Course Instructor: Mark Hathaway, PhD, Sessional Lecturer, School of the Environment

Office Hours: Tuesdays from 2 to 3 PM in ES 2104: Please sign up on Quercus for an appointment

E-mail: mark.hathaway[at]utoronto.ca (e-mail is my preferred method of communication)

Phone/Voicemail: (647) 247-6450

Teaching Assistants:

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Tutorial Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter Bikoulis,</td>
<td>peter.bikoulis[at]utoronto.ca</td>
<td>501B, 601, 701B, 801B</td>
</tr>
<tr>
<td>Head TA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brennus Bmjk</td>
<td>bmjk.brennus[at]mail.utoronto.ca</td>
<td>101, 201A, 301B</td>
</tr>
<tr>
<td>Janina Kowalski</td>
<td>janina.kowalski[at]utoronto.ca</td>
<td>201B, 301A, 401, 501A</td>
</tr>
<tr>
<td>Lauren Spring</td>
<td>lauren.spring[at]mail.utoronto.ca</td>
<td>701A, 801A</td>
</tr>
</tbody>
</table>

Note: In general, you can expect an answer to e-mail inquiries within 24 hours from Monday to Friday (inquiries made on Friday will be answered by Monday). Specific questions regarding assignments should be addressed to your TA. Medical certificates and requests for extensions (made at least 48 hours before the due date & time) should also be submitted to the head TA.

Important: To speed processing, please put “ENV222” somewhere in the e-mail subject line

Course Description

Analysing perils such as rapid climate change, biodiversity loss, stratospheric ozone depletion, ocean acidification, land system changes, and key nutrient cycles, Rockström et al. (2009) observe that we have already exceeded a number of key boundaries that delineate the safe operating space for humanity on the planet – particularly biodiversity loss and climate change – and that we are rapidly approaching the limits in a number of other areas such as ocean acidification. After thoroughly reviewing the current evidence, Ehrlich & Ehrlich (2013) conclude that our current global civilisation is threatened by collapse unless we undertake concerted action to address the most serious problems threatening the well-being of the entire Earth community. Meanwhile, social and economic inequality continues to grow. Overall, our response to the key challenges threatening the well-being – and even survival – of human societies and living ecosystems seems far weaker than the situation requires (Crompton, 2010), despite the fact that promising policies, technologies, and social innovations to address the global ecological crisis exist.

This course examines some of the scientific, technological, economic, political, psychological, and ethical dimensions of the current ecological crisis, working to knit different perspectives into one interdisciplinary body of knowledge using a variety of theoretical frameworks. The course examines the nature of current environmental (and related social) problems and their historical causes. It then looks at strategies and actions currently being undertaken to address the crisis and then goes on to examine what a sustainable world might look like as well as possible strategies for advancing towards that goal.

Course Learning Outcomes

By the end of this course, students will be able to:

1. Describe and understand some of the key threats and challenges posed by the ecological crisis and analyse how these are interrelated.

2. Explain why many of the key challenges being faced could be described as “wicked problems” and why it is necessary to adopt an inter (or trans) disciplinary approach to understand and address them.

3. Describe and analyse how technological, political, economic, psychological, perceptual, and ethical factors have contributed to the genesis of the ecological crisis.
4. Describe and analyse the nature of sustainability, describe some key characteristics of sustainability (including its technological, political, economic, and ethical dimensions), and envision what kinds of transformations might be necessary to achieve sustainability in practice.

5. Describe, analyse, and assess approaches that have been adopted to date to address the ecological crisis and analyse and assess some possible strategies to achieve sustainable human societies and to regenerate ecosystems.

Course Organisation

Teaching and Learning Philosophy

In this course, it is assumed that all of us (teachers and students) will learn from each other and that students will engage actively with the course readings, lectures, discussions, and assignments. While lively discussion and probing questions are always encouraged, it is also assumed that each person will treat others with respect. Students are expected to do all required (core) readings, attend lectures and tutorials, engage in appropriate practices and methods for assignments, and think critically. Critical thinking may be demonstrated by articulating a clear understanding of key course concepts; applying these concepts appropriately to specific questions and new contexts; putting forth logical arguments backed by appropriate course materials (readings and lectures), examples, and evidence; making connections between different concepts and perceiving broader patterns; and seeking out the concrete implications for values, policies, and actions.

Electronic Devices Policy

During class and tutorial time, the use of electronic devices for making calls, texting, playing games, watching videos, or surfing the internet is prohibited. Computers and tablets only may be used exclusively for taking notes and for interacting with lectures via the Classroom Response System (Top Hat). During tutorial discussion times, only the person taking notes for each group may use their computer or tablet.

