

Facets of Sustainability

What is important now is to recover our senses.
We must learn to *see* more, to *hear* more, to *feel* more.
-Susan Sontag, *Against Interpretation*

IDS 2154 online
Summer A: May 12 - June 20

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Overview of the Course

Sustainability means much more than recycling and switching off lights. It has implications for what we eat and drink, how we travel, what we study, how we earn our living, what we buy, who we vote for, and how we think and act and feel as individuals, citizens, and as members of diverse communities.

Sustainability is often defined as meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. It is characterized by three overarching concerns: maintaining ecological and environmental health; creating economic welfare; and ensuring social justice. This course introduces the ideas, insights, questions, and challenges associated with the interdisciplinary field of sustainability studies. It addresses the principles and practices of sustainability as approached through a variety of topics and academic fields and features the input of experts, public intellectuals, and community leaders, contributing to as diverse a perspective as possible.

Crucial questions and challenges define our times. Is the earth headed for ecological collapse, and if so, what can be done to avert catastrophe? How can humanity's growing needs be met without mortgaging the future? Are there economically viable ways to ensure equitable, flourishing lives for the citizens of the planet? Is a sustainable world primarily to be achieved through green design and technology, or by changing consciousness and behavior? What are the characteristics of sustainable lives and businesses, and what practical means are at our disposal to achieve these goals? In this course, students will develop answers to such questions by critically and creatively engaging with interdisciplinary texts and recorded lectures, through written assignments, and by way of online debate and discussion.

Facets of Sustainability serves as the gateway course for students in the Bachelor of Arts in Sustainability Studies and the Minor in Sustainability Studies. For information about the Major and Minor in Sustainability Studies, go to <http://sustainability.clas.ufl.edu/>

Primary Outcomes and Focus of Assessments:

1. Gain knowledge of a diverse spectrum of sustainability oriented scholarship, including that in the natural sciences, social sciences, and humanities.
2. Understand the benefits and challenges of multidisciplinary efforts to address and integrate environmental, economic, and social concerns in relation to an array of professional fields and concrete practices in government, business, civil society, and the cultural arena.
3. Critically assess, evaluate and utilize interdisciplinary knowledge and systems thinking that can facilitate adaptation in a rapidly changing world at local, regional, national, and global levels.
4. Demonstrate effective communication of a broad range of approaches, frameworks, metrics, principles, and practices of sustainability.

Learning Skills Practiced:

This course aims to equip students with the skills required to pursue sustainability in a quickly changing world. These skills include:

- critical and creative thinking skills
- network learning and interdisciplinary inquiry skills
- collective deliberation and communication skills

Students will be encouraged to develop their perceptiveness, appreciation of diverse perspectives, and understanding of complex systems while clarifying their personal values and public commitments.

Interactive Components

Blog Prompt:

Each student will contribute a blog prompt to the class, to which other students can respond. These prompts will be at least 250 words, reference an important current event issue relevant to that week's readings, and include reference to at least three hyperlinked sources on the web that students can click on to learn more about the topic, and the basis for the prompt. The schedule for blog prompt due dates will go out at the end of the first week of class. **(5pts)**

Blog Post

Each student will contribute to the blog at least once a week, by responding to the blog prompts that are emailed to the class. Blog posts are to be at least 250 words. Students are encouraged to contribute to the blog more often, and there is no word minimum (or limit) when they do so. To receive all 8 points you will have to do more than the minimum requirement for this part of the class. Doing the bare minimum properly will earn you a maximum of 6 points. **(8pts)**

Blog Comment

Each student will comment at least twice each week (starting the second week) on the blog post of one of their fellow students. **(5 pts)**

Tweet

Students should tweet twice a week to our hashtag, (#ids2154). These tweets should occur when students are going about their daily lives, and discover a situation, event, experience, media, etc. That is relevant to the material covered in the course. I encourage students to include photos in these tweets. **(5pts)**

Assessment

- 5 Short timed quizzes (twelve questions). Each quiz is worth 4 points for a total of **20 points**
- Short answer exam each week (three questions). Each exam is worth 3 points for a total of **18 points**

- Mapping Project Research Paper and Pitch for the project **(5pts)**. The pitch is a three slide provocative defense of why the topic is interesting and important. It should show that some preliminary research has been done. The outline presents the timeliness and relevance to sustainability for the project you have chosen, as well as a plan for research and writing.

