

**ENVR 630-Civilization and the Environment:  
From the Big Bang to the Anthropocene  
Fall 2018**

***Working Syllabus 9/4/18***

**[Zoom link](#)**

**Faculty**

Professor Peter G. Brown

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Meetings by appointment in person and by Zoom welcome

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**Invited Lecturers (in person or through Zoom)**

Dr. Geoff Garver, McGill University, Faculty of Law

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Dr. Stephen Quilley, University of Waterloo, ERS, Associate Professor

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Dr. Jeremy Schmidt, Durham University, Department of Geography, Assistant Professor

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**Class Schedule**

Formal classes: Wednesday 2:35 - 5:25 pm

NRS Conference Room, MS3-041

Remote attendance for UVM students: [Zoom link](#)

Attendance is expected at all classes unless there is a compelling reason to miss a class. If you have other obligations that will keep you from more than one class session *you should not enrol*.

## **Rationale**

Human activity is overwhelming and degrading natural systems both locally and globally at an accelerating rate. These activities have dramatically negative implications for the future of most forms of life, including humans. Major ecosystem collapses are not only likely, but some are already and irreversibly underway. Yet our responses at the personal and institutional level remain largely fragmented and ineffective, if they exist at all.

We hold the academy responsible, among other institutions, for the lack a coherent way to conceptualize the issues and to evaluate the success and/or failure of responses to unprecedented circumstances of the Anthropocene. Our institutions and the conceptual and ethical bases on which they rest, are mainly at odds with our ability to conserve and sustain the essential elements of the biosphere. But there is much that can be done on all levels from the personal to the international to change direction, and enable a flourishing Earth. Our aim in ENVR 630 is to explore how we think about the human/Earth relationship in formulating, or failing to formulate, how this can be accomplished.

The course is designed for people interested in environmental philosophy and policy as well as those who may be planning careers of practice--in business, finance, public policy, environmental sciences and policy, international development, engineering, law, forestry, medicine, plant or animal agriculture, dietetics and nutrition, genetic or bio-systems engineering, and the like. The course provides for the critical consideration of a number of conceptual frameworks that we customarily use, implicitly or explicitly, in thinking about the complex relationship of humans, other species, and more generally our planet and its life support systems. The practical consequences of these frameworks are considered. The aims of the course are therefore to enrich our ability to think about the moral and conceptual dimensions of the role as citizens of planet earth and to provide a means for developing policies at various scales to alleviate, mitigate, and reverse the accelerating decline in life's prospects.

The main purpose of ENVR 630 is to describe and define a different picture of humanity's place on Earth and in the Universe than that assumed by the current dominant culture. It is our conviction that many of the scientific discoveries of the last 200 years offer fresh perspectives on the human self, our origins, and our possible futures that, if widely understood, could lead to an enduring and respectful human presence on Earth by accounting for limited resources as well as the functioning of planetary life support systems. This new (or, more likely, rediscovered) way of living for humankind would thus respect, enhance, restore, and protect the commonwealth of life, as well as the dignity of the Earth itself. We assume that students are familiar with the major factors which are dimming life's prospects.

## Course Details

### Learning Objectives

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

- (1) to gain an understanding of how science can be used to inform environmental policy and human activities;
- (2) to appreciate the complexity of the biogeochemical systems that support life and the possibility that human activities can change the state of these systems to ones that do not favour life's prospects;
- (3) to understand that human economic activity and modern environmental policy fails to protect life's prospects partly because they draw on narratives that are not informed by scientific understandings of how the world functions such as provided by "big history";
- (4) to grasp the implications of our worldviews for the human /Earth relationship and how we perceive our place in the cosmos.
- (5) to illustrate the implications of an embedded worldview focusing on the following normative systems: law; economics; finance; ethics; and governance;
- (6) to define societies' ethical objectives; to understand how to measure changes in reaching societies ethical objectives; and
- (7) to deepen, articulate, and show the consequences of a sense of personal responsibility for life's prospects.

*Electronic devices have been shown to impede learning and are not allowed in the classroom; and the taking of notes on them is not as effective as doing it manually. If you insist on using them for note taking please send Dr. Brown the notes at the end of class.*

### Required Text

*Energy, Complexity and Wealth Maximization* by Robert Ayres. (Springer International Publishing 2016). This should be read in its entirety over the course of the semester. It is available from Amazon and electronically through the [McGill library, as an ebook](#).

