

Syllabus – Managing for Environmental Sustainability

(PADM-GP.4467) 1.5 credits

Course Information

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Office Location: Puck 3071

Office Hours (variable): TBD or by appointment

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Class Date: Mondays, 4:55-6:35pm (starting 26 March)

Class Location: TBD

Course Description and Objectives

This 7-week short course provides a general introduction to environmental sustainability and touches on the science, concepts, and strategies used to “green” businesses, organizations, and individuals’ lifestyles. Modern consumers are demanding sustainability from organizations where they utilize or buy goods and services and in which they invest. Modern management and policy leaders, then, need to know what environmental sustainability is and which tools are available to improve the footprint of their organizations and businesses.

By the end of this course, students will be able to think critically about the environmental, societal, and economic impacts of human activities and systems. Students will be familiar with emissions quantification methods and sustainability reporting tools, including certification programs for individuals and businesses. Students will also learn various strategies for service organizations to decrease their environmental footprint and to market those activities to meet the demands of an emerging consumer base.

This course will cover the following topics:

- 1) The Environmental Movement & the Services Provided by Nature
 - ISO standards
 - Life Cycle Assessments and Environmental Product Declarations
- 2) Specific Environmental Concerns of Today
 - Climate change
 - Air pollution
 - Water pollution
 - Waste
 - Human health
 - Diversity of life
- 3) Human Infrastructure Systems and their Impacts
- 4) Sustainability Measurement and Reporting Tools
- 5) Cross-Disciplinary Considerations
 - Environmental justice
 - Global supply chains
 - Misaligned/Misguided environmental policies
- 6) Strategies for Environmental Sustainability in Organizations
- 7) Sustainability in Policy

There are NO PREREQUISITE courses for this course.

Course Text and Materials

There is NO REQUIRED TEXTBOOK for this course. The required readings will come from the following two sources:

- **NYU Classes** will be used to post readings and assignments throughout the semester. Students are encouraged to check it frequently. Many of the readings listed in this syllabus can be found online. In such cases, links can be found on NYU Classes.
- A **Harvard Business Publishing (HBP) coursepack** with case studies and other readings used during the semester. A link to the coursepack can be found in NYU Classes.

The course materials will be drawn from the following books, which are NOT REQUIRED but may be of interest to students who wish to dive further into specific topics:

- Thinking in Systems: A Primer. Meadows, D. 2008. Chelsea Green Publishing.
- The Sustainability Edge – how to drive top-line growth with triple-bottom-line thinking. Apte & Sheth. 2016. University of Toronto Press.
- Fostering Sustainable Behavior- an introduction to community-based social marketing. McKenzie-Mohr. 2015. New Society Publishers.
- The Responsible Company – what we've learned from Patagonia's first 40 years. Chouinard & Stanley. 2012. Patagonia Books.

Course Grading and Requirements

In this course, we will develop an understanding of environmental sustainability through lectures, readings, assignments, and case studies. Final grades are determined by the following course components:

- **Assignments (80%)** **Individual or Team**
There will be four assignments, each worth 20% of your grade. Each assignment will be submitted electronically through NYU Classes either individually or as an assigned team (see details with each assignment). Regardless of submission requirements, students are encouraged to interact and consult with each other on assignments and readings.
- **Classroom Participation (20%)** **Individual**
Interaction with the material and your peers is crucial to engaging in the tough issues of sustainability. You are expected not only to attend class, but to be an **active** participant! This means being engaged, asking questions, bringing critical discussion, and enjoying it. 😊

Assignments Overview

Each assignment is worth 20% of your total grade. More detailed information on the assignments can be seen below.

Assignment 1: Your Moment in Nature

In a long-answer multiple questionnaire, students will be asked to provide a reflection of a moment from their past when they connected with nature. They will then be asked to experience “nature” today (walk through a park, notice a plant/insect/bird around them) and to take a photograph or to capture this in some way.

Assignment 1 creates the connection between the students’ day-to-day life and the natural world and ecosystem services, allowing students to critically reflect on the emotional and physical role the natural world plays in their lives. This appreciation is essential for centering sustainability strategy. There is a larger reason to move towards sustainability that extends beyond the financial gains or customer loyalty. The Earth is crucial not only to our survival, but also to all of the things we utilize and take for granted in our daily lives. Without nature providing vital services (from providing raw materials for our goods to breaking down our waste products after consumption), none of us would exist.

