MGT 6359: BUSINESS STRATEGIES FOR SUSTAINABILITY

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**Availability:** Open-door policy & e-mail or phone

**Course Description:**
Environmental product differentiation opens new markets. Green procurement and total quality environmental management significantly reduce input and operating costs. Product innovation and eco-entrepreneurship are ways of doing well while doing good. These are some of the opportunities.

The cost of landfilling in the US is increasing rapidly. Communities are demanding higher standards of air, water and soil quality. European and Japanese legislation on product take-back and waste exports concerns many US manufacturers. Rising fuel prices make fuel-efficiency a competitive factor. Global warming is changing the way governments and businesses need to think about carbon. These are some of the challenges.

This course takes a holistic view of the interaction of businesses with the environment. It outlines reasons why businesses would want to care about environmental issues, introduces environmental assessment and management tools, and visits topics from various business functions. The main topics that will be covered are:

- Relevant domestic and international environmental legislation  
- Environmental assessment and management tools  
- Corporate environmental programs  
- Sustainable development  
- Environmental marketing  
- Environmental operations  
- Environmental stewardship  
- Closed-loop supply chains

Current issues such as global warming, energy and e-waste will be discussed in the context of a number of cases.

**Who Should Take this Course?**
If you’ve ever asked “What do I need to know about environmental issues to make my company more successful?” this course is for you. And if you haven’t, maybe this is the right time! There are many reasons to care about how businesses interact with the environment - from the basic (cost reduction, compliance) to the inspiring (entrepreneurial opportunities), and this course will get you started on identifying and capitalizing on these opportunities.
Course Outline

The course consists of five modules (Fundamentals, Eco-Efficiency, Product Stewardship, Sustainable Technology and Development, Implementing a Sustainability Strategy). A detailed outline of the sessions is below.

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Readings
The course pack will be ready for purchase the second week of classes and includes the case studies and required readings.

Background Readings
There are no required textbooks for this course. Below are some suggested background readings and relevant journals for your information.

Books:
Silent Spring, Carson
Ecology of Commerce, Hawken
In Earth’s Company, Frankel
Enviro-Capitalist: Doing Good While Doing Well, Anderson and Leal
Cannibals with Forks, Elkington
Capitalism at the Crossroads, Hart
Industrial Ecology, Graedel and Allenby
Environmental Economics: An Elementary Introduction, Turner, Pearce and Bateman
Measuring Corporate Environmental Performance, Epstein
The Skeptical Environmentalist, Lomborg
Mid-course Correction, Anderson

Journals:
Nature: http://www.nature.com/climate/index.html
New Scientist: http://environment.newscientist.com/home.ns
Science: www.sciencemag.org/

Course Format
Except for a few sessions, this class is based on cases and open-ended case discussion. You may be surprised at the seeming lack of teaching points if you have not attended a case-based class before. For those of you unfamiliar with case classes, please read “Learning by the Case Method” distributed in the first session to know what to expect and learn how to prepare. If you miss the first class, please ask me for a copy.

Participation
Because this is a case-based class, it lives or dies by the quality of participation. As a result, you should be well prepared to participate in the discussion. This means reading the materials for that session, thinking about the discussion questions and being creative and entrepreneurial in finding and digesting other relevant material from whatever sources you like to use. To ensure fairness, I will try to grade in-class participation after each session as follows: -1(absent), 0(present but silent), 1(good comment(s)), 2(excellent comment(s)). With 50 people in the class, obviously not everybody can talk every time,
so don’t get stressed if you couldn’t, but at the end of the semester, if you have been a good participant, it will show. I may cold call at times to make sure everybody has a chance to participate or to jumpstart a discussion. There may be pop quizzes at the beginning of some classes on that day’s readings. A correct pop quiz answer adds 1 point to participation.

Classroom Etiquette

Two things are really important to me – arriving on time (unless you have to trek from across campus in 10 min – please let me know at the beginning of the semester if this is the case) and only using technology for class-related reasons (being occupied with browsing, e-mailing, texting, etc. is like being absent).