During the final class, students are encouraged to bring a computer to class to prepare and submit their final course evaluation.

Classroom Response System: Top Hat

Attendance and active participation in all classes are an essential part of this course. To facilitate your participation in a large, lecture-based class, we will be using the Top Hat classroom response system in class. You will be able to submit answers to in-class questions using iOS or Android smartphones and tablets, laptops, or through text messaging. Attendance for each class will also be taken using Top Hat. If this is impossible for you due to an accessibility or related issue, please contact the course instructor.

You can visit https://bit.ly/2hP4mUN for the Student Quick Start Guide which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system. An email invitation will also be sent to your school email account or you may join directly using the Join Code available on Quercus.

Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email (support@tophat.com), the in-app support button, or by calling 1-888-663-5491.

Top Hat requires a subscription, paid for by the student. There are several options available:

- 1-semester license: $26 dollars (unlimited number of courses)
- 1-year license: $38 dollars via tophat.com and $34.20 if they purchase in the bookstore
- 5-year license: $75 dollars via tophat.com and $67.50 via the bookstore

Use of Quercus (Portal/Learning Management System)

It is your responsibility to check Quercus frequently (at least once a week). You must have a mail.utoronto.ca (or @utoronto.ca) email address indicated on ACORN to properly receive messages from the course instructor through Quercus. Please note that all written assignments will be submitted
through Quercus. It is your responsibility to ensure that your written assignments are uploaded properly. Please make sure the confirmation page appears after submitting your assignments and, if possible, make a copy of the confirmation page ("print" to a pdf document and save).

Tutorials
Each student will attend six tutorials (during the even-numbered course weeks -i.e. Jan. 16-17, 30-31, Feb. 13-14, March 6-7, 20-21, April 3-4). Please check and confirm your tutorial group on Quercus under People > Tutorial Groups. Tutorials provide students an opportunity to discuss the course subject matter in a smaller group as well as to prepare for course assignments, quizzes, and exams. Each tutorial will be led by one of the teaching assistants. Attendance is required to ensure adequate preparation for exams and papers and active participation will also be part of your participation grade.

Evaluation
The grades for the course will be based on the following percentages for each activity:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Marks</th>
<th>Maximum Possible</th>
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</thead>
<tbody>
<tr>
<td>Participation (see details below)</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Quizzes (2 online quizzes, 5% each): Feb. 8-11 and Mar. 22-25</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Assignment #1 (1000-1200 words): Due Feb. 24</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>Assignment #2 (1000-1200 words): Due April 5</td>
<td>25%</td>
<td></td>
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<tr>
<td>Final Exam: During the final exam period</td>
<td>20%</td>
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Participation (20%)
Students are expected to attend all course lectures and tutorials and to participate actively in tutorial discussions and activities. Lecture participation marks will be based on both attendance and active participation using the Classroom Response System. As well, students may earn participation marks by participating in the (anonymous) mid-term course evaluation and by proposing quiz and exam questions using the Quizzical tool of Quercus. (Each question accepted into the pool will receive 0.5 bonus marks, up to a maximum of 3 marks.)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Marks</th>
<th>Maximum Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture attendance and participation</td>
<td>1.0/class</td>
<td>10.0</td>
</tr>
<tr>
<td>Tutorial Participation (6 tutorials)</td>
<td>1.0/tutorial</td>
<td>6.0</td>
</tr>
<tr>
<td>Mid-term Course Evaluation (due Feb. 26)</td>
<td>2.0</td>
<td>2.0</td>
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<tr>
<td>Reading Evaluation Survey (due Mar. 31)</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Bonus Participation Activities (see below)</td>
<td>1.0/question</td>
<td>2.0</td>
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Note that participation marks will not be given for the first lecture and one other lecture to be determined at the course instructor’s discretion.

Each student will be invited to submit two suggested quiz/exam questions during two different weeks of the course using the Quizzical tool accessible via Quercus. The questions must relate to the lecture or readings of the week in question (and referenced accordingly) and take the form of a multiple-choice question with at least four responses. Each question accepted into the question bank will earn 1.0 participation marks. See the instructions on Quercus for more details.

Online Quizzes (2 x 5% each)
There will be two multiple choice online quizzes accessible via Quercus, one covering the lectures and readings of weeks 1-5 of the course and second covering weeks 6-10. Each quiz will open on a Friday at 9 AM and close the following Monday at 9 AM. You may attempt each quiz three times, seeking to improve your responses each time. Only the best of the three attempts will count.
The first quiz will take place from February 8-11 and the second from March 22-25. You are permitted to refer to your notes, posted lecture slides, and readings while taking the quiz, but each attempt will be time-limited. (Note that you may see different randomised questions on each quiz attempt.)

