INTRODUCTION TO SUSTAINABLITY STUDIES (STS363 AND STS363H)
PROGRAM IN SCIENCE, TECHNOLOGY, AND SOCIETY
NEW JERSEY INSTITUTE OF TECHNOLOGY
FALL 2015

Organizational Details

Instructor: Dr. Maurie Cohen
Time: Tuesdays, 6–9pm
Room: FMH 207
Course Website: http://moodle.njit.edu

Office Location: Cullimore Hall 427
Office Hours: Tuesdays, 3–5pm
Telephone: 973.596.5281
E-mail: mcohen@njit.edu

Overview

Over the past three decades, the pursuit of sustainable development has become a prominent objective for many policy makers concerned with issues at the intersection of society, economy, and environment. The international community has created new institutions to foster sustainability and reoriented the focus of existing organizations. At the local level, numerous communities have begun to implement initiatives to facilitate more sustainable land-use practices and businesses have taken incremental steps to reduce the adverse impacts of their operations. Despite this progress, sustainable development remains an ill-defined (perhaps even elusive) concept and evidence of unambiguous achievements—especially in the United States—can be difficult to ascertain. Moreover, developed and developing countries have formulated largely different (and potentially incompatible) agendas with which to engage with the notion of sustainability. Large countries with emergent economies, most notably China, India, and Brazil, pose especially vexing dilemmas. This course devotes primary attention to the challenges that sustainable development holds for affluent countries (the so-called G-20). We examine the intellectual roots of the concept and explore why it has become a central feature of international politics and policy planning in such a relatively short period of time. Of additional interest is how the sustainability agenda is likely to evolve over the next few decades given the onset of anthropogenic climate change and increasingly pervasive biophysical constraints on economic growth.

Required Readings

Dresner, Simon. 2008. *The Principles of Sustainability*, 2nd ed. London: Earthscan (available in paperback; ISBN 9781844074969) (Note: if you are able to locate an inexpensive second-hand copy of the first edition of this book that will be fine).

McDonough, William and Michael Braungart. 2013. *The Upcycle: Beyond Sustainability—Designing for Abundance*. New York: North Point Press (available in paperback; ISBN 0865477485).

Jackson, Tim. 2009. *Prosperity Without Growth: Economics for a Finite Planet*. London: Earthscan [available in both hardback (ISBN 9781849713238) and paperback (ISBN

9781844078943) and at http://www.sd-commission.org.uk/publications.php?id=914 (freely downloadable)].

Other readings and multimedia presentations will be available via the course website (http://moodle.njit.edu). Items are organized in weekly folders and can be viewed online or saved to your computer.

Evaluation
The evaluation of student performance is comprised of four components.* Since the course will be conducted in accordance with a seminar format, attendance and participation are especially important.

1. ***Class Attendance (10%):*** Students are expected to attend each class session. You will be required to sign a weekly attendance sheet and late arrival (more than twenty minutes) will be treated as an absence. Each student will be granted two "free absences" during the semester; every subsequent absence will mean a full letter-grade reduction in the attendance portion of your final grade (i.e., three absences is a B, four absences is a C, and so forth).

2. ***Class Participation (35%):*** All students are encouraged to engage actively in class discussions by offering comments, posing questions, and demonstrating familiarity with the course material. Everyone begins the semester with a class-participation grade of zero. Students can earn a maximum of ten points of credit in each of ten class sessions (see schedule below) for a total of 100 points.

3. ***Midterm Exam (25%):*** The midterm is intended to be a "synthesizing experience." As such, I will provide you with an article one week in advance that integrates across the various themes covered during the first half of the semester. On the day of the midterm, I will then give you several questions and you will have the full class session to write your responses (bring your own laptop!). While working on the midterm you will be able to freely consult all course materials including lecture notes, required readings, and multimedia presentations.

4. ***Final Exam (30%):*** The final exam will use the same format described above for the midterm though the scope of the assignment will span the full semester.

**Students enrolled in STS 363H will also be required to prepare a 1000-word review of book of their own selection. Guidance (and approval) of an appropriate book will be provided during the week following the midterm exam. The grade breakdown in these cases will be class attendance (5%), class participation (30%), midterm exam (20%), final exam (25%), and book review (20%).Completed assignments should be submitted with the final exam.*

Important Notices
Students enrolled in this course are forewarned that the consequences of plagiarism or academic misconduct of any kind are severe. Violations will be handled in accordance with the rules outlined in the University Code on Academic Integrity. If you are unfamiliar with these procedures, refer to http://www.njit.edu/education/pdf/academic-integrity-code.pdf.

Final grades are not subject to post-semester adjustment—with the exception of the change of a grading error. Under no circumstances will students be given the opportunity to complete extra-credit papers or other assignments to bolster their final grades.

Course Schedule

Week 1 (September 2): Conceptual and Scientific Foundations

Dresner, *Principles of Sustainability*, Introduction and Chapters 1–2.
Editorial. 2008. Earthstruck. *The New York Times*, 24 December.
Morton, Oliver. 2008. Not-so-lonely planet. *The New York Times*, 24 December.
Zimmer, Carl. 2009. Provocative new study warns of crossing planetary boundaries. *Yale Environment 360.*
Rockström, Johan. 2009. A safe operating space for humanity. *Nature* 461(24):472–475.
McKibben, Bill. 2009. A timely reminder of the real limits to growth. *Yale Environment 360*.

Week 2 (September 9): International Politics of Sustainability

Dresner, *Principles of Sustainability*, Chapters 3–5.

Week 3 (September 16): Measuring Sustainability

Dresner, *Principles of Sustainability*, Chapters 6–8.