Guest speakers

We will have a number of guest speakers throughout the semester who will share their experience with us. I request that you show the utmost courtesy to our guest speakers – arriving on time, no browsing, texting, falling asleep, chewing gum, etc. (please forgive me for belaboring the obvious, but all of these have happened in the past!). Dress code is business casual (http://www.career.vt.edu/Jobsearc/BusCasual.htm) when we have speakers. Asking tough questions is fine as long as it’s done respectfully.

Grading

Your grade will be based on three items, weighted as follows:

- Three group assignments: 10% each
- Group project: 45%
- Class participation: 25%

In the assignments, I’m looking for a well-reasoned, structured analysis (please avoid a stream-of-consciousness style). For the group project, your grade is based on four components: breadth and depth of research (the quantity and quality of material you find concerning your topic), quality of analysis, quality of writing (including proper citations) and quality of presentation. In grading group work, I will solicit peer evaluations from all group members, and will assign individual grades based on your relative contribution to the group's work. Please provide proper citations for any outside materials used to avoid accidental plagiarism. If you’re not sure about what plagiarism is or how to include proper citations, you can find out from the web (e.g. gervaseprograms.georgetown.edu/hc/plagiarism.html).

Assignments

There are three group assignments. For expediency, I will assign assignment-related groups after the class roster is finalized (project groups will be different). All the assignments are due early in the semester, to get you into the material quickly, to avoid conflict with deliverables in other classes, and to give you an early sense of what I’m looking for in submitted work. These write-ups should be 2-3 pages long (12pt font, single-spaced, 1in. margins).

Assignment 1: Fishbanks debrief (due before the beginning of Session 4 by e-mail). In the Fishbanks game, you most likely experienced overshoot and collapse of the fishery. Overshoot is the harvesting of resources at rates much higher than the maximum sustainable rate and collapse happens when the process of overshooting lowers the
limit, and it takes a long time for the system to recover. These phenomena have not only happened repeatedly (and are still happening) in fisheries world-wide, but are widespread in many other natural systems. Inspired by, but not limited to, your experience with Fishbanks, please answer the following questions:

1. What are the causes of overshoot? of collapse?
2. What are three other examples of overshoot and collapse and their major causes?
3. Provide well-reasoned arguments on the pros, cons and likely success of three different potential approaches to avoiding these phenomena.

Assignment 2: Global warming (due by 5pm Feb. 2 by e-mail). Based on the articles in Sessions 5 and 6, our class discussions, other relevant material and your own thinking, pick a specific firm, and provide a well-reasoned analysis of what you believe their business risks and opportunities are in the context of the global warming debate, and how various aspects of their business strategy should be reshaped, if at all.

Assignment 3: Allied Signal case writeup (due by the beginning of Session 9 by e-mail). Conduct a case analysis of Allied Signal based on the case discussion questions in the course pack.

**Group project**

The project is an exciting opportunity to learn about a current business issue in more depth. Some projects are company-sponsored or company-inspired, others are generic. It’s fine for the same topic to be chosen by different teams. Project teams will consist of 4 people for the most part. To ensure that all project teams include a mix of disciplines, no more than 2 people from the same discipline should work on the same project. Ideally, the following projects would have MBA participation: Capex Filter, Last-mile GHG Emissions, and Designing a Dress Shoe. The LEED project ideally will include students proficient in statistics or optimization, and a quantitative analysis of carbon pricing and supply chain structure will benefit from modeling and optimization skills (excel-based or other).

**Company-related projects.**

1. Developing a sustainability filter for evaluating capex proposals (suggested to me by a Coca-Cola manager). Capital expenditures refer to money spent to purchase new or upgrade existing physical assets such as equipment or property. For example, opening a new bottling plant, or upgrading the technology in an existing bottling plant, are examples of Coca-Cola’s capital expenditures. Typically, capex requests consist of a project description and ROI and IRR estimates associated with the project. Companies increasingly want to incorporate sustainability considerations in capex evaluations. This project will develop a template for do so. Considerations should include striking a balance between ease of adoption by the company and achieving credibility of measurement. A benchmarking exercise documenting and evaluating the range of approaches used in industry will be part of this project.

