

INDEV 609 Course Outline (Fall 2018)

Sustainability Concepts, Applications and Key Debates

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Times and location

This course is scheduled once a week: Mondays, 11.30am - 2.20pm in room EV1 – 132.

Course description

The course (INDEV 609) is designed to introduce the participants to a spectrum of sustainability concepts, approaches, and key debates, setting the stage for practical engagement with development. The emphasis is on gaining clarity on the notion of sustainability and global environment change since its translation into practice will often imply confronting a number of challenges when taking decisions. In this course, we will go through key proposals for humanity's sustainable future. These are: a) economic de-growth / downscaling production and consumption, b) resilience and adaptation, and c) the (payments for) ecosystem service approach. Each of these proposals will be evaluated and discussed. The course emphasizes taking a "big picture" and a whole system perspective on sustainability.

Note on readings

Most of the readings listed here are either open access (links provided) 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. If some of the readings listed are not available online or through the UW library (book chapters, publication in press, etc.), these will be uploaded on LEARN prior to the class. You are also encouraged to look for additional literature and include them in your assignments. If you encounter problems in accessing the readings, please let me and/or our liaison librarian know. Her name is Agnes Zientarska-Kayko. (email: azientarskakayko@uwaterloo.ca)

Unit 1: September 10th

Introduction to the course content, structure, participants, standards, expectations, readings, deliverables, and addressing any concerns that may arise thereof; kick-off into the course theme.

Unit 2: September 17th

Sustainability: Is there reason for concern?

- Historical overview on global environment change science and sustainable development

Readings:

1. Steffen, W., Persson, A., Deutsch, L., Zalasiewicz, J., Williams, M., Richardson, K. et al. (2011). The Anthropocene: From Global Change to Planetary Stewardship. *AMBIO: A Journal of the Human Environment*, 40, 739-761.
2. Hoekstra, A. & Wiedmann, T. (2014). Humanity's unsustainable environmental footprint. *Science* 344, pg. 1114.
3. Steffen, W. et al. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science* 13 February 2015
4. Jackson, T. & Webster, R. (2016). Limits Revisited. A review of the "Limits to Growth" debate. <http://limits2growth.org.uk/revisited/>
5. Raworth, K. (2012). A Safe and Just Space for Humanity. Can we live within the Doughnut? Oxfam Discussion Paper. <http://policy-practice.oxfam.org.uk/publications/a-safe-and-just-space-for-humanity-can-we-live-within-the-doughnut-210490>

Useful links

- Millennium Ecosystem Assessment (MEA): <http://www.maweb.org/en/Index.aspx>
- Intergovernmental Panel on Climate Change: <http://www.ipcc.ch/>

Interactive tools

- <http://www.carbonmap.org/>
- Global food demand scenarios http://www.pik-potsdam.de/%7Ebodirsky/demand_scenarios/#page1

Unit 3: September 24th

Sustainability as a problem of society-nature interactions

- Socio-ecological systems
- Social metabolism
- Socio-metabolic regimes and historical transitions

Readings:

1. Krausmann et al. (2016). "Transitions in Sociometabolic regimes throughout human history". In: Haberl et al. (eds). *Social Ecology. Society – Nature relations across time and space*. Springer. (chapter 3, available as e-book from UW library)
2. Krausmann et al. (2009). Growth in global materials use, GDP and population during the 20th century. *Ecological Economics*. Vol. 68, pg. 2696 - 2705
3. Schaffartzik, A., Andreas Mayer, Simone Gingrich, Nina Eisenmenger, Christian Loy, Fridolin Krausmann (2014). The global metabolic transition: Regional patterns and trends of global material flows, 1950 – 2010. *Global Environment Change* 26, pg. 87 – 97
4. Haas, W. et al. (2015). How Circular is the Global Economy?: An Assessment of Material Flows, Waste Production, and Recycling in the European Union and the World in 2005. *Journal of Industrial Ecology*. Vol. 19 (5).