### Materials

Weekly readings and other materials will be available through myCourses on the McGill website.

### Grading and Participation

Classes will be broken down into three parts:

1. There are videos and resources available on myCourses, per week. It is expected of you to view them before class.

2. A presentation by the course instructors or guests—taking up about ½ of the class time.
3. A general discussion relating the class based on student reading questions, and readings.

Course assessments will be based on three components:

- Each week, two students will volunteer to act as discussants for the week's readings. Each discussant will come up with two provocative questions to pose to the class. After a short introduction to their topic and questions the two campuses will then breakout into separate groups for 30 minutes to discuss the questions. Throughout the class we'll be practicing an ethic of inclusiveness. Each student brings to our class their own unique and valuable experiences and perspectives. Moreover, our project aspires to be a transdisciplinary one that demands consideration of a wide range of ideas and thoughts. During class discussions and group work, we'll be encouraging everyone to participate; it is also the responsibility of each student to ensure that each of their peers has a voice. During break-out discussions, each campus will select one moderator and reporter. The moderator's job is to keep the conversation moving, insure that no sub-set of voices dominates, and draw out as many voices as possible during discussions. The reporter's job is to listen, capture the ideas and sentiments of their colleagues, and synthesize the main points to report back to the larger class. This responsibility will change from week to week so that everyone has an opportunity. Questions submitted for discussion weekly and the quality of the questions count for 20%. Two students should post questions, comments, or critique of the readings on the myCourses site by BY 5PM THE DAY BEFORE CLASS. These will be done in alphabetical order; and repeat once everyone has done one posting.
1. A 2-page midterm paper discussing, defending and/or critiquing the Judeo-Christian-Muslim (JXTNM) responses to the climate crisis – due October 31<sup>st</sup> (20%). Alternative topics are fine if approved by approved by Professor Brown and Dr. Kish.
  2. A 5-page final term paper that analyses and give recommendations concerning the crises of the Anthropocene from the point of view of any of the three ontologies discussed in the course, and/or the orphans – due December 15<sup>th</sup> (50%); or any other topic approved by the approved by Professor Brown and Dr. Kish.
  3. Quality and quantity of class participation. (10%)

### **Requirements for Papers**

Both papers should be in the form of “briefs” – that is concise, customized summaries of the facts and issues on the selected topic intended to inform the addressee's position or actions. They may be addressed to anyone you wish; e.g. Quebec Premier Philippe Couillard; Pope Francis; Francis of Assisi, the UN Secretary General; the Principal at McGill; Bill McKibbin; the Chairperson of Suncor, the head of the Bank of Canada, authors of the readings—and other persons, beings, or entities **dead or alive**, etc. The briefs must draw on the readings and may support or critique them.

Briefs must be submitted electronically and using standard word formatting. Please:

- Use single spaced, Times New Roman 12 pt font
- Submit Word documents (.doc or .docx are both acceptable, PDFs are NOT)
- Avoid placing additional information in appendices
- When quoting directly from other sources, use quotation marks and cite the reference

Papers will be received by email only and the instructor will read them and provide comments directly in your papers, electronically, and will return them to you by email and will assign a grade (A, B, C, etc...).

**Papers are to be submitted by email by midnight on the due date to Dr. Brown with ENVR 630 in the subject line. Late papers will be penalized by 5% off the awarded grade for each day they are late (including weekends).**

### **Midterm Paper**

The midterm paper will be 2 pages, single spaced, 12 pt Times New Roman font, due **midnight, October 31st**. The paper should discuss, defend, and/or critique the Judaeo-Christian-Muslim (JXTNM) responses to the climate crisis or another topic of your choice approved by the instructor.

If you wish to have comments on your proposed brief please send a 100 word precise, or a less than one page outline to Liz **before midnight on September October 15th**. She will forward any received to Peter and Katie.

Students whose first paper is not well executed may be asked to seek a writing tutor; and/or rewrite the paper.

### **Final Term Paper**

The final term paper will be 5 pages, single spaced, 12 pt Times New Roman font, **due midnight, December 15<sup>th</sup>**. The paper should analyse and give recommendations concerning the crises of the Anthropocene from the point of view of any of the three ontologies discussed in the course and/or the orphans.