2. Designing a Better Woman’s Dress Shoe for Human Health and Environmental Sustainability (sponsored by SHUBI & Shireen Khan). With advanced research in biomechanics and materials, the opportunity exists to design female dress shoes...
(flats and heels) that are better for human health and the environment. It is envisioned that the components of the shoe will either be recycled, recyclable, or biodegradable. After measuring the health, environmental and financial costs associated with different variables, teams should present optimal solution scenarios, including the best materials to use, where to source, where to produce and how materials will be collected and reused or disposed of to minimize environmental impact. The major issues concerning trade-offs, impact on cost and the business model, risks, and end of life disposal and re-use strategies should be identified. End of life re-use and disposal strategies and impact should be compared to those that presently exist for women’s dress shoes. A road map should be prepared showing where further investigation is needed to ensure that Shubi’s processes represents a major step forward in producing dress shoes that are good for consumers and good for the environment.

Non-specific projects.

1. LEED certification for “green” buildings can be obtained at the Silver, Gold and Platinum levels. These are achieved by making “green” choices that each contribute a number of points. It is well-documented that most LEED projects end up having points right above the cutoff at each certification level, suggesting that builders are going for the least cost combination of features that would achieve the needed points. This project will investigate the following questions: How are LEED points determined? What is the environmental implication of the current LEED point structure? Are there typical point collection profiles and do these differ by region? What would be the implications of changing the points allocated to different options? Should points differ by region to achieve different environmental goals? A credible analysis of the last part would require developing a multivariate regression analysis or building an optimization tool that predict features chosen as a function of the points allocated to them.

2. The effect of carbon pricing on supply chain structure. It is well-established that supply chain structures change as a function of economic factors (e.g. cost of labor, tax, tariffs, etc.) This project will investigate how carbon pricing might change the supply chain decisions such as facility location, supplier selection, transportation mode, etc. For example, carbon pricing would penalize electricity generation costs and in turn manufacturing costs in regions that rely heavily on coal (e.g. Georgia) more than those that have made significant investments in low-emission technologies. This project could be more qualitative or quantitative in nature, and done either at an industry level or at a firm level.

3. Last Mile GHG Emissions. The “last mile” (the home delivery portion) accounts for a substantial portion of the distribution emissions per unit delivered. Every day UPS, Fedex, DHL, etc. separately deliver packages to our neighborhoods. What is the potential to reduce GHG emissions if these carriers were to collaborate and combine deliveries? What would be the gain in distribution cost with the status quo? at different levels of carbon prices? How feasible is such a collaboration? What barriers would need to be overcome (organizational, cost accounting, etc.)? Aim for writing a report that you would be excited to present to these companies.
4. Identify and undertake a sustainability project of local interest, e.g. for the City of Atlanta. You may find the following site useful: [http://www.atlantaga.gov/client_resources/greener%20atlanta/atlanta%20green%20city%20initiatives%2020-06.04.07.pdf](http://www.atlantaga.gov/client_resources/greener%20atlanta/atlanta%20green%20city%20initiatives%2020-06.04.07.pdf)

5. Georgia Tech has developed a number of sustainability objectives and initiatives ([http://www.stewardship.gatech.edu/images/2007stewardshipV56.pdf](http://www.stewardship.gatech.edu/images/2007stewardshipV56.pdf)) and joined the Presidents’ Climate Commitment ([http://www.presidentsclimatecommitment.org/about/commitment](http://www.presidentsclimatecommitment.org/about/commitment)). Identify and undertake a sustainability project for Georgia Tech.

**Deliverables**

The deliverables of the project are a final report, an in-class presentation, and a presentation to relevant parties, where applicable. There are no restrictions on report length, but it should be professional, and include an executive summary. You may also choose to deliver other supporting material (spreadsheets, etc.) to the stakeholders where suitable.

**Due Dates**

- January 22: Finalize project teams and choices.
- January 29: Submit proposed project scope, sources, etc. for review and discussion.
- Week of March 1: Submit midstream report and schedule meeting with me.
- April 22, 27, 29: In-class project presentations.
- April 30: Final report due.