Assignments
There will be two written assignments, each a maximum of 1200 words excluding the reference list. Details of each assignment will be posted on Quercus along with a rubric detailing the criteria for evaluation. Assignments will be due at 11:59 PM on the dates listed below:

| Assignment #1: | Sun., February 24 |
| Assignment #2: | Fri., April 5 |

Turnitin
Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University’s use of the Turnitin.com service are described on the Turnitin.com web site.

If a student does not wish to participate in Turnitin, the student MUST advise the head TA at least three weeks before the assignment due date as alternate arrangements for screening the assignment must be arranged. (Normally, this will entail the submission of rough notes and drafts along with their final assignment.)

Late and Length Penalties
Please follow the length guidelines for each assignment carefully. A 2% penalty for up to the first 100 words over the maximum length will be deducted from the assignment (i.e. from 1 to 100 words over the limit) and 5% for each additional 100 words (101 to 200 over, etc.).

Late papers will be assessed a 3% reduction of the value of the assignment per day late, unless previously negotiated with the head TA over acceptable medical or related reasons. Unless previously negotiated due to an acceptable issue, late papers will only be accepted for one week after the due date. Papers later than this will not be assessed. Please do not leave potential issues to the last minute to discuss with the head TA.

If assignments are submitted late because of medical reasons, a signed medical note is required, stating the name of doctor, nature of illness, duration of illness, and expected delay and/or impact on the completion of student work. Students must use the official U of T medical certificate (available online at http://www.utoronto.ca/health/forms/medcert.pdf) and submit it to the head TA. Please inform the head TA in advance if you anticipate that your assignment will be late on account of medical reasons.

Remarking Policy
If a student believes that their assignment has not been fairly assessed, they should first read all the comments (both in the text and terminal comments) and consult the assignment rubric. If, after reviewing these, the student would like to request a reassessment, they should write their TA – within one week of receiving their assignment grade – with a written justification explaining why the assignment should be reassessed. The TA will then consider the request and remark if they believe this is justified. If the student is still not satisfied, they may appeal the grade to the head TA (or, if the head TA is their TA, the course instructor), but must submit a written rationale to do so.

Final Exam
A multiple-choice (scantron) final exam will be scheduled during the final exam period. Students will be allowed to bring one, double-sided page of notes (8.5 x 11” paper) into the exam. Students are therefore encouraged to take detailed notes of the lectures and readings throughout the course to help prepare the summary notes that can be used during the final exam.
Course Texts and Required Readings

All course texts will be available online via Quercus. In some cases, to access electronic journal articles and some book chapters, you will need to log into the University of Toronto library.

Note: Students are expected to read all core readings. Optional readings are included for those who wish to explore a theme in more depth. Optional readings will not be covered in course quizzes or in regular exam questions (unless the material is covered in course lectures), but may be helpful in understanding key ideas, writing your assignment papers, and in answering bonus questions.

The list of readings included in the syllabus may be modified somewhat during the course – please consult Quercus for an up-to-date list of core and optional readings.

Course Outline and Weekly Readings

Week 1 (January 8): Course Introduction

Learning Outcomes

• Students will gain an overview of the course and have a clear understanding of expectations for participation, assignments, and evaluation.
• Students will be able to define and understand some key concepts such as ecology, environment, and the Anthropocene.
• Students will begin to reflect on and develop an understanding of the nature of the ecological crisis, including problems related to poverty and inequality, resource depletion, and waste accumulation.

Core Readings (read all of the following)


Optional Readings


Week 2 (January 15): The Ecological Crisis – Scientific and Technological Dimensions

Learning Outcomes

• Students will gain an understanding of key ecological challenges as “wicked problems” and begin to reflect on the importance of an inter/transdisciplinary approach to understand and address these.
• Students will gain a clearer understanding of the scientific dimensions of key ecological problems including the concept of planetary boundaries (and the nature of each of these) as well as the interrelationship between key ecological challenges.
• Drawing on systems theory, students will explore the nature of feedback loops and how these influence ecological changes.