If you wish to have comments on your proposed brief please send a 100 word precise, or a 1-page annotated outline to Peter and Katie **before 6:00 PM on November 28<sup>th</sup>**. Please put ENVR 630 in the subject line.

## **Weekly Readings and Course Structure**

### **Part One: Worldviews and Thought Lineages**

#### **Week 1, September 5<sup>th</sup>: The Anthropocene and Stories We Live By**

##### **Lecture**

Section 1: *Introductions* Peter Brown and Katie Kish

Section 2: Student self introductions

Section 3: Course organization: Infrastructure;/Structure/Superstructure

Section 4: Key Course Concepts: Peter Brown

Section 5: What is the Anthropocene? Peter Brown

## Readings

- Robert Ayres Chapter 1
- Boulding, K. (1966) Economics of coming spaceship Earth
- Will Steffan et al. (2018). [Trajectories of the Earth System in the Anthropocene](#), PNAS, 115 (33) 8252-8259
- [The Book of Genesis 1-4](#)
- [A new era. Healing the injuries we have inflicted on our planet](#). By Thomas Berry.

## Further References:

- [Determining features of the ecozoic era](#).
- [The Universe Story](#) by Swimme and Berry.
- Oldfield, F., et al. (2014). [The Anthropocene Review: Its significance, implications and the rationale for a new transdisciplinary journal](#). *The Anthropocene Review*, 1(1), 3-7.

## Week 2, September 12<sup>th</sup>: The Judeo-Christian Worldview

### Lecture

Section 1: The View from the Vatican, Clerics, and Some Critics, Peter Brown

### Readings

- Robert Ayres Chapter 2
- Francis. (2015). [Encyclical Letter \*Laudato Si'\* of the Holy Father Francis On Care For Our Common Home](#).
- [The Sermon on the Mount, Matthew 5-7](#).
- Goodin, R. E. (1985). Chapter 5: Vulnerabilities and Responsibilities. *Protecting the vulnerable: a reanalysis of our social responsibilities*. Chicago: University of Chicago Press.
- [Thomas Berry's Earth Spirituality and the "Great Work"](#) by Andrew J. Angyal.

### Further References

- Stanley, J., et al. (2009). *A Buddhist response to the climate emergency*. Boston: Wisdom Publications.
- [Religious Statements on Climate Change](#).
- [Islamic Declaration on Global Climate Change](#), from the International Islamic Climate Change Symposium.
- [To the Jewish People, to all Communities of Spirit, and to the World: A Rabbinic Letter on the Climate Crisis](#).

## Week 3, September 19<sup>th</sup>: Critics and Consequences

### Lecture

Water, is "Stewardship" Enough?

Invited lecturer: Jeremy Schmidt / Peter Brown

### Readings

- Robert Ayres Chapter 3

- White, Lynn. (1974) The historical roots of our ecologic crisis. *Ecology and religion in history*. New York: Harper and Row.
- Singer, P. (1975). Chapter 5: Man's Dominion: a short history of speciesism *Animal liberation*. New York: Ecco.
- Merchant, C. (1995). Reinventing Eden: Western Culture as a Recovery Narrative. In W. Cronon (Ed.), *Uncommon ground: toward reinventing nature*. New York: W.W. Norton & Co.
- Hardin, G. (1976) "Carrying Capacity as an Ethical Concept" *Soundings: An Interdisciplinary Journal*. vol. 59, No. 1: 120-137

#### Further References

- [The Earth Charter: An Ethical Framework for a Feasible Utopia](#) by Valerio Contini and Enrique Garcia Pascual.
- Brown, P. From the Earth Charter to The Ecozoic.