For your curiosity:

1. Diamond, Jared (1987). Agriculture: The Worst Mistake in the History of the Human Race. *Discover Magazine*. pp. 64-66.
2. Gowdy, J. & Krall, L. (2013). The ultrasocial origin of the Anthropocene. *Ecological Economics* 95, p. 137-147

Unit 4: October 1st

Decoupling, International trade, and social conflicts

Readings:

1. UNEP (2011): *Decoupling natural resource use and environmental impacts from economic growth*. A Report of the Working Group on Decoupling to the International Resource Panel.
http://www.unep.org/resourcepanel/decoupling/files/pdf/decoupling_report_english.pdf
2. Wiedmann, T., Schandl, H., Lenzen, M., Moran, D., Suh, S., West, J. & Kanemoto, K. (2013). The material footprint of nations. *PNAS Early Edition*:
www.pnas.org/cgi/doi/10.1073/pnas.1220362110
3. Martinez-Alier, J., Kallis, G., Veuthey, S., Walter, M. and Temper, L. (2010) "Social Metabolism, Ecological Distribution Conflicts, and Valuation Languages", *Ecological Economics* 70(2): 153–158
4. Martinez-Alier, J., Federico Demaria, Leah Temper and Mariana Walter (2016). "Trends of social metabolism and environmental conflicts: a comparison between India and Latin America." In: Dale, G., Mathai, M., de Oliveira, J. P. (eds). *Green Growth. Ideology, Political Economy, and the Alternatives*. The University of Chicago Press.

For your curiosity:

I can recommend this special issue: **Global transformations, social metabolism and the dynamics of socio-environmental conflicts** (Edited by Roldan Muradian, Mariana Walter and Joan Martinez-Alier), *Global Environmental Change*, Vol. 22 (3), 2012.

Useful links:

- Project CEECEC (Civil Society Engagement with Ecological Economics): <http://www.ceecec.net>
- Project EJOLT (Environmental Justice Organisations, Liabilities and Trade): <http://ejolt.org>
- Interactive atlas of environmental justice: <http://ejatlas.org/>

Assignment 1: *Please write (individually) a 3-page essay (1,500 words), reflecting on the insights gained in units 2 to 4. The essay is **not a summary** of the readings, but a critical reflection on the theme. What are the key messages, what was insightful for you as a (future) development practitioner? Due on 5th October, by end of the day.*

Unit 5: October 15th

What is socio-ecological Resilience? (Guest: Prof. Prateep Nayak)

- *Key resilience concepts*
- *Discussion: Chilika - Resilience or Vulnerability*

Readings

1. Walker, B., Holling, C.S., Carpenter, S.R., Kinzig, A.P. (2004). Resilience, Adaptability and Transformability in Social–ecological Systems. *Ecology and Society*. Vol. 9 (2). <http://www.ecologyandsociety.org/vol9/iss2/art5/print.pdf>
2. Folke, C. (2006). Resilience: The emergence of perspective for social-ecological systems analyses. *Global Environmental Change*. Volume 16 (3). Pp. 253-267
3. Berkes, F. & Ross, H (2013) Community Resilience: Toward an Integrated Approach. *Society & Natural Resources: An International Journal*, 26:1, 5-20, DOI: [10.1080/08941920.2012.736605](https://doi.org/10.1080/08941920.2012.736605)

Useful links:

- Resilience Alliance: <http://www.resalliance.org>
- *Ecology and Society* is an open access journal of the Resilience Alliance <http://www.ecologyandsociety.org>
- Stockholm Resilience Centre <http://www.stockholmresilience.org>

Unit 6: October 22nd

A critique of Resilience

Readings

1. Brown, K. (2014). Global Environmental Change 1: A Social Turn for resilience? *Progress in Human Geography*, Vol. 38(1) 107–117. DOI: 10.1177/0309132513498837
2. MacKinnon, D. and Derickson, K.D. (2013). From resilience to resourcefulness: A critique of resilience policy and activism. *Progress in Human Geography*, Vol. 37, pp. 253-270.
3. O'Brien, Karen (2012). "Global Environmental Change II: From Adaptation to Deliberate Transformation." *Progress in Human Geography*. Vol. 36 (5).
4. Davidson, D. (2010). The applicability of the concept of resilience to social Systems: Some sources of optimism and nagging doubts. *Society & Natural Resources*, Vol. 23 (12).

Assignment 2: Please write (individually) a 3-page essay (1,500 words), reflecting on the insights gained in units 5 and 6. The essay is **not a summary** of the readings, but a critical reflection on the theme of resilience. What are the key messages, what was insightful for you as a (future) development practitioner? Due on Sunday, 28th October, by end of the day.

Unit 7: October 29th

Can economic de-growth lead us out of the environmental crisis?

