MUO-E8048 - Systems Thinking | Syllabus

Time: 24.10.2023 - 1.12.2023 | Tuesday 16.15–19.00 & Friday 9.15–12.00 | **Place:** various (room marked for each session)

Teachers: Mikko Jalas (mikko.jalas@aalto.fi) & Kata Fodor (kata.fodor@aalto.fi)

Course Content:

The course addresses socio-ecological systems and changes in systems over time. It introduces the theoretical foundations of systems thinking and the multi-dimensional interdependencies of sustainability. Key notions are derived from complex adaptive systems and transition theories. These concepts are used to analyse design approaches towards sustainability and to learn to anticipate unintended consequences of sustainability solutions.

After completing the course, students

- understand the basic properties of socio-ecological systems
- are able to define and discuss the key concepts related to systems thinking in the context of design
- understand basic principles of regenerative design & are able to use them to approach design activities

- *Lectures, including 4 guest talks*
- *Peer-to-peer teaching: Small groups present their assigned book & key ST concepts for the class*
- *Readings: Used throughout the course to support classroom activities, a course essay, and exercises.*
- *Learning Diary: Students reflect on the classes, readings & document their learning processes (on weeks 2,4,6)*
- *Course Essay: Students write an independent argumentative essay with a systems perspective*

Assessment criteria:

- *course essay • active presence in class*
- *peer-to-peer teaching • learning diary*
- *group work contribution*

Workload:

6 ECTS = 162 hours

- *Literature, Individual work (40h) • Lectures (36h)*
- *Teamwork (30h) • Essay (24h) • Learning Diary (16h)*
- *Personal reflection (15h) • Course feedback (1h)*

Course Essay	*Theme: Systems thinking reflections on a given material (to be agreed together) | Submission deadline: 8 December* *Length: 1500-2000 words | Q&A session on 17 November* *Role of literature & lectures: use the course readings and class contents to develop your thinking*
Group Assignments	• *Plan and run an engaging 20-minute session for the class explaining your assigned systems thinking concept and book* • *Submit a one-page 'explainer' about your ST concept by 28 November* • *Submit your presentation slides by 24.00 of your presentation day. Add one slide reflection on how you think your session went.*
Learning Diary	• *bi-weekly reflections within the groups (week 2,4,6)* • *submit a short final report on your personal attendance & reflections on the lectures & readings, the dilemma debate, design exercise, the bi-weekly group discussions, group work and P2P evaluation by 8 December 2023*

MUO-E8048 Systems Thinking: Schedule for 2023		
weeks	*Tuesday 16[15]-19[00]*	*Friday 9[15]-12[00]*
week #1	**Session 1, October 24 (Q201, Väre)** • Introduction to Systems Thinking (ST) • Course practicalities & expectations	**Session 2, October 27 (Q201, Väre)** • guest: Idil Gaziulusoy • ST history, self-organising & nonlinear systems
read >	*Meadows: Thinking in Systems (Chapters 1-4) - link*	
week #2	**Session 3, October 31 (U135a, Otakaari 1)** • guest: Johan Kotze (urban ecology) • Socio-technical transitions (with Mikko)	**Session 4, November 3 (Q201, Väre)** • guest: Henri Wiman (modelling complexity) • recap: socio-technical change & trajectories
read >	*Geels: Technological transitions as evolutionary reconfiguration processes - link*	
week #3	**Session 5, November 7 (Q201, Väre)** • Feedbacks in the garment industry • mapping CLD (Causal Loop Diagrams)	**Session 6, November 10 (Q201, Väre)** • guest lecturer: Marco Steinberg (ST in design) • recap: ST concepts & phenomena
read >	*Niinimäki et al: The environmental price of fast fashion – link*	
week #4	**Session 7, November 14 (Q201, Väre)** • Book presentation examples (Mikko, Kata) • Group exercise: design problem	**Session 8, November 17 (Q201, Väre)** • Habits of a systems thinker + Course Essay Q&A • Dilemma debates (60 min)
read >	*Meadows: Leverage Points: Places to Intervene in a System - link*	
week #5	**Session 9, November 21 (U356, Otakaari 1)** • Mapping Urban Foodscapes (with Kata)	**Session 10, November 24 (Q201, Väre)** P2P Group Presentations I.
read >	*Weekly reading: TBC - link*	
week #6	**Session 11, November 28 (Q201, Väre)** P2P Group Presentations II.	**Session 12, December 1 (Q201, Väre)** P2P Group Presentations III. + Closing
read >	*Materials to support the course essay assignment (TBC) + P2P ST Concept Booklet*	