### **Week 4, September 26<sup>th</sup>: How Is Life Possible in an Entropic Universe?**

#### **Lecture**

The Miracle of Life? Peter Brown & Katie Kish

#### **Readings**

- Robert Ayres Chapter 4
- Schrodinger, E. (1944). Chapter 6: Order, Disorder and Entropy. *What is life? The physical aspect of the living cell*. Cambridge: Cambridge University Press.
- Schneider, E.D, Kay, J.J., (1995). Order from Disorder: The Thermodynamics of Complexity in Biology, in Michael P. Murphy, Luke A.J. O'Neill (ed), *What is Life: The Next Fifty Years. Reflections on the Future of Biology*, Cambridge University Press, pp. 161-172
- Chaisson E. (2013) Using complexity science to search for unity in the natural sciences. In Lineweaver, Davies and Ruse (Ed.), *The Self-Organizing Universe: Cosmology, Biology, and the Rise of Complexity*. Cambridge University Press.
- Liu, J., Dietz, T., Carpenter, S., Alberti, M., Folke, C., Moran, E., Pell, A. N., Katz, T., Ostrom, E., Taylor, W. (2007). Complexity of Human and Natural Systems. *Science*. 317(5844): 1513-1516.

### **Week 5, October 3<sup>rd</sup>: Worldviews, the Baconian Project, Communities of Practice.**

#### **Lecture**

20<sup>th</sup> Century Science and the Social Science and Humanities (Orphans), Peter Brown

#### **Readings**

- Robert Ayres Chapter 5
- [Native American Myths of Creation](#)
- Brown, P.G. & Erickson, J.D. (2016) How Higher Education Imperils the Future: An Urgent Call for Action. *Balance* (2)

- Nordhaus, W. (2007). [Section I: Summary for the Concerned Citizen](#). *The Challenge of Global Warming: Economic Models and Environmental Policy*.
- Brown, P.G. (1992). Climate change and the planetary trust. *Energy policy*, 20(3), 208-222.

## Part Two: The Orphans

### Ethics for the Anthropocene

#### Week 6, October 10<sup>th</sup>: Emancipated Ethics

##### Lecture

Vertical Religion and the Problems of Deontological and Consequentialist Ethics,  
Peter Brown

##### Readings

- Robert Ayres Chapter 6
- [The Lord's Prayer, Matthew 6:9-13](#)
- [The Ten Commandments, Exodus 20](#)
- Immanuel Kant, (1785). Abbott (Translator). Preface. [Fundamental Principles of the Metaphysics of Morals](#).
- John Stuart Mill, (1879). Chapter 2: [What Utilitarianism is](#). *Utilitarianism*.
- Gifford Pinchot, (1914). [The Forester's Point of View](#). *The Training of a Forester*.
- Elliott, H. (2005). Chapter 1: The Factual Refutation of Moral Theories, Chapter 2: A Critique of Western Ethics *Ethics for a finite world: an essay concerning a sustainable future*. Golden, Colo.: Fulcrum Pub.

#### Week 7, October 17<sup>th</sup>: Embedded Ethics

##### Lecture

Thinking Like a Planet, Peter Brown and Katie Kish

##### Readings

- Robert Ayres Chapter 7
- Mohawk Thanksgiving Prayer
- Leopold, A., & Schwartz, C. W. (1966). Part 4: The Upshot *A Sand County Almanac. With other essays on conservation from Round River*. New York: Oxford University Press.
- Santayana, G. (1905). Chapter 10: Piety *The Life of Reason* (Vol. Reason in Religion).
- Brown, P. G. (2012). Ethics for Economics in the Anthropocene.
- Berry, T. (2011). Chapter 9: Ethics and Ecology. *The Great Work: Our Way into the Future*: Crown/Archetype.

## Law and Governance for the Anthropocene

### Week 8, October 24th: Emancipated Law and Governance

#### Lecture

"Property" in the Anthropocene, Peter Brown

#### Readings

- Robert Ayres Chapter 8
- Locke's *The Second Treatise of Civil Government*, [Chapter 5: Of Property](#).
- Locke's *The Second Treatise of Civil Government*, [Chapter 9: Of The Ends of Political Society and Government](#)
- Peter Burdon, 'What is Good Land Use?' (2010) 34(3) Melbourne University Law Review 708
- Brown, P.G. (2004) Are there any natural resources? *Politics and the Life Sciences*. 23(1).

#### Further References

- Furman, G. and Gruenewald, D.A. (2004). Expanding the Landscape of Social Justice: A Critical Ecological Analysis. *Educational Administration Quarterly*. 40(1): 47-76.