Due by noon June 6.

- Sustainable business or project plan **(30pts)**. No more than 2000 words.
- Attend one outside speaker event: Each student will attend at least one event related to sustainability during the term, and write up a 250 word summary. **(2 pts)**
- Attend at least one sustainability-related community service event and write up a 250 word summary of what you did and what kind of larger impact this type of service has. **(2 pts)**.

Grading Scale

Minimum %	Grade
95	A
90	A-
87	B+
83	B
80	B-
77	C+
73	C
70	C-
67	D+
63	D
60	D-

Course Schedule:

Module 1- Introduction to Sustainability in the Anthropocene

Objectives

- ¥ • The first module is meant to orient us to the most fundamental challenges and solutions of sustainability. It includes an overview of the physical, ecological, and systems-based science that is at the root of sustainability thinking. We will grapple with the difficult question of how best to address wicked problems, and we will talk about “The Anthropocene” - the fact that humans now impact all aspects of the earth system.
- ¥ By the end of the module you will also be able to:
 - ¥ • Explain the mechanisms behind the collapse of Easter Island.
 - ¥ • Explain the history of the concept “sustainability.”
 - ¥ • Describe why equity and fairness are essential to sustainability.
 - ¥ • Identify the essential components of their ecological footprint.
 - ¥ • Explain how resource degradation and environmental degradation affect human well-being.
 - ¥ • Explain how systems are able to generate predictable behaviors and are able to display homeostasis.
 - ¥ • Compare and contrast linear and non-linear growth and their effects on society’s ability to manage the environment.
 - ¥ • Identify the characteristics of systems that make it difficult to solve environmental challenges and why potential solutions sometimes make the problem worse.
 - ¥ • Explain how the scientific method is able to evaluate competing explanations for observable phenomena.
 - ¥ • Explain how a convection cell can be used to explain patterns of circulation in the atmosphere, ocean, and Earth’s surface.
 - ¥ • Explain how gradients in incoming solar energy generate predictable patterns of temperature, precipitation, and winds.
 - ¥ • Describe the factors that cause ocean water to circulate horizontally and vertically.
 - ¥ • Describe how the energy from Earth’s interior causes matter to flow from the interior to

the surface and back again.

- ¥ • Compare and contrast changes in atmospheric and oceanic circulation that are associated with El Nino events.

Video Lectures

- ¥ • Watch Introductory Instructor Videos 1 and 2
- ¥ • Watch Will Steffen on “The Anthropocene” <http://tedxtalks.ted.com/video/TEDxCanberra-Will-Steffen-The-A>

Readings

- ¥ • Online Current Events Reading TBD (these are updated in real time from online periodicals)
- ¥ • Chapters 1,3,4 in Trunity text (including embedded videos)
- ¥ • Thiele, Introduction and Chapter 1

Resources

- ¥ • N/A

Assignments

- ¥ • Tweet at least twice
- ¥ • Blog 1 due by Friday May 16 (the instructor will email you an invitation to the blog at the beginning of this week. I will also provide the prompt for this first week).

Discussion

- ¥ • Socrative.com discussion for one hour on Thursday May 15 - this is your chance to pose questions to the instructor and to your class mate. It is like a collective office hour. Attendance is not mandatory, but important information about assignments and course procedures is shared during this time.
- ¥ • Facebook - pose questions to your instructor and classmates via our Facebook group. I field questions from posts and chats throughout the week, and set aside 1 hour on Wednesday for live chatting, to be scheduled via a doodle poll the week before.

