

## **MEE4A: Methods in Ecological Economics (for the Anthropocene)**

This course explores ways in which ecological economics can inform humanity's future within the Anthropocene. Students are introduced to methods that can help to understand and affect human-economy-environment relationships, with a consideration of economic efficiency, distribution, and sustainability. By the end of the course, students will be skilled at appraising methods and proposing their own research using appropriate methods.

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**Prerequisites:** Enrolment in Economics for the Anthropocene, or permission from the Course Director.

**Technology requirements:** You will require an internet-connected computer with an integrated or peripheral webcam and headset (or separate microphone and headphones).

**Time and Location:** Tuesdays from 2:30PM – 5:30PM, using online video conferencing software.

Outside of this time, students will watch 45-minute lectures introducing each week's topic.

**Website:** <#####/mee4a>

This website contains electronic links to all required readings, lectures, important course announcements and changes, a list of all registered students, and guidelines used to grade all the assignments. This website allows students to post written comments, and to reply to other comments. Students will be expected to access the website at least once per week throughout the term.

All class meetings will be recorded and shall not be shared beyond the class and E4A.

**Course Director:** Eric Miller

Contact me at <#####> with **e4a** somewhere in the subject line of all e-mails.

I hold regular office hours on **Thursdays** from **8-10PM** using Skype (my userID is <#####>).

By appointment, I am also available at other times over Skype.

### **Organization of the Course**

Each week's agenda will be detailed on the course website. Most weeks will follow this organization:

- **Appraisal** of the week's required readings, led by students who signed up in advance.
- **Seminar** about one or more specific methods relevant to the topic of the week.
- **Wrap-up** discussion and an open forum for feedback on drafting a **Research Proposal**.

The next day, a recorded **introductory lecture** about the following week's topic will be accessible online.

Optional guest lecturers will occasionally be scheduled on Wednesdays before the E4A "theory" course.

## Schedule of topics, with learning objectives and required readings

<b>Jan 12</b>	<b>Introduction to the course</b>
Learning objective	Appreciate how ecological economics can serve as a framework in which to update economics for the purpose of informing humanity's future within the Anthropocene Appreciate some merits and challenges of methodological pluralism
Optional Reading	Nadeau, R. L. 2015. <a href="#">The unfinished journey of ecological economics</a> . <i>Ecological Economics</i> 109: 101–108. Lo, A. 2014. <a href="#">The Problem of Methodological Pluralism in Ecological Economics</a> MPRA Paper No. 49543. Munich Personal RePEc Archive.

<b>Jan 19</b>	<b>Biophysical limits and linkages</b>
Learning objectives	Investigate the economic relevance of biophysical limits and linkages Introduce ways of assessing biophysical limits and linkages
Required Reading	Glucina, M. D., & Mayumi, K. 2010. <a href="#">Connecting thermodynamics and economics: well-lit roads and burned bridges</a> . <i>Annals of the New York Academy of Sciences</i> 1185: 11–29. Meadowcroft, J. 2013. <a href="#">Reaching the limits? Developed country engagement with sustainable development in a challenging conjuncture</a> . <i>Environment and Planning C: Government and Policy</i> 31(6): 988–1002. Wiedmann material footprint of nations Wiedmann, T. O., Schandl, H., Lenzen, M., Moran, D., Suh, S., West, J., & Kanemoto, K. 2015. <a href="#">The material footprint of nations</a> . <i>Proceedings of the National Academy of Sciences</i> , 112(20), 6271–6276.

<b>Jan 26</b>	<b>Money and banking</b>
Learning objectives	Understand competing perspectives about the role of money in an economy Understand the role of central banks and private banks Introduce proposals for monetary reform within a sustainability context
Required Reading	Røpke, I. 2015. <a href="#">Reflections on full reserve banking and sustainability in a long term perspective</a> . In <i>EAEPE 2015 Online Proceedings</i> . Michel, A., & Hudon, M. 2015. <a href="#">Community currencies and sustainable development: A systematic review</a> . <i>Ecological Economics</i> , 116, 160–171. Campiglio, E. 2015. <a href="#">Beyond carbon pricing: The role of banking and monetary policy in financing the transition to a low-carbon economy</a> . <i>Ecological Economics</i> , (Forthcoming).