- History of the de-growth movement
- Concept and key arguments, proposals
- Life after growth: Economics for everyone (a 25 min film by Leah Temper)
<https://vimeo.com/10871269>

Readings

1. Kallis, G., Kerschner, C., Martinez-Alier, J. (2012) The economics of degrowth. *Ecological Economics* Vol. 84. Pg. 172-180
2. Demaria, F., Schneider, F., Sekulova, F., Martinez-Alier, J. (2013). What is degrowth? From an activist slogan to a social movement. *Environmental Values* 22, p. 191 – 215.
3. Sekulova, F., Kallis, G., Schneider, F (2017). Climate change, happiness and income from a degrowth perspective. In: Peter Victor, Brett Dolter (eds). *Handbook on Growth and Sustainability*. Edward Elgar Publishing Ltd. (downloadable from ResearchGate:

https://www.researchgate.net/publication/319753479_Climate_change_happiness_and_income_from_a_degrowth_perspective)

While most journal articles can be accessed via UW library, but also can be downloaded from the following homepage, that also contains more literature, case studies and debates on de-growth: <http://www.degrowth.org/publications>

Listen/watch at home:

Tim Jackson: An Economic Reality Check

http://www.ted.com/talks/lang/en/tim_jackson_s_economic_reality_check.html

Paul Kennedy (CBC program): The Degrowth Paradigm

<http://www.cbc.ca/radio/ideas/the-degrowth-paradigm-1.2914099>

Useful links:

- <http://degrowth.org>
- <http://degrowth.ca>
- <http://www.de-growth.com/vancouver/>
- <http://leipzig.degrowth.org/en/>

Unit 8: November 5th

Sufficiency as Sustainable Consumption

- Guest: Prof. Joachim Spangenberg (SERI, Germany)
- Guest: Wotan Oberascher (Founder, *Heart Culture Movement*, Austria)

Link:

<https://www.heartculturefestival.love/>

Unit 9: November 12th

Enough is Enough | In-class simulation on Canadian economy

- Documentary “*Enough is Enough*” (20 min) - based on the book “Enough is Enough” by Rob Dietz and Dan O’Neill (2013)
- In-class “scenario” exercise using the *LowGrow SFC* simulation model for the Canadian economy, developed by Peter Victor and Tim Jackson. The simulation tool can be accessed here:

<https://exchange.iseesystems.com/public/petervictor/lowgrow-sfc/index.html#page2>

Readings:

1. Jackson, T. (2009). Prosperity without growth. Economics for a finite planet (chapters 9-12). <http://www.ipu.org/splz-e/unga13/prosperity.pdf>

2. Demailly, D., Chancel, L., Waisman, H., Guivarch, C., 2013. *A post-growth society for the 21st century - Does prosperity have to wait for the return of economic growth?* (No. 08/13), New Prosperity. Institut du développement durable et des relations internationales, Paris.
http://www.iddri.org/Publications/Collections/Analyses/Study0813_DD%20et%20al._post-growth%20society.pdf
3. O'Neill, D.W., Dietz, R., Jones, N. (editors) (2010). *Enough is Enough: Ideas for a sustainable economy in a world of finite resources. The report of the Steady State Economy Conference.* CASSE, Leeds, U.K.
http://steadystate.org/wp-content/uploads/EnoughIsEnough_FullReport.pdf
(for the book version and other resources:
<http://steadystate.org/discover/enough-is-enough/>

For your curiosity:

Ferraris for all: In defence of economic growth (Daniel Ben-Ami)

<http://danielbenami.com>

Assignment 3: *Please write (individually) a 3-page essay (1,500 words), reflecting on the insights gained in units 7 - 9. The essay is **not a summary** of the readings, but a critical reflection on the theme of de-growth. What are the key messages, what was insightful for you as a (future) development practitioner? Due on Sunday, 18th November, by end of the day.*

Unit 10: November 19th

What can nature do for us? Perspectives from Environmental Economics

- Ecosystem services
- The Economics of Ecosystems and Biodiversity (TEEB)
- Payment for ecosystem services (e.g. CDM, REDD+)

Readings

1. TEEB (2010). *The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature: A synthesis of the approach, conclusions and recommendations of TEEB.*
http://www.teebweb.org/Portals/25/TEEB%20Synthesis/TEEB_SynthReport_09_2010_online.pdf
2. Farley, J. (2012). Ecosystem Services: The Economics Debate. *Ecosystem Services* 1, p. 40-49.
3. Gomez-Baggethun, E. & Ruiz-Perez, M. (2011). Economic valuation and the commodification of ecosystem services. *Progress in Physical Geography* 35 (5), p. 613-628.