Assessment

- ¥ • Take Quiz 1 and Short Answer Exam 1, due Friday May 16

¥

Module 2- Environmental Sustainability

Objectives

- ¥ • The second module focuses on environmental science, including the flow of energy, the roles of biodiversity and succession in biological systems, climate change science, and soil and atmospheric science for sustainability. We will cover water in the Florida specific module, closer to the end of the term.
- ¥ By the end of the module you will also be able to:
- ¥ • Explain how evolutionary strategies can be described in relation to the allocation of energy among six uses.
- ¥ • Compare and contrast the costs and benefits of endothermy versus ectothermy.
- ¥ • Compare and contrast the alternative strategies for the timing and the quantity of energy allocated towards reproduction.
- ¥ • Explain what determines the total biomass of organisms living in a given area and the number of trophic positions present.
- ¥ • Explain why the concentration of toxic materials in living organisms is many times greater than the concentration of those materials in the physical environment.
- ¥ • Explain how specializations limit many species to relatively limited geographical range.
- ¥ • Describe how the presence or absence of other species influences a species range.
- ¥ • Describe how many species are able to co-exist within a limited geographical range.
- ¥ • Explain how temperature, water and light influence the shape and longevity of leaves.
- ¥ • Explain the separation between light and nutrients in aquatic biomes and how this separation, or lack thereof, affects net primary production in various aquatic biomes.
- ¥ • Describe the characteristics of a disturbance that influence their impact on the environment and living organisms.
- ¥ • Describe the mechanisms that cause plant and animal communities to change over time

following a disturbance.

- ¥ • Describe why ecosystems do not always return to their original state following a disturbance.
- ¥ • Describe ways in which scientists evaluate how human activity is stressing ecosystems.
- ¥ • Describe the evolutionary mechanisms that generate new species and the factors that influence biodiversity
- ¥ • Explain how the loss of biodiversity will reduce economic well-being in ways that are often not captured fully by the market.
- ¥ • Describe how human actions reduce biodiversity, by both purposeful action and inadvertent changes.
- ¥ • Compare and contrast three mechanisms for preserving biodiversity

Video Lectures

- ¥ • Watch Instructor Video 3
- ¥ • Watch E.O. Wilson “My Wish: Build the Encyclopedia of Life” http://www.ted.com/talks/e_o_wilson_on_saving_life_on_earth.html
- ¥ • Watch Sylvia Earle “My Wish: Protect Our Oceans” http://www.ted.com/talks/sylvia_earle_s_ted_prize_wish_to_protect_our_oceans.html

Readings

- ¥ • Online Current Events Reading TBD (these are updated in real time from online periodicals)
- ¥ • Chapters 5,7,8,12, in Trunity text (including embedded videos)
- ¥ • Thiele, Chapter 3

Resources

- ¥ • N/A

Assignments

- ¥ • Tweet at least twice
- ¥ • Blog Post 2 due by midnight on Friday May 23
- ¥ • Two blog comments due by midnight on Friday May 23

Discussion

- ¥ • Socrative.com discussion for one hour on Thursday May 22 - this is your chance to pose questions to the instructor and to your class mate. It is like a collective office hour. Attendance is not mandatory, but important information about assignments and course procedures is shared during this time.
- ¥ • Facebook - pose questions to your instructor and classmates via our Facebook group. I field questions from posts and chats throughout the week, and set aside 1 hour on Wednesday for live chatting, to be scheduled via a doodle poll the week before.

Assessment

- ¥ • Take Quiz 2 and Short Answer Exam 2, due by noon on Friday May 23

Module 3- Economic Sustainability

Objectives

- ¥ • The second module focuses on environmental science, including the flow of energy, the roles of biodiversity and succession in biological systems, climate change science, and soil and atmospheric science for sustainability. We will cover water in the Florida specific module, closer to the end of the term.
- ¥ By the end of the module you will also be able to:
- ¥ • Identify the key differences between the circular flow and ecological views of the economy.
- ¥ • Define the four steps of the economic process.
- ¥ • Describe the connection among economic growth, energy, and materials use.
- ¥ • Understand the reasons behind international differences in affluence.
- ¥ • Identify the reasons why green accounting is important for sustainability.
- ¥ • Explain the terms that comprise the IPAT equation.
- ¥ • Identify examples that illustrate how technology can reduce or increase environmental

impact.

