical foundations (if time)

Gen AI to augment lit reviews

- Try learning with Gen AI as experiment, not requirement
- Lecture review with ChatGPT, Copilot, LeChat, Claude, NotebookLM, Perplexity

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F. Adapting: When and where can changes be introduced?

Students take the course only once; instructors can observe improvements and disappointments as plans become outcomes

Expectations were set for a course in transition

- Open about 2025 course as discontinuous from prior trajectory
- Instructors serving more as facilitators and guides, falling back as subject matter experts for details
- Students advised to not read too far ahead in a (changing) reading list
- Options for summarizations via Gen AI suggested, RAG with fewer hallucinations than LLM Transformers

Method talks would vary on emphases

- Prep time set with expectation of 3 to 6 hours
- Full-time and part-time sections might surface different points
- Instructor on hand to guide or redirect class discussion

Examples could be ephemeral or provisional

- Systems concepts may be more accessible via examples, metaphors, studies
- Example system of interest could align with anticipated synthesis map (or not)
- Could reuse preliminary research from parallel classes in progress

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Online responses pooled, 54% of 24 part-time, 65% of 17 full-time

Course pace: About right 37.5%; Fast 50%; Too Fast 12.5%

Course difficulty, c.f. other courses: Average 33.3%; Difficult 58.3%; Very Difficult 8.3%

Course workload, c.f. other classes: Average 54.2%; Heavy 37.5%; Very Heavy 8.3%

Students appreciated systems

- "new way of viewing the world"
- "thinking more critically about the interconnectivity of things"
- "a disciplined approach to continuous learning"
- "the cheat code for life"
- "appreciate … students do ... instruction"
- "do not have students present ... material"
- "methodological approach … more practical compared to just learning theory"
- "focus on methodology to be incredibly helpful for my development as a designer"

AI mostly welcomed

- "keeping up with the times by embracing AI"
- "using AI to summarize readings is a really good … before ... whole text
- "great tool especially for non English speaking students"
- "I use genAI reluctantly and did not change attitude"
- "don't rely on it to do work for you"

Content sequencing + focus could be improved

- Week 11 "Conversation for Design" better as Week 1
- Opens up week for Panarchy and Social Ecological Systems
- Week 2 instructor lecture could better articulate sequencing in Method Talks (artifacts first)

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Contextural Appreciative Learning:
Learning from winter, course revision Nov. 2025 → winter 2026



Sweeping in:
Revisiting the framing of the system of interest, responding to both anticipated and unanticipated shifts in other influences

August 2025 indicators for 2025-2026

- Applications and admissions of graduate students at OCADU are down
- Movement towards greater uniformity across OCADU Graduate Studies (i.e. SFI is only one program).
- Continuing financial pressures from unchanging provincial funding
- Uncertainties in Canadian economy, due to tariffs into USA

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