<b>Feb 2</b>	<b>Finance</b>
Learning objectives	<p>Understand some roles of the financial system in contemporary capitalist economies</p> <p>Understand the consequences of, and responses to, the 2008 financial crisis</p> <p>Introduce proposals for financial reform within a sustainability context</p>
Required Reading	<p>Ritchie, J., &amp; Dowlatabadi, H. 2014. <a href="#">Understanding the shadow impacts of investment and divestment decisions: Adapting economic input–output models to calculate biophysical factors of financial returns</a>. <i>Ecological Economics</i>, 106, 132–140.</p> <p>Leijonhufvud, C., &amp; Fitts, J. P. 2015. <a href="#">Global Warming’s Unlikely Antidote: Why Capital Markets Hold the Key to Addressing Climate Change</a>. <i>Social Research: An International Quarterly</i>, 82(3), 761–781.</p> <p>Linnenluecke, M. K., Birt, J., Lyon, J., &amp; Sidhu, B. K. 2015. <a href="#">Planetary boundaries: implications for asset impairment</a>. <i>Accounting and Finance</i>, 55, 911–929.</p>

<b>Feb 9</b>	<b>Human behavior and strategies</b>
Learning objectives	<p>Revise the conventional concept of <i>Homo economicus</i> with positive and normative models</p> <p>Introduce ways of modelling human behaviour and decision-making strategies</p>
Required Reading	<p>Henrich, J., Boyd, R., Camerer, C. F., Bowles, S., Herbert Gintis, Fehr, E., McElreath, R., Alvard, M., Barr, A., Ensminger, J., Henrich, N. S., Hill, K., Gil-White, F., Gurven, M., Marlowe, F. W., Patton, J. Q., &amp; Tracer, D. 2005. <a href="#">“Economic Man” in cross-cultural perspective: Behavioral experiments in 15 small-scale societies</a>. <i>Behavioral and Brain Sciences</i>, 28, 795–815.</p> <p>Gowdy, J., &amp; Krall, L. 2013. <a href="#">The ultrasocial origin of the Anthropocene</a>. <i>Ecological Economics</i> 95: 137–147.</p> <p>Goodwin, N. 2014. <a href="#">The human element in the new economics: a 60-year refresh for economic thinking and teaching</a>. <i>Real-World Economics Review</i> 68: 98–118.</p>

<b>Feb 16</b>	<b>Distribution</b>
Learning objectives	<p>Understand the importance of considering distribution in economic analysis</p> <p>Understand ways of measuring and communicating distribution</p> <p>Introduce insights and controversies about Piketty’s <i>Capital in the 21st Century</i></p>
Required Reading	<p>Johansson-Stenman, O., &amp; Konow, J. 2010. <a href="#">Fair Air: Distributive Justice and Environmental Economics</a>. <i>Environmental and Resource Economics</i> 46(2): 147–166.</p> <p>Milanovic, B. 2014. <a href="#">The Return of “Patrimonial Capitalism”: A Review of Thomas Piketty’s Capital in the Twenty-First Century</a>. <i>Journal of Economic Literature</i> 52(2): 519–534.</p> <p>Fisman, R., Jakiela, P., Kariv, S., &amp; Markovits, D. 2015. <a href="#">The distributional preferences of an elite</a>. <i>Science</i>, 349(6254).</p>

<b>Feb 23</b>	<b>Ecosystem services</b>
Learning objectives	Understand the economic importance of considering ecosystem services Appreciate key strengths and limitations to economic valuation methods
Required Reading	Turner, K. G., Anderson, S., Gonzales-Chang, M., Costanza, R., Courville, S., Dalgaard, T., ... Wratten, S. 2015. <a href="#">A review of methods, data, and models to assess changes in the value of ecosystem services from land degradation and restoration</a> . <i>Ecological Modelling</i> , 319, 190–207.  Bunse, L., Rendon, O., & Luque, S. 2015. <a href="#">What can deliberative approaches bring to the monetary valuation of ecosystem services? A literature review</a> . <i>Ecosystem Services</i> , 14(MAY), 88–97. doi:  Bartelmus, P. 2015. <a href="#">Do we need ecosystem accounts?</a> <i>Ecological Economics</i> , 118, 292–298. doi:10.1016/j.ecolecon.2014.12.026

<b>Mar 1</b>	<b>Space and place</b>
Learning objectives	Understand how space and place affects, and explains, economic patterns Introduce methods that can enrich spatial considerations within ecological economics
Required Reading	Bertaud, A. 2004. <a href="#">The Spatial Organization of Cities: Deliberate Outcome or Unforeseen Consequence?</a> Working Paper. Institute of Urban and Regional Development, UC Berkeley.  Broto, V. C., Allen, A., & Rapoport, E. 2012. <a href="#">Interdisciplinary Perspectives on Urban Metabolism</a> . <i>Journal of Industrial Ecology</i> , 16(6), 851–861.

