Methods for Sustainable Development Practice: A Systems Approach (INDEV 607)

Course Outline (Winter 2019)

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Times and location

This course is scheduled once a week: Mondays, 2.30 – 5.20pm. Room HH-227

Course Description

In this course, we will learn to conceptualize development and sustainability problems using system thinking. 'Systems thinking' has been defined as an approach to problem solving, by viewing 'problems' as parts of an overall system. We will learn key system concepts and apply them to real cases. We will also learn to identify leverage points for intervention. The second part of the course will focus on the 'power' of indicators, as they are an important aspect of sustainable development (goals). What goes into calculating an indicator, what stays out, who decides? You will be confronted with data challenges, how and why certain data exist, why others not? As an illustration, we will work with "time-use" data to illustrate some of these challenges from a systems perspective. We will conduct hands on exercises to get a sense of working with real data as well as learn how to generate data. Developing methodological and analytical skills require a hands-on experience. Hence, this course will take the approach of 'guide on the side' (instead of 'sage on the stage'). In this course, taking the online certificate Course on Research Ethics (CORE) is mandatory.

Note on the readings: Most of the readings listed here are either open access or available through UW library while on campus, but also remotely by logging onto the library system. As graduate students, you are expected to search and download these readings yourself. Those not available online will be uploaded on LEARN. You are also encouraged to look for additional literature for your assignments. If you encounter problems in accessing the readings, please contact our liaison librarian, Agnes Zientarska-Kayko: azientarskakayko@uwaterloo.ca

Schedule of topics and readings

Unit 1: January 7th

Introduction to the course content, structure, standards, expectations, deliverables, readings, and addressing any concerns that may arise thereof;

What is Systems Thinking? (The 'Tip of the Iceberg')

Readings (relevant to units 1 – 7):

Meadows, D (2008). *Thinking in Systems*. Chelsea Green. (available as ebook from the UW library)

Spangenberg, J. (2015). Sustainability and the challenge of complex systems. In: Enders, J. and Remig, M. (eds). Theories of sustainable development. Routledge Studies in Sustainable Development. Routledge, Taylor & Francis Group.

Ramalingam, B. (2013). *Aid on the edge of chaos: Rethinking International Cooperation in a complex world*. Oxford University Press. (available as ebook from the UW library)

Note: *Shorter articles, handouts and other resources will be distributed in class as relevant to the in-class exercises.*

Unit 2: January 14th
What is a System?

- Systems and sub-systems
- What is 'Systems Thinking'?
- In-class exercise

Unit 3: January 21st
What gives rise to systems?
- Relationship between structure and behavior
- The Iceberg Model
- Behavior over time graphs (BOTG)
- In-class exercise

Unit 4: January 28th
How the system runs itself?
- Reinforcing and Balancing loops (illustrated through living loops)
- Causal Loop Diagrams (CLD)
- In-class exercise
- Introduce Assignment 1 (cases from *Complexity Labs*)

Unit 5: February 4th
Group presentations: Assignment 1 (20 marks)
Groups will be formed, and assignment details will be uploaded on LEARN the previous week.

Unit 6: February 11th
- *Triple Benefit* concept by Dr. Klaus Renoldner, Austria (documentary)
- Interview with Dr. Renoldner (on Skype)
- Introduction to Assignment 2

Reading week – no class on 18th February

Unit 7: February 25th
Group presentations: Assignment 2 (20 marks)
Systems thinking applied to a problem

Unit 8: March 4th
The role of "perspective" in systems thinking
- Participation in development practice
- Participatory tools in space / time representation

Unit 9: March 11th
A systems approach to time-use in sustainable development practice
- Time-use studies (and time poverty) in development practice
- Time use study in sustainability science
- Introducing time use data sheets – 2 cases (for Assignment 3)