Week 4 (September 23): Ecological Modernization

Kolbert, Elizabeth. 2007. Mr. Green: environmentalism's most optimistic guru. *The New Yorker*, January 22.
Lovins, Amory, L. Hunter Lovins, and Paul Hawken. 1999. A road map for natural capitalism. *Harvard Business Review*, May–June, pp. 145–158.
Nijhuis, Michelle. 2015. Is the "Ecomodernist Manifesto" the future of environmentalism. *The New Yorker*, 2 June.
Breakthrough Institute. 2015. *An Ecomodernist Manifesto*. Oakland, CA: Breakthrough Institute.

Week 5 (September 30): Industrial Ecology/Symbiosis

Note: No face-to-face class meeting. For virtual session, review recorded lecture and other materials posted to Moodle.

Frosch, Robert. 1992. Industrial ecology: a philosophical introduction. *Proceedings of the National Academy of Sciences* 89(3):800–803.

Frosch, Robert. 1995. Industrial ecology: adapting technology for a sustainable world. *Environment* 37(10):16–28+34.
Garner, Andy and Gregory Keoleian. 1995. *Industrial Ecology: An Introduction*. Ann Arbor, MI: National Pollution Prevention Center for Higher Education, University of Michigan.
Ehrenfeld, John and Nicholas Gertler. 1997. Industrial ecology in practice: the evolution of interdependence at Kalundborg. *Journal of Industrial Ecology* 1(1):313–337.

Week 6 (October 7): Toward the Next Industrial Revolution?

Note: No face-to-face class meeting. For virtual session, review recorded lecture and other materials posted to Moodle.

McDonough, William and Michael Braungart, *The Upcycle: Beyond Sustainability—Designing for Abundance.*

Week 7 (October 14): Sustainability and the Limits of Technological Innovation

The Economist. 2010. Not sure a bright idea. *The Economist*, 26 August.
Vestel, Leora. 2010. Consumers buy more efficient refrigerators, but keep the old ones humming. *The New York Times*, 19 March.
Huesemann, Michael. 2015. Why technology can't save us. IFG Teach-in on Techno-Utopianism and the Fate of the Earth (see also the video version of the text at http://www.ratical.org/ratville/AoS/MHuesemann102514.html).
Zehner, Ozzie. 2014. Unclean at any speed. *IEEE Spectrum*, 30 June.
Owen, David. 2010. The efficiency dilemma. *The New Yorker*, 20 December.

Week 8 (October 21): Midterm Exam

Week 9 (October 28): Gross Domestic Product and its Flaws

Clifford Cobb, Ted Halstead, and Jonathan Rowe. 1995. If the GDP is up, why is America down? *The Atlantic*, October.
Zencey, Eric. 2009. GDP RIP. *The New York Times*, 10 August.
Uchitelle, Louis. 2008. Hey big number, make room for the rest of us. *The New York Times,* 31 August.
Gertner, Jon. 2010. The rise and fall of the GDP. *The New York Times Magazine*, 13 May.

Week 10 (November 4): Is a Steady-State Economy Possible…Inevitable?

Wolf, Martin. 2012. Is unlimited growth a thing of the past? *Financial Times*, 2 October.

Gordon, R. 2012. Is economic growth over? Faltering innovation confronts the six headwinds. Center for Economic Policy Research, Policy Insight #63.

Speth, James Gustave. 2008. Modern capitalism: out of control, pp. 46–66 in *The Bridge at the Edge of the World: Capitalism, the Environment, and Crossing from Crisis to Sustainability*. New Haven, CT: Yale University Press.

Nagourney, Adam, Jack Healy, and Nelson Schwartz. 2015. California drought tests history of endless growth. *The New York Times*, 4 April.

Week 11 (November 11): Sustainability, Consumption, and Debt

Chappells, Heather and Frank Trentmann. 2015. Sustainable consumption in history: ideas, resources, and practices, pp. 51–69 in Lucia Reisch and John Thøgersen, Eds., *Handbook of Research on Sustainable Consumption*. Northampton, MA: Edward Elgar.

Assadourian, Erik. 2013. Re-engineering cultures to create a sustainable civilization, pp. 113–125 in *State of the World 2013: Is Sustainability Still Possible*. Washington, DC: Island Press.

Maniates, Michael. 2002. Individualization: plant a tree, buy a bike, save the world? pp. 43–66 in Thomas Princen, Michael Maniates, and Ken Conca, Eds. *Confronting Consumption*. Cambridge, MA: MIT Press.

Schor, Juliet and Connor Fitzmaurice. 2015. Collaborating and connecting: the emergence of the sharing economy, pp. 410–423 in Lucia Reisch and John Thøgersen, Eds., *Handbook of Research on Sustainable Consumption*. Northampton, MA: Edward Elgar.

Week 12 (November 18): New Politics of Progress I

Jackson, *Prosperity Without Growth*, pp. 1–102.

November 25: No Class Session Due to Thanksgiving Schedule Shift

Week 13 (December 1): New Politics of Progress II

Jackson, *Prosperity Without Growth*, pp. 103–207.

Week 14 (December 9): Sustainability Transitions

Dresner, *Principles of Sustainability*, Chapter 9.

Raskin, Paul, Tariq Banuri, Gilberto Gallopín, Pablo Gutman, Al Hammond, Robert Kates, and Rob Swart. 2002. *Great Transition: The Promise and Lure of the Times Ahead*. Boston: Stockholm Environmental Institute and Tellus Institute (downloadable at http://www.tellus.org or via Moodle).

Distribution of Final Exam