- ¥ • Describe the net effect that population growth, affluence, and technological change has had on gasoline use in the United States.
- ¥ • Cite the reasons why firms prefer market-based incentives in environmental policy to command-and-control approaches.
- ¥ • Explain how personal and cultural beliefs affect environmental change.
- ¥ • Compare and contrast the advantages and disadvantages of agriculture relative to hunting and gathering.
- ¥ • Explain how economic and ecological conditions affect agriculture practices and the technology used.
- ¥ • Decide whether green revolution agriculture contributes to or detracts from sustainability
- ¥ • Discuss whether agriculture will be able to feed a population that is projected to grow in numbers and affluence over the next century.
- ¥ • Assess the contradiction that India used to import food to alleviate famines but now exports food, but the number of malnourished individuals has increased
- ¥ • Describe the economic factors that drive deforestation.
- ¥ • Compare and contrast the economic costs and benefits of deforestation.
- ¥ • Describe why the market often generates rates of deforestation in which the costs of deforestations are greater than the benefits.
- ¥ • Explain how linkages between surface water and ground water constrain human efforts to increase water supply.
- ¥ • Explain the effects of overdrafts on water supply in particular and the environment in general.
- ¥ • Explain how the hydrological cycle contributes to the potential for conflict over water.
- ¥ • Describe why the ability to buy and sell permits to emit water pollutants could severely reduce the effectiveness of the Clean Water Act.
- ¥ • Explain how the supply and cleanliness of water supplies affect economic development.

Video Lectures

- ¥ • Watch Instructor Video 4
- ¥ • Watch Robert Costanza (a UF graduate!) speaking at the 2012 Economy Symposium <http://www.youtube.com/watch?v=aQvGyzUqUrA>

Readings

- ¥ • Online Current Events Reading TBD (these are updated in real time from online periodicals)
- ¥ • Wendell Berry's local economy: <http://www.orionmagazine.org/index.php/articles/article/299/>
- ¥ • Chapters 10,11,16,17,18 in Trunity text (including embedded videos)
- ¥ • Thiele, Chapter 6

Resources

- ¥ • N/A

Assignments

- ¥ • Tweet at least twice
- ¥ • Blog Post due by midnight on Friday May 30
- ¥ • Two blog comments due by midnight on Friday May 30

Discussion

- ¥ • Socrative.com discussion for one hour on Thursday May 29 - this is your chance to pose questions to the instructor and to your class mate. It is like a collective office hour. Attendance is not mandatory, but important information about assignments and course procedures is shared during this time.
- ¥ • Facebook - pose questions to your instructor and classmates via our Facebook group. I field questions from posts and chats throughout the week, and set aside 1 hour on Wednesday for live chatting, to be scheduled via a doodle poll the week before.

Assessment

- ¥ • Take Quiz 3 and Short Answer Exam 3, due by noon on Friday May 30

Module 4- Social Sustainability

Objectives

- ¥ • The fourth module covers the social sphere of sustainability, including social justice concerns, education and empowerment, and the role ecological citizens play in contributing to just and sustainable local communities.
- ¥ By the end of the module you will also be able to:
- ¥ • Discuss and compare arguments associated with the global commons.
- ¥ • Explain the connections between poverty, globalization, and sustainability.
- ¥ • Compare and contrast multiple approaches to social justice, its relation to environmental justice, and explain how these traditions relate to the social sphere of sustainability.
- ¥ • Explain the conceptual and practical basis of glocalism in relation to social justice.
- ¥ • Relate contemporary political parties and policies to the sustainability agenda.
- ¥ • Apply the concepts empowerment and transparency to the goals of sustainability education.
- ¥ • Consider the challenges associated with developing national and international laws for sustainable societies.
- ¥ • Compare and contrast the discourses of governance, self-reliance, and international security.
- ¥ • Reflect upon some of the cultural myths associated with biological evolution
- ¥ • Reflect upon the relations between the doctrine of human mastery, the rise of agriculture, and unintended consequences.
- ¥ • Comprehend the importance of story or narrative in the shaping of cultural identity, especially as this relates to environment and society.