Readings:
1. Wiedenhofer, D., Smetschka, B., Akenji, L., Jalas, M., Haberl, H. (2018). *Household time use, carbon footprints, and urban form: a review of the potential contributions of everyday living to the 1.5 C climate target*. Current Opinion in Environmental Sustainability, Environmental change assessment 30, 7-17. https://doi.org/10.1016/j.cosust.2018.02.007
2. Blackden, M. & Wodon, Q. (2006). Gender, Time Use, and Poverty in Sub-Saharan Africa. World Bank Working Paper 73. The World Bank, Washington D.C.
3. UNDP (2008). *Making Invisible Work More Visible: Gender and Time Use Surveys with a focus on the Pacific and Unpaid Care Work*. UNDP Pacific Centre. http://www.snap-undp.org/elibrary/Publications/MakingInvisibleWorkVisible.pdf
4. Parker, S.W. & Skoufias, E. (2000). *The Impact of PROGRESSA on Work, Leisure, and Time Allocation*. International Food Policy Research Institute (IFPRI).
5. Bardasi, E. & Wodon, Q. (2009). *Working Long Hours and Having no Choice. Time Poverty in Guinea*. The World Bank and Human Development Network.
6. Hobbes, M., de Groot, W., van der Voet, E., & Sarkhel, S. (2011). Freely Disposable Time: A Time and Money Integrated Measure of Poverty and Freedom. *World Development* 39 (12), p. 2055 – 2068.

Unit 10: March 18th
Group presentations: Assignment 3 - Time use data analysis (20 marks)
• Groups present analysis of time-use data in the context of sustainability and international development (time poverty, invisible/unpaid work, child labor, health and well-being); identifying leverage points

Course on Research Ethics (CORE): The government Tri-Council Policy Statement Course on Research Ethics is to be taken by each student individually. This is mandatory for undertaking a time use interviews. This is an online course (including tutorials) and takes about 2-3 hours. Once you have the certificate, it is valid for 5 years. Here is the link to the online course: http://www.pre.ethics.gc.ca/eng/education/tutorial-didacticiel/

Due 15th March 2019. Please drop the completion certificate into LEARN dropbox (5 marks)

Unit 11: March 25th
The challenges of data | Designing a time-use survey
• Introduction to time-use data generation methods
• Designing a time-use data collection method (for Assignment 4)

UN (2005). *Guide to Producing Statistics on Time Use. Measuring Paid and Unpaid Work.* Department of Economic and Social Affairs. Download from: http://unstats.un.org/unsd/publication/SeriesF/SeriesF_93e.pdf

Links – for your curiosity:

UN Statistics Division - Time Use Surveys
http://unstats.un.org/unsd/demographic/sconcerns/tuse/default.aspx

International Classification of Activities for Time Use Statistics (ICATUS)
http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=231&Lg=1

Center for Time Use Research (CTUR)
http://www.timeuse.org/home

Multinational Time Use Study (MTUS), University of Oxford
http://www.timeuse.org/mtus

International Association for Time Use Research (IATUR)
http://www.smu.ca/partners/iatur/iatur.htm

American Time Use Survey - FAQ
http://www.bls.gov/tus/atusfaqs.htm

Time Use Research Program (TURP), Canada
http://www.smu.ca/partners/turp/main.html

Unit 12: April 1st
Group presentations: Results of time use interviews (Assignment 4)
- Groups present outcomes of interviews – comparison of methods, experience with data
- Discussion: The 'power' of indicators

Reading:
1. Spangenberg, Joachim (2018). *Worldviews, interests and indicator choices*. In: Simon Bell and Stephen Morse (eds.). Routledge Handbook of Sustainability Indicators and Indices. Chapter: ch 9. Routledge, Taylor & Francis Group.

Evaluation

For a graduate level course, I lay emphasis on critical thinking and integration of course material in all the products. I aim to look at the cumulative outcome of your piece of work. Does the whole stand out as a strong piece of work? Were there some outstanding aspects that should receive additional weighting and be taken into account?

In trying out the methods in this course, I look not only at outcomes, but also the process and efforts to learn and try out novel ideas. It's more about what you have learnt with hands on experience, rather than the outcome alone. In assessing the quality of the products, I follow the marking scheme and performance criteria as developed by Prof. Ascough that can be accessed online:
http://post.queensu.ca/~rsa/assessment.htm

Below is the breakdown of marks:

1. Assignment 1 (cases from Complexity Labs): 15 marks (+5 marks for group process) = 20 marks
2. Assignment 2 (Systems case study): 15 marks (+5 marks for group process) = 20 marks
3. Assignment 3 (Time use data analysis): 15 marks (+5 marks for group process) = 20 marks
4. Assignment 4 (Time use interviews): 15 marks (+5 marks for group process) = 20 marks
5. CORE certificate milestone: 5 marks
6. Class participation: 15 marks

Note on presentations: All assignments are presentations in class. Thus, PowerPoint slides and supporting documentation (speaking notes, sources, calculations) need to be submitted to dropbox by the end of the day when the presentations were made.

