

Fall 2021

STS 363-101: Introduction to Sustainability Studies

Maurie Cohen

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Introduction to Sustainability Studies (STS 363)
Program in Science, Technology, and Society
New Jersey Institute of Technology
Fall 2021

Organizational Details

Instructor: Dr. Maurie Cohen

Time: Tuesdays, 6–8:50pm

Room: FMH 313

Course Website: <https://canvas.njit.edu>

Prerequisites: HUM 102 with a grade of C or higher and one History and Humanities GER 200-level course with a grade of C or higher.

Course credit: This course satisfies the three-credit 300 GER in History and Humanities and counts toward meeting the requirements of the Minor in Environmental and Sustainability Studies and the Minor in Science, Technology, and Society

Office Location: Cullimore 431

Office Hours: Tuesdays, 3–5pm and by appointment (e-mail me in advance)

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, there have been numerous initiatives implemented 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, Indonesia, 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; see <http://www.g20.org>). We examine the intellectual roots of the concept and explore why it has become a central feature of global politics and policy planning in such a relatively short period. 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, as well as the challenges posed by the COVID-19 pandemic.

Course Learning Outcomes

- To understand the political and scientific origins of sustainable development/sustainability.
- To appreciate the role and inseparability of environmental, social, and economic sustainability.

- To recognize the obstacles and challenges of sustainability in high-income and low-income countries.
- To apprehend both the potentials and limitations of technological innovation as a pathway toward a more sustainable future.
- To develop an ability to assess the relationship between economic growth, resource utilization, and biophysical limits.

Required Readings

Cohen, Maurie. 2021. *Short Introductions: Sustainability*. Cambridge: Polity Press (available at the campus bookstore and through online sources) (ISBN 978-1-5095-4032-7). *All proceeds from sale of the book are donated to the [Alliance for New Jersey Environmental Education](#).*

All other readings and multimedia presentations are available via the course website (<https://canvas.njit.edu>) and organized into weekly folders.

Evaluation

The evaluation of student performance is comprised of five components: class attendance, class participation, midterm exam, final exam, and book review.

1. **Class Attendance (10%):** Students are expected to attend each class session and a record will be kept (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 (20%):** Students are encouraged to engage actively in both in-class and online discussions by offering comments, posing questions, and demonstrating familiarity with the course material. If participation is insufficient, we will shift to weekly quizzes at the start of class and the aggregate score on these assessments will become the basis for the class-participation portion of final grades. Feel free to ask me for a periodic performance appraisal if you would like feedback on participation standing.
3. **Midterm Exam (20%):** The midterm is intended to be a “synthesizing experience” and there will be a combination of multiple-choice questions and an essay to complete. For the latter part, I will provide a few articles 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 based on the reading and you will have ninety minutes to write your responses. While working on this part of the midterm you will be able to freely consult all course materials including lecture notes, required readings, and multimedia presentations.
4. **Final Exam (25%):** The final exam will use the same format described above for the midterm though the scope of the assessment will span the full semester.

5. **Book Review (25%):** Students are required to write a review (approximately 1000 words) of a recently published book of their own choosing. The selected book should examine the social, political, and/or technical dimensions of a particular sustainability challenge (e.g., climate change, biodiversity, social equity, inequality, gender empowerment). Book selections should be submitted for approval by November 16.

Final Grading Rubric

90–100 = A

87–89 = B+

80–86 = B

77–79 = C+

70–76 = C

60–69 = D

< 60 = F

** As a general rule, a grading curve is not applied.*

Statement on Academic Integrity

“Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: <http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>.”

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.

If you are uncertain as to what constitutes plagiarism, please refer to the article entitled “Plagiarism Lines Blur for Students in Digital Age” available on the course website.

Other Policies

- **COVID-19:** If you become ill with COVID-19 or have had close contact with someone who is infected you will not be permitted to attend class. Students who find themselves in either of these situations should promptly contact the Office of the Dean of Students and you will be accommodated in accordance with NJIT policies regarding such matters.
- **Make-up exams:** I am decidedly unenthusiastic about allowing make-up exams and will only do so in extraordinary cases.
- **Incompletes:** A grade of incomplete is only assigned in the face of extremely extenuating circumstances. Students facing such a situation should bring the matter to my attention at the earliest possible opportunity.

Course Schedule

Week 1 (September 7): Conceptual and Scientific Foundations of Sustainability

- Overbye, Dennis. 2018. Apollo 8's *Earthrise*: the shot seen round the world. *The New York Times*, December 21.
- Boulton, Matthew and Joseph Heithaus. 2018. We are all riders on the same planet. *The New York Times*, December 24.
- Rockström, Johan. 2009. A safe operating space for humanity. *Nature* 461(24):472–475.
- Steffen, Will. 2015. Planetary boundaries: guiding human development on a changing planet. *Science* 347(6223):735–746.

