EnvS 5550/6550: Sustainability: Concepts and Measurement

Spring, 2016: Wednesdays, 2-4:50 PM

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Office Hours: NR 238, Tuesdays and Wednesdays, 10:30-12:30, or by appointment.

Syllabus

Sustainability is the science that implements peoples’ values, aspirations, and desires for continuity. Sustainability addresses how people can maintain valued parts of their way of life in the face of environmental and political problems such as climate change, energy transitions, and conflict.

Sustainability offers hope for our future, but that future is not easily achieved. Sustainability efforts derive from human values. Yet people have different visions of the future they want, and there is often conflict between short-term welfare and long-term continuity. Sustainability programs may founder on social conflict, regardless of initial intentions. Sustainability efforts succeed or fail on questions that are at the core of human sociality: commonality of interest, consensus, conflict, costs, sacrifices, and values.

In this course, students will learn how to comprehend and address rigorously the human dimensions of sustainability programs. Students will acquire knowledge and skills in the following areas:

- Trends in human resource use; incentives to use or conserve resources.
- The relationship of values to sustainability goals.
- Sustainability in the public arena; information flow; education; scale of sustainability efforts.
- Sustainability conflict; costs and consequences of conflict.
- The politics of sustainability; special interests; governance; policy development and implementation.
- Formal institutions and sustainability; institutional inertia; decision-making within institutions.
- Costs and benefits of sustainability efforts; problem solving and sustainability; sustainability and complexity; development of sustainability efforts over time.
- Alternative approaches to the future; technical innovation and the future; social innovation and the future.
- Measuring and monitoring the achievement of social sustainability.
Texts


Other readings as assigned. Readings will be on Canvas.

Learning Objectives

1. Understand the relationship of values to sustainability; how values influence sustainability goals; and how values affect sustainability monitoring. Be able critically to evaluate sustainability goals and monitoring.

2. Understand the role of energy and other resources in sustainability; how resource use and/or conservation affect sustainability outcomes; and how technological innovation affects sustainability.

3. Learn how sustainability emerges from peoples’ efforts to solve major problems.

Expectations and Evaluation

Students will be expected to (a) participate fully in seminar discussions; (b) read assigned literature, report on the literature to the class, and lead class discussions based on the readings; (c) conduct a research project that applies concepts discussed in the class to test cases; (d) present the results of this project to the class; and (e) write a paper reporting the results of the research. Graduate students and undergraduates will be graded in separate pools.

Weekly Readings

Week 1 (1/13): Organization of the Course and Introduction to the Topic

Week 2 (1/20)

Week 3 (1/27)

Readings: Brown, pp. 143-238; Owen, The Efficiency Dilemma; Tainter, Allen, and Hoekstra, Energy Transformations.

Week 4 (2/3)

Readings: Brown, pp. 241-268; “The Launch of Spaceship Earth;” “You Can’t Take it With You.”

Week 5 (2/10)

Reading: Tverberg, Oil and Financial Crisis; “Growth: The Great Stagnation;” “Innovation Doing Too Little for Incomes;” “Was it too Soon to be Sustainable?”

Week 6 (2/17)

Readings: Zencey, Theses on Sustainability; Alfredson, Green Consumption; Tainter, Jevons Paradox Foreward.

Week 7 (2/24)

Readings: Andrew Potter on McMansions; BBC News Miami Consumption; Hall, Minimum EROI; “Is Walking More Polluting Than Driving?”

Week 8 (3/2)

Readings: Tainter, Scale and Dependency; Sustainability Emerging Trends; Simon-Ehrlich Wager.

Week 9 (3/16)


Week 10 (3/23)

Readings: Weisman, all.

Week 11 (3/30)

Readings: Montreal Process; “Sustainable Rural Communities”.
Week 12 (4/6)

Readings: “Energetic Limits to Economic Growth;” “Going Green But Getting Nowhere;” EnvS Sustainability Framework; Local Food.

Week 13 (4/13)

Reading: Drilling Down, chapters 1, 5, 6, and 9.

Weeks 14 and 15—Student Presentations