**Mar 8: No class during reading week, but the first draft of your research proposal is due.**

<b>Mar 15</b>	<b>Time</b>
Learning objectives	Understand critiques of the conventional treatment of time in economics Appreciate the relevance and challenges of incorporating time in theory and models
Required Reading	Kallis, G. and R. B. Norgaard. 2010. <a href="#">Coevolutionary ecological economics</a> . <i>Ecological Economics</i> 69(4): 690-699.  Dickinson, J. E., & Peeters, P. 2014. <a href="#">Time, Tourism Consumption and Sustainable Development</a> . <i>International Journal of Tourism Research</i> 16: 11–21.  Jalas, M., & Juntunen, J. K. 2015. <a href="#">Energy intensive lifestyles: Time use, the activity patterns of consumers, and related energy demands in Finland</a> . <i>Ecological Economics</i> , 113, 51–59.

<b>Mar 22</b>	<b>Growth and investment</b>
Learning objectives	Understand the economic concept of investment and its relation to sustainability Introduce perspectives and debates about green growth, de-growth, and a-growth
Required Reading	Kallis, G., Kerschner, C., & Martinez-Alier, J. 2012. <a href="#">The economics of degrowth</a> . <i>Ecological Economics</i> 84: 172–180.  Victor, P. A. 2012. <a href="#">Growth, degrowth and climate change: A scenario analysis</a> . <i>Ecological Economics</i> 84: 206–212.  Rozenberg, J., Davis, S. J., Narloch, U., & Hallegatte, S. 2015. <a href="#">Climate constraints on the carbon intensity of economic growth</a> . <i>Environmental Research Letters</i> , 10(9), 1–9.

<b>Mar 29</b>	<b>Governance and Public Policy</b>
Learning objectives	Understand competing decision frameworks from an ecological economics perspective Introduce proposals for the reform of global and local governance and decision-making
Required Reading	Ostrom, B. E. 2010. <a href="#">Beyond Markets and States: Polycentric Governance of Complex Economic Systems</a> . <i>American Economic Review</i> 100: 1–33.  Nyborg, K. 2014. <a href="#">Project evaluation with democratic decision-making: What does cost–benefit analysis really measure?</a> <i>Ecological Economics</i> 106: 124–131.  Farley, J., Costanza, R., Flomenhoft, G., & Kirk, D. 2015. <a href="#">The Vermont Common Assets Trust: An institution for sustainable, just and efficient resource allocation</a> . <i>Ecological Economics</i> , 109, 71–79.

<b>Apr 5</b>	<b>Models of Enterprise and Industry</b>
Learning objectives	Evaluate alternative models of enterprise in an ecological economics context Introduce industrial ecology as a model of industrial production
Required Reading	Johanisova, N., Crabtree, T., & Fraňková, E. 2013. <a href="#">Social enterprises and non-market capitals: a path to degrowth?</a> <i>Journal of Cleaner Production</i> 38: 7–16.  Schor, J. 2014. <a href="#">Debating the Sharing Economy</a> . Great Transition Initiative.  Walls, J., & Paquin, R. 2015. <a href="#">Organizational Perspectives of Industrial Symbiosis: A Review and Synthesis</a> . <i>Organization &amp; Environment</i> , 28(1), 32–53.

<b>Apr 12</b>	<b>Synthesis and Conclusions</b>
Activities	Conclude deliberations about methods for economics in the Anthropocene Review and rate all research proposals

## Evaluation

Course component	Due Date	Weight (%)
A. Participate in class discussions	Throughout term starting in 2 <sup>nd</sup> week	15
B. Appraise one week's required readings	Jan 19 or later (by signing up)	20
C. Lead a methods seminar	Jan 19 or later (by signing up)	20
D. Draft section of collaborative methods paper	One week after leading seminar	10
E. Review and edit collaborative methods paper	Throughout term up to April 26	10
E. Author a research proposal:		
Discuss idea for research question and method	Jan 26 or later (by signing up)	-
Write first draft and e-mail to Eric	Mar 8	5
4-minute verbal pitch of draft research proposal	April 12	-
Write final proposal	E-mailed to Eric before April 29	20