4. Grima, N., Singh, S.J., Smetschka, B., Ringhofer, L. (2016). Payment for Ecosystem Services (PES) in Latin America: Analyzing the Performance of 40 case studies. *Ecosystem Services* 17, p. 24 – 32.
5. Kinzig, A.P., Perrings, C. Chapin, F.S. III, Polasky, S., Smith, V.K., Tilman, D., and Turner, B.L. II (2011). Paying for Ecosystem Services - Promise and Peril. *Science*. Vol. 334 (6056). Pp. 603-604.
6. Muradian, R., et al. (2013). "Payments for ecosystem services and the fatal attraction of win-win solutions". *Conservation Letters*. Vol. 6 (4).
7. Hausknost, D., Grima, N., Singh, S.J. (2017). The Political Dimensions of Payment for Ecosystem Services (PES): Cascade or Stairway? *Ecological Economics* 131, p. 109-118

Unit 11: November 26th

The Price of Nature: Valuing Ecosystem Services

(Prof. Jason Thistlethwaite & Singh)

- Cost – benefit analysis
- Contingent valuation and other methods
- Discounting the future – a class exercise
- When is valuation useful?

Readings

1. Fullerton, D. & Stavins, R. (1998). How economists see the environment. *Nature*, 395 (6701), 433 – 434.
2. Goulder, L.H. & Stavins, R.N. (2002). Discounting: an eye on the future. *Nature*, 419 (6908), 673 – 674.
3. Zografos, C. et al. (2014). Economic tools for evaluating liabilities in environmental justice struggles. The EJOLT experience. EJOLT Report No. 16. http://www.ejolt.org/wordpress/wp-content/uploads/2014/10/EJOLT_Report_16.pdf

For your curiosity

1. De Groot, R., Brander, L., van der Ploeg, S., Costanza, R., and others (2012). Global estimates of the value of ecosystem services and their services in monetary units. *Ecosystem Services* 1, p. 50-61.
2. Costanza, R., De Groot, R., Sutton, P. and others (2014). Changes in the global value of ecosystem services. *Global Environment Change* 26, p. 152-158.

Unit 12: December 3rd

Final (group) presentations – Assignment 4

The final presentations would address a question related to Agenda 2030 or the Sustainable Development Goals (SDGs), combining input from the course material (and INDEV 601). Specific question(s) will be agreed with the groups ahead of time. Each group presentation is allowed a 10 minutes pitch.

Evaluation / grading criteria

Assessing the performance of participants in the course is mandatory. For a graduate level course, I lay emphasis on critical thinking and integration of course material in all the products. My approach to assessment is very much in line with Prof. Ascough's assessment criteria he uses at Queen's: <http://post.queensu.ca/~rsa/assessment.htm>
Below is what I will be assessing:

Individual products:

1. *Assignment 1* (1,500 words, reflection essay, unit 2 - 4) due on 5th October (individual; 20 marks)
2. *Assignment 2* (1,500 words, reflection essay, unit 5 - 6) due on 28th October (individual; 20 marks)
3. *Assignment 3* (1,500 words, reflection essay, unit 7 – 9) due on 18th November (individual; 20 marks)
4. *Assignment 4* (presentation in class), 3rd December (15 + 5= 20 marks – in groups)
5. *Class participation*: 20 marks

Group process marks / Making invisible work visible: Assignment 4 (above) is group work. 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. In any case, group members should document 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 – a situation not desired since assessing the writing alone can be biased, and overshadows other forms of contributions.

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:

<i>Student</i>	<i>Ann</i>	<i>Bob</i>	<i>Chris</i>	<i>Total</i>
<i>Mark</i>	6	4	5	= 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 to calculate the mark out of 15, depending on how the totals look like. After the final presentation (assignment 4), please communicate to the instructor the group decision on the sharing of this pool of marks, with copy to all group members. In case I do not receive an email to this effect, the instructor will assume that all group members receive equal marks.

Class participation includes being present in the class, doing the in-class exercises, 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

- | | |
|----------|---|
| 19+ | <ul style="list-style-type: none">- 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 |
| 15-18 | <ul style="list-style-type: none">- comments and questions demonstrate some critical analysis- consistently shares ideas- effort made to build on ideas of others |
| 10-14 | <ul style="list-style-type: none">- raises occasional clarifying questions and comments- comments often not of a critical nature and do not demonstrate integration of material |
| Below 10 | <ul style="list-style-type: none">- no consistent contribution- little evidence of integrated learning- absent from class |

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 Undergraduate 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 Undergraduate 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