Week 2 (September 14): International Politics and Institutions

- Cohen, Maurie. 2021. What is sustainability? pp. 1–21 in *Short Introductions: Sustainability*. Cambridge: Polity Press.
- Du Pasani, Jocabus. 2006. Sustainable development: historical roots of the concept. *Environmental Sciences* 3(2):83–96.
- Scoones, Ian. 2016. The politics of sustainability and development. *Annual Review of Environment and Resources* 41:293–319.

Week 3 (September 21): Are We There Yet? Measuring Sustainability

- Cohen, Maurie. 2021. The science of sustainability pp. 22–46 in *Short Introductions: Sustainability*. Cambridge: Polity Press.
- Heal, Geoffrey. 2012. Reflections: defining and measuring sustainability. *Review of Environmental Economics and Policy* 6(1):147–163.

Week 4 (September 28): Sustainability and Technoscience I – The Theory and Practice of Ecological Modernization

- Cohen, Maurie. 2021. Engineering a more sustainable future, pp. 47–67 in *Short Introductions: Sustainability*. Cambridge: Polity Press.
- Kolbert, Elizabeth. 2007. Mr. Green: environmentalism's most optimistic guru. *The New Yorker*, January 22.
- Nijhuis, Michelle. 2015. Is the *Ecomodernist Manifesto* the future of environmentalism. *The New Yorker*, June 2.

Week 5 (October 5): Sustainability and Technoscience II – Industrial Ecology and Earth Systems Engineering

- Krones, Jonathan. 2017. A beginner's guide to industrial ecology. *MIT Undergraduate Research Journal* 15(Spring):19–22.
- Specter, Michael. 2012. The climate fixers: Is there a technological solution to global warming? *The New Yorker*, May 14.

Week 6 (October 12): Sustainability and Technoscience III – Eco-design and the Potential of a Circular Economy

- McDonough, William and Michael Braungart. 1998. The next industrial revolution. *The Atlantic*, October.
- Stahel, Walter. 2016. Circular economy. *Nature* 531:435-437.
- Narberhaus, Micha and Joséphine von Mitschke-Collande. 2017. Circular economy isn't a magical fix for our environmental woes. *The Guardian*, July 14.

Week 7 (October 19): Sustainability and the Limits of Techoscientific Innovation

- 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*, June 30.
- Owen, David. 2010. The efficiency dilemma. *The New Yorker*, December 20.
- Saxe, Shoshanna. 2019. I'm an engineer, and I'm not buying into "smart" cities. *The New York Times*, July 16.

Week 8 (October 26): Midterm Exam

Week 9 (November 2): 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.
- Gertner, Jon. 2010. The rise and fall of the GDP. *The New York Times Magazine*, May 13.
- Lederer, Katy. 2015. The end of GDP? *The New Yorker*, September 9.
- Leonhardt, David. 2018. We're measuring the economy all wrong. *The New York Times*, September 14.

Week 10 (November 9): Is a Steady-State Economy Possible...Inevitable?

- Wolf, Martin. 2012. Is unlimited growth a thing of the past? *Financial Times*, October 2.
- Daly, Herman. 2008. A steady-state economy. *The Ecologist*, April 1.
- 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.

Week 11 (November 16): Toward Sustainable Consumption and Lifestyles

- 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.

Roberts, David. 2019. Cities are beginning to own up to the climate impacts of what they consume. *Vox*, July 1.

Book-review proposal due

Week 12 (November 23): Prosperity, Economic Growth, and Sustainability

Jackson, Tim. 2013. Prosperity without growth, pp. 105–128 in Philip Lawn, Ed., *Globalisation, Economic Transition and the Environment: Forging a Path to Sustainable Development*, Northampton, MA: Edward Elgar.

Alexander, Samuel. 2014. Life in a “degrowth” economy, and why you might actually enjoy it. *The Conversation*, October 1.

Week 13 (November 30): Forecasting the Future and Designing Pathways for Sustainability Transitions

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.

Week 14 (December 7): Sustainability and COVID-19

Cohen, Maurie. 2020. Does the COVID-19 outbreak mark the onset of a sustainable consumption transition? *Sustainability: Science, Practice, and Policy* 16:1–3.

Cohen, Maurie. 2021. Afterward: Sustainability in the Era of COVID-19, pp. 144–149 in *Short Introductions: Sustainability*. Cambridge: Polity Press.

Lehman, Paul et al. 2021. Making the COVID-19 crisis a real opportunity for environmental sustainability. *Sustainability Science*, published July 12.

Book review due

Week 15 (December 14): Final Exam