Core Readings (read all of the following)


Hansen, James (2012). Why I must speak out about climate change. TED talk: https://www.ted.com/talks/james_hansen_why_i_must_speak_out_about_climate_change

Optional Readings

First Tutorial Set held Wednesday, Jan. 16 (101-301) and Thursday, Jan. 17 (401-801)

Week 3 (January 22): The Ecological Crisis – Political, Economic, and Social Dimensions

Learning Outcomes

- Students will be able to analyse and understand the connection between economic growth, corporate organisation, finance, monoculture, and domination and the ecological crisis (including its social dimensions) as well as some of the assumptions underlying the dominant global economic system.
- Students will analyse the relationship between population, affluence/consumption, and technology in generating ecological impacts (I=PAT).
- Students will learn how ecological footprints can be used to understand the relative impact of different nations and social classes.
- Students will understand more clearly the political challenges posed by the ecological crisis and continue to deepen the analysis of population, affluence, technology, and ecological impact.
- Students will analyse in more detail the concept of the Anthropocene as well as some alternative ways to understand our current epoch in light of an analysis of relative consumption and economics.

Core Readings (read all of the following)


Optional Readings


Week 4 (January 29): The Ecological Crisis – Ethical and Psychological Dimensions

Learning Outcomes

- Students will gain a clearer understanding of how values and perceptions (or worldviews) affect human-nature interactions as well as some factors that may have contributed to a more anthropocentric worldview.
- Students will be able to describe some ethical frameworks including deep ecology, ecofeminism, social ecology, and spiritual-religious perspectives.
- Students will come to understand some of the key psychological and perceptual challenges may impede actions addressing key ecological problems.

Core Readings (read all of the following)


Optional Readings


Second Tutorial Set held Wednesday, Jan. 30 (101-301) and Thursday, Jan. 31 (401-801)

**Week 5 (Feb. 5): Historical Perspectives: Agriculture, Food Production, and Land Use**

**Learning Outcomes**

- Students will be able to describe and analyse how changes in food production transformed human-nature relations and contributed to the current ecological crisis.
- Students will gain a clearer understanding of the impacts of modern industrial agriculture on ecosystems as well as how such agriculture may contribute to social inequality.
- Students will continue to deepen their understanding of the Anthropocene or Capitalocene.

**Core Readings (read all of the following)**


Optional Readings


Online Quiz Open from Friday, February 8 at 9 AM to Monday, February 11 at 9 AM

**Week 6 (February 12): Historical Perspectives: Energy, Industrialisation, and Consumerism**

**Learning Outcomes**

- Students will be able to describe and analyse how changes in the use of energy and the industrial revolution transformed human-nature relations and contributed to the current ecological crisis.
- Students will gain a clearer understanding of the nature and genesis of consumerism as well as how consumerism contributes to ecological destruction.

**Core Readings (read all of the following)**


**Optional Readings**


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**Third Tutorial Set held Wednesday, Feb. 13 (101-301) and Thursday, Feb. 14 (401-801)**

**Reading Week: Feb. 18-22**

**Assignment #1 Due: Sunday, Feb. 24 (11:59 PM)**

**Mid-term Course Evaluation Due Tuesday, Feb. 26**

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**Week 7 (Feb. 26): Clean Production, Ecomodernisation, Geoengineering, & Ecotechnology**

**Learning Outcomes**

- Students will be able to analyse and assess the possibilities and limitations of technological innovations including clean production and ecomodernisation.
- Students will be able to analyse the challenges and possible solutions to the problems posed by plastics.
- Students will more clearly understand the possibilities, potential problems, and ethical questions evident in geoengineering.
- Students will be able to analyse the possibilities and implications of creating more durable and sustainable goods.
- Students will understand the principles of ecologically sustainable technology and biomimicry.

**Core Readings (read all of the following)**


The Biomimicry Toolbox: [https://toolbox.biomimicry.org/](https://toolbox.biomimicry.org/) (Read the introduction and the four core concepts)


**Optional Readings**


Week 8 (March 5): Market Solutions, Steady-State Economics, Bioregionalism, & Degrowth

**Learning Outcomes**

- Students will gain a basic understanding of ecological economics including its critique of growth, GDP, and hidden externalities.
- Students will be able to analyse and assess the possibilities and limitations of market-based solutions to ecological problems, particularly the use of carbon pricing mechanisms to re-internalise the costs of carbon pollution.
- Students will assess the advantages, limitations, and challenges of more radical economic transformations including bioregionalism and economic degrowth.

**Core Readings (read all of the following)**


**Optional Readings**


Week 9 (March 12): Governance, Policy Approaches, Sustainability, and Regeneration

**Learning Outcomes**

- Students will gain a clearer understanding of the history of international environmental policy-making, including the challenges of creating effective, binding agreements.
- Students will be able to explain how questions of ecological justice and global economics affect international environmental negotiations.
- Students will be able to explain and critique the concept of sustainable development, understand essential elements of sustainability, and explain the concept of regeneration and what it might entail in practice.