Assignment 2: Infographic Team Project

Students will divide into teams, not greater than 5 people (depending on total size of class). Everyone will be assigned to make an infographic (targeted for release on social media platforms, ex: Twitter) on the science behind and implications of a certain type of environmental emission. The environmental emission will be the same for all groups, so that, as a group, we can select the “best” infographic. Examples of “environmental emissions” include: climate change/global warming, eutrophication, ozone depletion, ground-level ozone formation, air pollution/particulate matter, acidification of water, etc.

A rubric will be provided to help guide the students and to evaluate team submissions. The rubric will likely include: content (descriptive of the science appropriate for a high school-level audience, informative as to the wider implications, and gives some productive ideas for individual action) and format (able to post to social media, creative/fun to view). Students will be given starting resources for both (1) infographic development and software support and (2) literature and web sites describing the basics of the particular environmental emissions chosen for this course period.

Assignment 2 allows students to dig into the science behind environmental impact calculations. Though they will only be exploring one type of environmental emission, they will need to synthesize in-class lectures and reading resources into a meaningful infographic. Teaching is the best way to learn, and an infographic allows students to be creative without formal presentations (for which we do not have the time). This assignment helps students connect human activities with resulting environmental emissions, solidifying the “systems thinking” approach required for environmental sustainability.

Assignment 3: Quantification Techniques

Assignment 3 will allow students to practice some of the quantification techniques (material flow analysis and life cycle assessment) learned in class, while also critically thinking about a real-world example. This assignment will have students complete a basic material flow analysis of a simple system (they will diagram the process of, say, creating electricity or making a hamburger from cow to table). The follow-on will ask them to run a very basic carbon footprint of a similar service (where all numbers

are provided, and they need to go to the website of a tool we have discussed in class to enter in the numbers). Finally, students will be asked to critically assess the claims of a “carbon neutral” business.

Assignment 4: Sustainability Strategies

Finally, Assignment 4 is geared to give the students practice in tailoring sustainability strategies for an organization. This requires students to synthesize what they have learned in this course, and perhaps also build on skills they have learned in other management courses. Students will be given a made up company “case study” and will need to develop a sustainability strategy to address the concerns and goals of both executive leadership and consumers. This will be a 1-2p essay (memo style) as if the students were consultants for the company.

Course Policies

Assignment Submission. All homework answers should be submitted electronically through NYU Classes, unless otherwise noted in class. ***Each should be properly labeled with your name (teammates’ names), the course number, the assignment number, and the date.***

Attendance. You should arrive to class on time with all pre-requisite readings or assignments completed. Any absence must be explained and justified beforehand.

Late assignments. Extensions will be granted only in case of an emergency, out of respect for those who abide by deadlines despite hectic schedules. Late submissions without prior permission will be penalized by 10% of the grade per day (so if you are 1 day late and would have scored 100%, your grade is 90%).

Students with disabilities. Any students requiring accommodation should contact me to make proper arrangements. Please be prepared to share your documentation from the NYU Moses Center for Students with Disabilities (<https://www.nyu.edu/life/safety-health-wellness/studentswith-disabilities.html>).

NYU/Wagner grading policy: <http://wagner.nyu.edu/students/policies/grading>

NYU/Wagner academic integrity policy: <http://wagner.nyu.edu/portal/students/policies/code>

Course Calendar (Schedule at a Glance)

#	Date	Description	Assignments (Due at Start of Class)
1	3/26	The Natural World and the Value of Ecological Systems	
2	4/2	Environmental Emissions	1: Your Moment in Nature
3	4/9	Impacts from Human Systems	
4	4/16	Measurement and Reporting Tools	2: Infographic on environmental problem
5	4/23	Cross-Cutting Issues: Sustainable Development and Environmental Ethics	
6	4/30	Sustainability in your Business: Sustainability Strategy and Marketing	3: Quantification Techniques: Environmental Footprinting
7	5/14 (Finals Week)	Sustainability in Policy: Encouraging Behavioral Changes	4: Sustainability Strategies

Course Schedule (Detailed)

All non-HBR readings can be found in the “Resources” folder of this course in NYU Classes; all HBR cases can be purchased in the HBR Coursepack. (Abbreviations: HBR = Harvard Business Review; TED = Technology, Education, Design; BBC = British Broadcasting Corporation; PBS = Public Broadcasting Service)