**Readings and Discussion Questions**

**Session 3**

Fishbanks simulation instructions

**Session 5**

Green and Competitive, HBS Article, Number 95507

Note on Contingent Environmental Liabilities, HBS Note 794-098

Global Climate Change and Emissions Trading, HBS Note 9-707-015

**Session 6**

It’s Not Easy Being Green, HBS Article, Number 94310

The Challenge of Going Green, HBS Article, Number 94410

Competitive Advantage on a Warming Planet, HBR Article, March 2007

**Session 8**

International Hardware Products, Inc., World Resources Institute.

1. What are the benefits and costs associated with implementing an ISO 14001 environmental management system at IHP specifically and more generally?
2. Which considerations would be most important to IHP corporate executives in deciding whether to fund ISO certification at the Tennessee facility?
Session 9
Allied Signal: Managing the Hazardous Waste Liability Risk, HBS Case 793044

1. How have the government’s hazardous waste regulations affected Allied Signal?
2. Does Allied Signal’s hazardous waste management strategy make sense? Why or why not?
3. What organizational capabilities are necessary to implement such a strategy?
4. Going forward through the mid-1990’s, should Callahan recommend any changes to this system?

Session 10
Genzyme Center (A), HBS Case 9-610-008

1. If you were a major shareholder of Genzyme, what would you think of Genzyme’s interest in green building?
2. If you were Rick Mattilla, would you recommend that Genzyme make the additional investments required to enable Genzyme Center to achieve LEED Platinum status?
3. If yes, what criteria should drive which features to select? Based on these criteria, which features would you choose?
4. Looking ahead to other building projects, what green building policy should Genzyme adopt? Should the policy differ for offices, labs, and manufacturing sites? Should the company adopt the same policy globally?

Session 11
Walmart’s Sustainability Strategy, Stanford Case OIT-71

1. At a high level, how is Walmart creating value from its sustainability strategy?
2. Critique the success of two of the networks. What explains the success (or lack thereof) these networks?
3. How is Wal-Mart motivating its suppliers to share information about and reduce the environmental impacts of products and processes?
4. How can Wal-Mart stimulate the development of disruptive, breakthrough innovation? Do you see any trade-off against continuous improvement?

Session 13
The European Recycling Platform: Promoting Competition in E-Waste Cycling, Stanford Case GS-67

1. What were the deficiencies of the national consortium model for recycling, such as the Green Dot system?
2. What were the driving values of the ERP model? In what ways did they address the deficiencies of the national consortium/Green Dot model?
3. Should ERP expand its scope?

Session 14
Xerox, Design for the Environment, HBS Case 794022
1. How did Xerox develop an objective of 0% product waste and 0% factory waste? Is it an appropriate goal?
2. What must Xerox do to its product delivery system if the goal is to be achieved? What changes will Xerox have to make in goals and incentives to achieve this?
3. Without legislation, will this ever pay off for Xerox? Will it, in fact, be possible for Xerox to achieve?
4. Should Xerox price remanufactured products at a discount?

Session 15
Cradle-to-cradle design at Herman Miller: Moving Toward Environmental Sustainability, HBS Case 9-607-003

1. Do you think Herman Miller should use PVC or TPU in the Mirra Chair arm pad?
2. Why is the PVC vs. TPU decision so difficult for the company to resolve?
3. What are the elements of C2C? How does C2C differ from traditional business approaches to environmental issues?
4. What process and organizational changes did Herman Miller make to implement C2C? What resources were required?

Session 16
Interface’s Evergreen Services Agreement, HBS Case 603112
A Roadmap for Natural Capitalism, HBR Article 99309

1. What is the environmental – waste reduction- argument for servicizing?
2. Should Interface move into services? Are they ready for it?
3. What does the Evergreen Services Agreement offer? Why are negotiations breaking down?
4. How should Hendrix resolve his dilemma? Should he discontinue ESA? Restructure it?