Class participation includes being present in the class, constructive participation (attentiveness, asking questions, responding to ideas, discussion, etc.), contributions that demonstrate your engagement and connection with the course materials/readings and prior experience, demonstrating improvement and initiative, and openness in challenging your own assumptions and knowledge (critical thinking). Class participation also includes interacting with your classmates in a constructive and respectful manner, as well as maintaining general discipline.

Expectations

13+	- able to initiate and facilitate the development of ideas - comments are consistently insightful and raise questions or ideas that stimulate the learning of others - demonstrates critical reflection on readings - brings relevant and interesting resources (media, cases, articles) to the attention of others
10-12	- comments and questions demonstrate some critical analysis - consistently shares ideas - effort made to build on ideas of others

7-9	- raises occasional clarifying questions and comments
	- comments often not of a critical nature and do not demonstrate integration of material
Below 7	- no consistent contribution
	- little evidence of integrated learning
	- absent from class

Unless evidence of extenuating circumstances is presented (illness, family emergency), a 2 marks deduction will be in effect for each class missed (after class participation marks have been graded using the above scheme).

Group process marks (or making invisible work visible): All assignments in this course are worked on as a group. Group efforts and process remains largely invisible to the instructor but must be compensated for. The group members themselves therefore determine these marks in a consensus based on the contributions of each member (see example below). Please consider tasks such as literature search, analyzing the literature, preparing slides for presentation, maintaining group coordination, presentation, contribution to writing in terms of quantity and quality, or work that goes into editing parts written by others to ensure the overall quality, proof reading, referencing, etc. Group members should maintain a log of work done individually. Assessing sub-tasks will only be done in case of a situation of no-consensus on the distribution of pool of marks.

Example for distribution of a pool of marks

• Total mark for a group process: 5
• Number of group members: 3
• Total pool of marks to the group: 15 (5 x 3)
• Group members divide marks by consensus as follows:

Student	Ann	Bob	Chris	Total
Mark	6	5	4	= 15

The instructor can either take the mark as they have been divided up to add to the individual total, or use them as a ratio, depending on how the totals look like. Deadline for submitting group decision on the sharing of this pool of marks is by the end of day of each presentation via email to me, with copy to all the group members. In case I do not receive an email to this effect, the instructor will assume that all group members receive equal marks.

Teaching tools, communication and general class policies

LEARN: For this course, we will use LEARN - a web-based teaching and interacting tool that has a number of features. We will use only basic features of LEARN for the purpose of new announcements, access to course materials and readings, dropbox, and discussion. Not all presentation slides will be made available on LEARN, nor is recording of lectures permitted, so note-taking is encouraged. However, in most cases the inputs are supplemented with readings.

Laptop use in-class: Laptops are permitted in class for course-related purposes only, and not for any other purposes such as checking email, chatting, Facebook, non-course sites, games, movies, music, etc.

Cell phones and other mobile devices: Please make sure that your cell/smart phones, iPods or similar devices are inactivated during active sessions in class.

Electronic communication policy: I will only be using your UW email account to communicate to you, especially when sending group mails via LEARN. So please remember to check your UW account frequently, or set up a forwarding system to an account you use most. New announcements on LEARN will automatically be notified to you via email. You can choose to deactivate this function if you do not wish to be notified of new announcements automatically. However, in case of individual queries, I will respond (within 3 working days) by using the reply function to the email id you are writing from. I will not respond to any requests or messages sent via Facebook, SMS, or other social media.

Policy on note sharing: Teaching material uploaded on LEARN is restricted to the course participants only. Please do not circulate the same on any course note sharing websites or the like without permission.

Unclaimed assignments will be retained for two months after term grades become official in quest. After that time, they will be destroyed in compliance with UW's confidential shredding procedures.

University/Faculty Academic Policies

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. www.uwaterloo.ca/academicintegrity/

Students who are unsure what constitutes an academic offence are requested to visit the on-line tutorial at http://www.lib.uwaterloo.ca/ait/

Note for students with disabilities: The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.

Religious Observances: Please inform the instructor at the beginning of term if special accommodation needs to be made for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4, www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please contact your graduate advisor for details.

Discipline (as noted above): A student is expected to know what constitutes academic integrity, to avoid committing academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the graduate Associate Dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, www.adm.uwaterloo.ca/infosec/Policies/policy71.htm. For typical penalties, check Guidelines for Assessment of Penalties: www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm

Appeals: A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 – (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals): www.adm.uwaterloo.ca/infosec/Policies/policy72.htm