<i>W1: Introduction & Background</i>	<i>Readings & Assignments:</i>
<ul style="list-style-type: none"> • Values – Environment / Nature • What Nature does for humanity <ul style="list-style-type: none"> ○ ecosystem services ○ separation of humans from nature in history • Tragedy of the Commons • Basic sustainability theory – triple bottom line, Brundtland report • Human growth and development (consumption vs. population) – global markets • Behavioral changes v. technological solutions • Systems thinking 	<p>Required:</p> <ul style="list-style-type: none"> • Assignment 1: Interact with the environment & a questionnaire (Individual) • Watch: <ul style="list-style-type: none"> ○ Emma Marris TED talk (16 min): https://www.ted.com/talks/emma_marris_nature_is_everywhere_we_just_need_to_learn_to_see_it ○ Pollution Crash Course (10 min): https://www.youtube.com/watch?v=kdDSRRCKMil • Read: <ul style="list-style-type: none"> ○ The Brundtland Report ○ BBC Earth article on overpopulation ○ HBR: Sustainability Key Driver or Performance Frontier <p>Optional:</p> <ul style="list-style-type: none"> • Watch: PBS documentary on Rachel Carson (2 hours): http://www.pbs.org/wgbh/americanexperience/films/rachel-carson/ • Watch: playlist of nature TED talks: https://www.ted.com/playlists/398/reconnect_with_nature • Watch: any TED talk by Hans Rosling (ex: https://www.ted.com/talks/hans_rosling_on_global_population_growth) • Read: (book) Rachel Carson’s <i>Silent Spring</i> (1962)
<i>W2: Today’s Environmental Concerns</i>	<i>Readings & Assignments:</i>
<ul style="list-style-type: none"> • Climate Change • Air Issues <ul style="list-style-type: none"> ○ Ozone depletion (a success story) ○ Smog • Water issues <ul style="list-style-type: none"> ○ Eutrophication ○ Water quality/access ○ Pollution • Land use changes • Waste <ul style="list-style-type: none"> ○ Quantity generated 	<p>Required:</p> <ul style="list-style-type: none"> • Assignment 1 DUE • Assignment 2: Infographic Team Project: develop a tweetable infographic describing a specific environmental issue (Team) • Watch: <ul style="list-style-type: none"> ○ CNN air pollution (1 min): http://www.cnn.com/2017/03/05/health/pollution-child-deaths-who/ ○ Ocean Chemistry (9 min): https://www.ted.com/talks/triona_mcgrath_how_pollution_is_changing_the_ocean_s_chemistry • Read:

<ul style="list-style-type: none"> ○ Treatment, ex: landfills v. incinerators ○ E-waste ● Human health ● Diversity of life on the planet ○ Population stresses and ecology ○ Eagles and DDT (a success story) ○ Failure at large scale 	<ul style="list-style-type: none"> ○ Nature - Biodiversity <p>Optional:</p> <ul style="list-style-type: none"> ● Watch TED talks: <ul style="list-style-type: none"> ○ Al Gore 2008 TED Talk (27 min): https://www.ted.com/talks/al_gore_s_new_thinking_on_the_climate_crisis ○ VOA pollution in Uganda (3 min): http://www.voanews.com/a/pollution-is-silent-killer-in-uganda/2648372.html ○ Plastic Pollution (10 min, 5 min): https://kcts9.org/programs/earthfix/how-much-plastic-do-you-want-in-your-oysters-and-clams https://www.ted.com/talks/dianna_cohen_tough_truths_about_plastic_pollution ● Watch: <u>Tapped</u> movie on bottled water (2009) ● Read: (book) <u>Banning DDT how citizen activists in WI led the way</u>. Berry. 2014. ● Read: Living Planet Report. 2016.
<p><i>W3: Human Systems and their Impacts</i></p>	<p><i>Readings & Assignments</i></p>
<ul style="list-style-type: none"> ● Change in materials used (history) & critical materials ● Energy and fossil fuel consumption ● Buildings ● Food systems ● Transportation ● Businesses and service organizations 	<p>Required:</p> <ul style="list-style-type: none"> ● Watch: Kalundborg industrial ecology example (3 min): https://www.youtube.com/watch?v=1yCYGOxnpSY ● Read: <ul style="list-style-type: none"> ○ HBR: Co-Creating the Future: Dawn of Systems Leadership ● Read (pick one): <ul style="list-style-type: none"> ○ Facilities: reducing carbon footprint ○ Procurement: greening non-product procurement ○ Circular Economy <p>Optional:</p> <ul style="list-style-type: none"> ● Read: (book) <u>The Responsible Company</u>. Patagonia. 2012. ● The other “pick one” readings listed above.
<p><i>W4: Measurement and reporting tools</i></p>	<p><i>Readings & Assignments:</i></p>
<ul style="list-style-type: none"> ● Scope I,II,III ● ISO and other standards ● Systems engineering – material flow analysis; lean/6S (certification potential) ● Environmental Product Declarations ● Carbon Footprinting ● Life Cycle Assessment – certification potential 	<p>Required:</p> <ul style="list-style-type: none"> ● Assignment 2 DUE ● Assignment 3: Quantification Techniques with MFA, LCA, Scoping, etc. ● Read: <ul style="list-style-type: none"> ○ HBR: Amanco Sustainability Reportcard ○ Pick an EPD Example: http://www.environdec.com/en/EPD-Search/ ● Watch:

<ul style="list-style-type: none"> • Handprints • Trade-offs in Impacts and Decision-Making from Data 	<ul style="list-style-type: none"> ○ LCA of Cascades Papers: https://www.youtube.com/watch?v=KrJUpSiCOoU <p>Optional:</p>
<p><i>W5: Cross-Discipline Considerations</i></p>	
<ul style="list-style-type: none"> • Issues in developing countries: sanitation and public health, changes in material resources without corresponding changes in treatment options • Ethical issues: links between environmental emissions and poverty • Sustainability traps: failed policies to address consumption (one-child, forced sterilization, etc.) 	<p>Readings & Assignments:</p> <p>Required:</p> <ul style="list-style-type: none"> • Watch: Chocolate and cocoa farmers (6 min): https://www.youtube.com/watch?v=zEN4hcZutOO • Read: BBC Article on Pacemakers in India • Read: Guardian – Indian population policies • Read: Guardian – Tribes pay brutal price of conservation <p>Optional:</p> <ul style="list-style-type: none"> • Read: Guardian – Clash of cultures • Read: (book) <u>Making Threats – Biofears and Environmental Anxieties</u>. Hartmann. 2005.
<p><i>W6: Developing Sustainable Strategies</i></p>	
<ul style="list-style-type: none"> • Corporate / Organizational responsibility <ul style="list-style-type: none"> ○ Sustainability strategy development ○ Management tools ○ Sustainable/ethical investment accounts ○ Silos and open access ○ Product development and design 	<p>Readings & Assignments:</p> <p>Required:</p> <ul style="list-style-type: none"> • Assignment 3 DUE • Assignment 4: Sustainability Strategies • Read: HBR: Winning Green Frenzy • Read: HBR: Performance Frontier Sustainability Strategy • Read: This website on the UN’s SDGs: https://sustainabledevelopment.un.org/index.php?menu=1300 • Read (pick one): <ul style="list-style-type: none"> ○ Healthcare: HCWH Business Case for Greening ○ Services: Goodman Sustainability in Scandic hotels ○ International Development: ○ Planning: <p>Optional:</p> <ul style="list-style-type: none"> • The other “pick one” readings listed above.
<p><i>W7: Sustainability in Policy</i></p>	
<ul style="list-style-type: none"> • Policies for Sustainability <ul style="list-style-type: none"> ○ COP commitments ○ UK and other national directives ○ US approaches to sustainability policies • Sustainability in Individual Lives 	<p>Readings & Assignments:</p> <p>Required:</p> <ul style="list-style-type: none"> • Assignment 4 DUE • Watch: Alex Steffen TED Talk (18 min): https://www.ted.com/talks/alex_steffen_sees_a_sustainable_future • Read: What does a sustainable future look like?

<ul style="list-style-type: none">○ Behavioral changes○ Activism and group networking● Future of the planet● Careers in sustainability● Course recap	<ul style="list-style-type: none">● Read: This website: http://www.bestcolleges.com/careers/green-jobs/ <p>Optional:</p> <ul style="list-style-type: none">● Read: (book) Leadership for Environmental Sustainability. Redekop. 2010.
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