Video Lectures

- ¥ • Watch Instructor Video 5
- ¥ • Watch Van Jones on the injustice of plastics: http://www.ted.com/talks/van_jones_the_economic_injustice_of_plastic.html
- ¥ • Watch Hans Rosling on Religion and Babies: http://www.ted.com/talks/hans_rosling_religions_and_babies.html
- ¥ • Watch Richard Wilkinson on economic inequality http://www.ted.com/talks/richard_wilkinson.html

Readings

- ¥ • Online Current Events Reading TBD (these are updated in real time from online periodicals)
- ¥ • Thiele, Chapter 2, 5, and 7
- ¥ • Ishmael Part 1 - 6

Resources

- ¥ • N/A

Assignments

- ¥ • Tweet at least twice
- ¥ • Blog Post due by midnight on Friday June 6
- ¥ • Two blog comments due by midnight on Friday June 6

Discussion

- ¥ • Socrative.com discussion for one hour on Thursday June 5- this is your chance to pose questions to the instructor and to your class mate. It is like a collective office hour. Attendance is not mandatory, but helpful information about assignments and course procedures is sometimes shared during this interaction.
- ¥ • Facebook - pose questions to your instructor and classmates via our Facebook group. I field questions from posts and chats throughout the week, and set aside 1 hour on Wednesday for live chatting, to be scheduled via a doodle poll the week before.

Assessment

- ¥ • Turn in Sustainable Project Pitch, and complete Short Answer Exam 4, both due by noon on Friday June 6

Module 5- Sustainability in Florida Part 1

Objectives

- ¥ • The fifth module covers sustainability issues in the state of Florida. These vary from semester to semester, and are meant to raise awareness of pressing local issues. Here we will also consider the concept of bioregionalism, the problems associated with climate change, and issues of energy use.
- ¥
- ¥ By the end of the module you will also be able to:
- ¥ • Identify the factors that affect the amount of energy that enters and leaves the Earth's atmosphere and how this affects global temperature.
- ¥ • Explain the effect of human activity on climate based changes in storages and flows in global biogeochemical cycles.
- ¥ • Explain how detection and attribution are critical to climate change policy.
- ¥ • Describe the positive and negative effects of climate change on environmental and economic systems.
- ¥ • Describe the factors that determine economically efficient climate change policy and what it implies about the Kyoto Protocol.
- ¥ • Compare and contrast the ways in which the US economy obtains and uses coal, oil, and natural gas.
- ¥ • Compare and contrast the biological and geological processes that form coal, crude oil, and natural gas.
- ¥ • Explain why at some point, global oil production will decline over time rather than simply disappear overnight.
- ¥ • Describe why it is so difficult to estimate the quantity of oil that remains.
- ¥ • Explain the costs and benefits of efforts to reduce US dependence on imported oil.

- ¥ • Explain why crude prices tend to fluctuate and why they are so high now.
- ¥ • Distinguish the differences between nuclear fission and fusion, and why such differences are important in regards to the economics of electricity generation.
- ¥ • Draw a diagram of the nuclear fuel cycle.
- ¥ • Explain why nuclear power plants are not currently being built in the U.S.
- ¥ • Describe the technological and political challenges facing long term nuclear waste disposal.
- ¥ • Explain how human error contributed to the accidents at Three Mile Island and Chernobyl
- ¥ • Understand a range of options of renewable energy sources

Video Lectures

- ¥ • Watch Instructor Video 6
- ¥ • Watch Democracy Now's review of the BP oil spill at http://www.democracynow.org/2012/4/23/gulf_oil_spill_bp_execs_escape