**Core Readings (read all of the following)**


Optional Readings


Week 10 (March 19): Individual and Collective Action

Learning Outcomes
- Students will gain an understanding of both the importance and limitations of individual behaviour changes to promote sustainability as well as some of the challenges of motivating such change.
- Students will be able to analyse the challenges and potential effectiveness of collective action to promote sustainability at a community and social movement level.
- Students will be able to explain some of the goals and strategies employed by a number of pro-environmental social movements such as 350.org, Project Drawdown, and Extinction Rebellion.

Core Readings (read all of the following)


Project Drawdown: https://www.drawdown.org/solutions (spend some time browsing the different solutions in the different sectors – look towards the bottom of the page for the links)

Optional Readings


**Week 11 (March 26): Shifting Values & Worldviews, Creating Living Models of Regeneration**

**Learning Outcomes**
- Students will be able to explain some theories of social change and be able to classify different kinds of transformative action applying these frameworks.
- Students will gain a preliminary understanding for both the importance and challenges of shifting values and worldviews.
- Students will become familiar with and analyse a variety of initiatives seeking to create living models of regenerative sustainability.

**Core Readings (read all of the following)**


See also: Earlier articles on permaculture and bioregionalism.

**Optional Readings**


**The Earth Charter Initiative:** [http://www.earthcharterinaction.org/content/](http://www.earthcharterinaction.org/content/)

**The Work that Reconnects Network:** [http://workthatreconnects.org/](http://workthatreconnects.org/)


**Week 12 (April 2): Course Conclusion and Final Evaluation**

( Please bring a computer to class if possible this day)

**Learning Outcomes**
- Students will reflect on and integrate their learning to date regarding the ecological crisis and its causes as well as possible ways to address this crisis.

**Other Administrative Issues**

**Accessibility Needs and Services**

The University of Toronto is committed to accessibility. The office of Accessibility Services at U of T provides a range of services to students with disabilities to help them meet their educational objectives. In conjunction with Accessibility Services, the course instructor and teaching assistant would like to ensure the inclusion and full participation of everyone in the course. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible: [http://studentlife.utoronto.ca/accessibility](http://studentlife.utoronto.ca/accessibility). As well, if there are things that we can do to facilitate your learning, or that we need to know as members of the teaching team, please contact the instructor during the first few weeks of the course.
Academic Integrity and Plagiarism

Academic integrity is fundamental to learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the U of T degree that you earn will be valued as a true indication of your individual academic achievement, and will continue to receive the respect and recognition it deserves.

Familiarise yourself with the University of Toronto's Code of Behaviour on Academic Matters (http://www.governingcouncil.utoronto.ca/policies/behaveac.htm). It is the rule book for academic behaviour at the U of T, and you are expected to know the rules. Potential offences include, but are not limited to:

**In papers and assignments:**
- Using someone else’s ideas or words without appropriate acknowledgement.
- Copying material word-for-word from a source (including lecture and study group notes) and not placing the words within quotation marks.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Including references to sources that you did not use.
- Obtaining or providing unauthorised assistance on any assignment including
  - working in groups on assignments that are supposed to be individual work,
  - having someone rewrite or add material to your work while “editing”.
- Lending your work to a classmate who submits it as his/her own without your permission.

**On tests and exams:**
- Using or possessing any unauthorised aid, including a cell phone.
- Looking at someone else’s answers
- Letting someone else look at your answers.
- Misrepresenting your identity.
- Submitting an altered test for re-grading.

**Misrepresentation:**
- Falsifying or altering any documentation required by the University, including doctor’s notes.
- Falsifying institutional documents or grades.

You can get further guidance on academic integrity at: www.artsci.utoronto.ca/osai/students

To remind you of these expectations, and help you avoid accidental offences, I will post an Academic Integrity Checklist with each assignment on Blackboard. *By submitting your assignment, you confirm that you have read the checklist and affirm that its statements are true.*

The University of Toronto treats cases of academic misconduct very seriously. All suspected cases of academic dishonesty will be investigated following the procedures outlined in the Code. The consequences for academic misconduct can be severe, including a failure in the course and a notation on your transcript. If you have any questions about what is or is not permitted in this course, please do not hesitate to contact me. If you have questions about appropriate research and citation methods, seek out additional information from me, or from other available campus resources like the U of T Writing Website. If you are experiencing personal challenges that are having an impact on your academic work, please speak to me or seek the advice of your college registrar.

**University of Toronto Writing Centres**

Students having difficulty with writing skills, or those who would simply like to improve their ability, are encouraged to visit the writing centre affiliated with their college at U of T. The writing centres offer free individual tutoring, group workshops, and other resources. For more information, see the U of T website (http://students.utoronto.ca/Academic_Resources/Writing_Centres.htm).