- A. **Participate in class discussions.** Students will be individually evaluated on the *quality* of their contributions to discussions during class time, and afterwards using the course website.
- B. **Appraise one week's required readings.** Each student will lead a 45-minute appraisal of one week's required readings. Depending on class size, students may work alone or with a partner. Students will verbally present an organized appraisal of the readings in relation to the learning objectives of the week, with reference to other relevant literature and/or contemporary issues. Ambiguous, contentious, and/or confusing aspects of the material can be identified and used to engage the class in discussion. Students will not summarize the readings. One grade will usually be assigned to each week's appraisal, unless exceptional circumstances warrant otherwise.
- C. **Lead a methods seminar.** Each student will lead a 45-minute seminar that investigates one or more methods related to the topic of that class as it falls underneath one of 7 headers that will provide structure to a collaborative paper. The "introduction" and "conclusion" seminars at the start and end of the term will involve a broader assessment. The other seminars will profile how the method can help to inform humanity's future within the Anthropocene, why it should be considered appropriate for ecological economics, a relevant example of how it has been used, and appropriate cautions about its use or the interpretation and communication of its results. The time of the seminar should be balanced between monologues of the leader and engagement/contributions from the rest of the class. The student will use this seminar to prepare for drafting a short section of a methods paper (see item D below).
- D. **Draft section of collaborative methods paper.** Within one week after leading a methods seminar, the leading student will draft a short text of no more than 400 words that highlights key insights delivered (or discovered) during the methods seminar. This text will be part of a (growing) collaborative methods paper, so the draft will be visible (and reviewable) by the class. The text will be situated beneath one of 7 headers that will be confirmed near the start of the term.
- E. **Review and edit draft methods paper.** Throughout the term, and up to two weeks after the last class, students will review and add comments or make edits to the collaborative paper.

F. **Research proposal.** Each student will author a research proposal that identifies a problem that could be better understood or solved by using insights from ecological economics. The problem will be identified, together with a rationale for why this problem is relevant to research. The proposal will propose methods / tools / data that would be used. A template will be provided on the course website. There are four components to this assignment:

1. **Discuss idea for research question and method** in class with your peers, for feedback.
2. **Write a first draft** of the research proposal, focussing on the research question, its rationale, and the proposed method(s) / tools / data. This draft will be e-mailed to the course director during the reading week when no class is scheduled, for high level feedback.
3. **Make a 4-minute verbal pitch** to the class of the refined proposal to impress your peers.
4. **Write a final version** of the research proposal. The final version should not exceed 1600 words excluding references. This final version will be e-mailed to the course director as a Word-compatible attachment.

### **Passing Grade**

A grade of 70% is the minimum satisfactory passing grade (equivalent to a “B” grade at York).

### **Final Grade for non-YorkU E4A students**

At the end of the year, I will transmit a summary of the percentage grades you earned on all assignments, with qualitative comments, to your academic supervisor at your home institution.

### **Final Grade for YorkU Students**

You may request that I indicate a letter-grade equivalent on your final assessment, to supplement the “Pass” or “Unsatisfactory” designation that will appear on your transcript. The FES handbook details how letter grades reflect percentages; 75-79% is a B+, 80-89% is an A, and 90% and above is an A+.

### **Required Reading**

All readings and other required materials referred to in the schedule of topics and readings are available electronically for free to students via the York library or Internet, with a link provided for convenience on the course website. There is no required paper textbook for this course.

### **Supplementary Reading**

Supplementary material will be referenced during lectures to complement and/or supplement the lecture materials. Students are encouraged to seek out additional materials and share them on the course website.

## **Academic Honesty**

All York students are subject to policies regarding academic honesty as set out by the Senate of York University and by the Faculty of Environmental Studies (FES). Students are strongly encouraged to read the Senate Policy on Academic Honesty, a copy of which can be found on the York University web-site (<http://www.yorku.ca/academicintegrity/students/policy.htm>). FES is committed to maintaining the highest standards of academic integrity. Please be advised that conduct that violates the ethical or legal standards of the University community may result in serious consequences. For more information, please contact the Director of Student and Academic Services and/or the FES Writing Program Coordinator.

## **Research Ethics**

York University students who conduct a research study using human participants must submit the following for approval prior to the conduct of research:

1. three copies of a proposal outlining the purpose of the research and the methodology to be used
2. three copies of the Faculty of Environmental Studies Human Participants Research Protocol Form
3. three copies of the Written Informed Consent form or a script of Verbal Informed Consent (Verbal Informed consent is permissible only in extenuating circumstances, where written communication is not feasible).

This material will be reviewed by a Sub-committee of the Research and Awards Committee. Reviews will take up to 2 weeks from the date of submission. If the research is not approved prior to the conduct of the research, then the research will not have received research ethics clearance and will be deemed unacceptable for submission as a component of this course.

Information regarding the use of human participants in research studies may be found on the Faculty of Graduate Studies webpage <http://www.yorku.ca/grads/polc/ethics.htm>.

Students are advised that all human participants in the research must have either signed a written consent form or have provided oral consent for their participation in the research. Students also are advised that the consent forms must be retained by the Principal Investigator for two years following the completion of the research.

## **Academic Accommodation**

Students who feel that there are extenuating circumstances which may interfere with the successful completion of the course requirements are encouraged to discuss the matter with the Course Director as soon as possible. Students with physical, learning or psychiatric disabilities who require reasonable accommodations in teaching style or evaluation methods should discuss appropriate arrangements with the Course Director early in the term.