¥ Readings

- ¥ • Read Abrahm Lustgarten's op-ed on the BP-spill at http://www.nytimes.com/2012/04/20/opinion/a-stain-that-wont-wash-away.html?_r=0
- ¥ • Read the article on the BP oil spill at http://www.nola.com/environment/index.ssf/2013/12/bp_oil_spill_natural_resource.html (read the article, don't just watch the short video, because it is virtually unrelated)
- ¥ • Chapter 13, 20, 21, 22, in Trunity text
- ¥ • Read chapter 1 of Bioregionalism and Global Ethics, available from UF libraries as an electronic reader: [Bioregionalism and global ethics : a transactional approach to achieving ecological sustainability, social justice, and human well-being](#)

Resources

- ¥ • N/A

Assignments

- ¥ • Tweet at least twice
- ¥ • Blog Post due by midnight on Friday June 13
- ¥ • Two blog comments due by midnight on Friday June 13

Discussion

- ¥ • Socrative.com discussion for one hour on Thursday June 12- this is your chance to pose questions to the instructor and to your class mate. It is like a collective office hour. Attendance is not mandatory, but helpful information about assignments and course procedures is sometimes shared during this interaction.
- ¥ • Facebook - pose questions to your instructor and classmates via our Facebook group. I field questions from posts and chats throughout the week, and set aside 1 hour on Wednesday for live chatting, to be scheduled via a doodle poll the week before.

Assessment

- ¥ • Quiz and Short Answer Exam 5, both due by noon on Friday June 13

Module 6- Sustainability in Florida Part 2

Objectives

- ¥ • The sixth and final module summarizes the course and closes with a focus on local civic activism. We live at a time of pressing problems, and great potential. This closing module will help you to approach these difficult problems with a proactive and innovative spirit. This is also the place where we discuss the role of technological innovation.
- ¥ By the end of the module you will also be able to:
- ¥ • Explain how linkages between surface water and ground water constrain human efforts to increase water supply.
- ¥ • Explain the effects of overdrafts on water supply in particular and the environment in general.
- ¥ • Explain how the hydrological cycle contributes to the potential for conflict over water.

- ¥ • Describe why the ability to buy and sell permits to emit water pollutants could severely reduce the effectiveness of the Clean Water Act.
- ¥ • Explain how the supply and cleanliness of water supplies affect economic development.
- ¥ • Explain how adaptive management works for sustainability.
- ¥ • Explain the appropriate technology approach to innovation for sustainability.
- ¥ • Compare and contrast different approaches to the role of tradition and history in cultural change.

Video Lectures

- ¥ • If you haven't already, watch Instructor Video 6
- ¥ • Watch all 3 parts of Water's Journey: Hidden Rivers of Florida, available at <http://www.floridasprings.org/expedition/videos/>

¥ Readings

- ¥ • Read the extension initiative of the University of Florida's water institute at: <http://waterinstitute.ufl.edu/extension/index.html>
- ¥ • Read Berry's "Solving for Pattern," available at http://www.hudson.org/files/documents/Berry_Solving_for_Pattern.pdf
- ¥ • Chapter 18 in Trunity text
- ¥ • Chapter 4 in Thiele.
- ¥ • Ishmael part 7 - finish.

Resources

- ¥ • N/A

Assignments

- ¥ • Tweet at least twice
- ¥ • Blog Post due by midnight on Friday June 20
- ¥ • Two blog comments due by midnight on Friday June 20

Discussion

- ¥ • Socrative.com discussion for one hour on Thursday June 19- this is your chance to pose questions to the instructor and to your class mate. It is like a collective office hour. Attendance is not mandatory, but helpful information about assignments and course procedures is sometimes shared during this interaction.

- ¥ • Facebook - pose questions to your instructor and classmates via our Facebook group. I field questions from posts and chats throughout the week, and set aside 1 hour on Wednesday for live chatting, to be scheduled via a doodle poll the week before.

Assessment

- ¥ • Quiz and Short Answer Exam 6, both due by noon on Friday June 20

- ¥ • Final Sustainability Project proposal and research due by midnight on Friday June 20.