### Week 9, October 31<sup>st</sup>: Embedded Law and Governance

#### Lecture

From Environmental to Ecological Law

Visiting lecturer: Dr. Geoffrey Garver

#### Readings

- Robert Ayres Chapter 9
- *Unsettling Canada*, Arthur Manuel, selections
- Peter Burdon, *Earth Jurisprudence*, Chapter 4, "A Theory of Earth Jurisprudence."
- Brown, P.G. & Garver, G. (2008) Chapter 5: Governance: New ways to stay in bounds and play fair, *Right Relationship: Building a Whole Earth Economy*
- Rivers, L. [Nature in Court: Conflict Resolution in the Ecozoic](#).
- Beaulac, S. (2004). The Westphalian Model in Defining International Law: Challenging The Myth. *Australian Journal of Legal History*, 8(2).

#### Further References

- Mock, W. B. T. (2011). Treaty of Westphalia. In D. K. Chatterjee (Ed.), *Encyclopedia of global justice*. Dordrecht; New York: Springer.

## Economics for the Anthropocene

### Week 10, November 7<sup>th</sup>: Emancipated Economics

#### Lecture

Ecological Economics, Ethics, and Justice, Katie Kish

#### Readings

- Robert Ayres Chapter 10
- Hayek, F. (1975). Summary by the Author. *The Road to Serfdom*. [Chicago]: University of Chicago Press.
- Tietenberg, T. H., & Lewis, L. (2012). Chapter 1: Visions of the Future *Environmental & natural resource economics*. Upper Saddle River, N.J.: Pearson Education.
- Brown, [Democracy in the Anthropocene](#). *Center for Humans & Nature*

### Week 11, November 14<sup>th</sup>: Embedded Economics

**Lecture:** Energy and Economics, Stephen Quilley and Katie Kish

#### Readings

- Robert Ayres Chapter 11
- Berkes, F. (1999). Chapter 5: The Cree Worldview "from the inside". *Sacred ecology: traditional ecological knowledge and resource management*. Philadelphia, PA: Taylor & Francis.
- Brown, P.G. & Garver, G. (2008) Introduction and Chapters 1-4, *Right Relationship: Building a Whole Earth Economy*
- Gowdy, J & J. Erickson. (2005). The Approach of ecological economics *Cambridge Journal of Economics* (29): 207-222.
- Kish and Quilley (2018). Wicked Dilemmas of Scale and Complexity in the Politics of Degrowth. *Ecological Economics*. 44.
- William Ophuls, *Requiem for Modern Politics*, Introduction.

### Week 12, November 21<sup>st</sup>: Consilience

#### Lecture

“Is a Unified Interpretation of Reality Possible? Is it desirable?”, Peter Brown and Katie Kish

#### Readings

- Robert Ayres Chapter 12
- Wilson, E. O. Chapters 1,2 and 12 from *Consilience: The Unity of Knowledge*
- Sideris, L. (2015). [Science as Sacred Myth? Ecospirituality in the Anthropocene Age](#). *Journal For The Study Of Religion, Nature And Culture*, 9(2).
- Berry, T. (1992). Art in the Ecozoic. *Art Journal*. 51(2):46-48.

## **Week 13, November 29<sup>th</sup>: Life's Earthly Prospects.**

**Student presentations:** Each student presents a 10-minute summary of their view of how humanity should respond to the Anthropocene. This may be based on the same subject as their final brief for the course.

### **Readings**

- Robert Ayres Chapter 13
- Brown, P. G., & Timmerman, P. (2015). Conclusion. Continuing the Journey of Ecological Economics: Reorientation and Research. *Ecological economics for the anthropocene: an emerging paradigm*. New York: Columbia University Press.
- Lydon, A. T., (1992). [Cosmology and Curriculum: A Vision for an Ecozoic Age](#). LSU Historical Dissertations and Theses: 5449.
- Kool, R. (2013). [Limits to Growth, environmental science and the nature of modern prophecy](#). *Ecological Economics*, 85, 1-5.
- Matthew Kearnes & Thom van Dooren (2017) Rethinking the Final Frontier: Cosmo-Logics and an Ethic of Interstellar Flourishing, *GeoHumanities*, 3:1, 178-197, DOI: 10.1080/2373566X.2017.1300448
- [The Book of Revelations](#)

### **Statement on Academic Integrity**

McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see <http://www.mcgill.ca/integrity/> for more information).

### **Language Requirements**

In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.