Session 18
Fedex and Environmental Defense: Building a Hybrid Delivery Fleet, Stanford Case SI-82 (available thru HBS publishing)
Environmental Enhancements in Road Vehicle Technology, Stanford Case OIT 74 (available thru HBS publishing)

1. The Toyota Prius and Honda Insight were introduced in the late 90’s. Why was there no hybrid delivery truck on the market when ED approached FedEx in 2000? In general, why might a firm overlook an opportunity to simultaneously increase its profit and provide public environmental benefits?
2. What performance measures should Environmental Defense use to define success? What should FedEx use? What should Eaton use?
3. Compute the maximum price FedEx should be willing to pay for a hybrid delivery truck. Should FedEx contract with hybrid supplier(s)? If so, how?
4. How should FedEx modify its strategy and operations to fully benefit from the conversion to a hybrid fleet?
Session 19
Hydro: From Utsira to Future Energy Solutions, Ivey Case 9B06M044 (available thru HBS Publishing)

1. Has the Utsira project been successful?
2. How might the potential commercialization of this project contribute to sustainable development at Hydro for its customers?
3. What is Hydro’s role in selling a system of this nature? How can the company capture and sustain value?
4. How attractive are the two potential markets, namely remote communities and grid balancing, for commercializing the system? What criteria are important for each market?
5. How should Fjermestad Hagen and Nakken proceed? What action should they take?

Session 20
The Body Shop International, HBS Case 392 - 032

1. How has The Body Shop become such an outstanding success while defying proven industry norms and strategies? What are the most important sources of success?
2. How do you evaluate Anita Roddick’s management philosophy and style?
3. What lessons are there to learn from The Body Shop as a corporate model and from Roddick as a model of management? To what degree is the approach generalizable?
4. How sustainable is The Body Shop’s success? In particular, what should Roddick do about the emerging problems and expected difficulties of developing its operations in the US?

Session 21
Sustainable Development at Shell (A) HBS Case 303-005

1. What were the circumstances at Shell leading up to the push for a sustainable development strategy?
2. What is your analysis of Shell’s sustainable development strategy? What are its strengths and weaknesses?
3. What are the strengths and weaknesses of SDMF? of the KPI program?
4. What lessons have you learned from Shell’s sustainable development strategy development and its accompanying challenges?

Session 23
Environmental Product Differentiation by the Hayward Lumber Company, Stanford GSB Case, OIT 38

1. What is HLC’s environmental strategy?
2. What are challenges HLC faces in introducing green construction materials? Should they operate differently to overcome these challenges?
3. When do you think environmental product differentiation pays off? Does HLC’s business satisfy those conditions?

Session 24
Sustainability at Millipore, HBS Case 9-610-012

1. How should Millipore focus its Sustainability Initiative? How should David Newman measure success?
2. Going forward, how should Millipore prioritize projects for the Sustainability Initiative?
3. What factors should Millipore consider in setting its next greenhouse gas reduction target? Recall that key parameters include choosing between absolute and relative reduction, a percentage reduction level, its duration, and the scope of emissions covered.
4. Considering the pros and cons, should Millipore purchase carbon offsets as part of its strategy to meet its greenhouse gas reduction objectives?
5. What changes, if any, would you recommend to Chairman, CEO and President Martin Madaus to improve the effectiveness and/or efficiency of Millipore’s Sustainability Initiative?

Session 25
McDonald’s and the Environment (A), HBS Case 391108

1. What are McDonald’s goals in announcing the packaging change?
2. Who are McDonald’s key audiences? What groups will influence McDonald’s customers and how?
3. What should McDonald’s message be? What attempt should McDonald’s make to explain or justify its controversial decision? its apparent “about-face”?
4. How does a company cultivate an image as an environmental leader, and what responsibilities or obligations ensue from being “green”? What are McDonald’s responsibilities as compared to those of packaging suppliers, competitors, or the industry as a whole?

Session 26
Cape Wind, HBS Case 9-504-055

1. Is the Cape Wind Project a good idea? Why or why not?
2. If Nantucket sound is the wrong place for a wind farm, is there a right place?
3. Why is there so much opposition to the Cape Wind Project? What behavioral forces are at work?
4. Should Cape Wind have anticipated this resistance? What could it have done differently to manage that resistance?