

# **MBA 869: Environmental Strategy**

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Room 2050 McColl Building

Tuesdays and Thursdays 9:30 a.m. - 10:50 a.m.

October 22 – December 10, 2009

## ***Introduction to the Course***

This course is designed to increase students' understanding of the strategies undertaken by corporations to (1) minimize environmental impact, (2) mitigate risks and manage under conditions of uncertainty, (3) leverage environmental concern as a source of competitive business advantage, and (4) deal effectively with global environmental issues such as climate change and resource limitations.

Through lectures, readings, case studies, classroom discussion, and assignments, this course aims to

- Expose students to strategies companies use to innovate, create value, and build competitive advantage;
- Give students the opportunity to work with tools to quantitatively assess firms' environmental impact and alternative investment scenarios;
- Challenge students to think critically about the environmental and societal consequences of business decisions; and
- Increase students' understanding of the implications of global climate change and associated regulations on industry.

Within the context of an MBA education, this course has the following goals:

- Develop students' ability to think critically, systematically evaluate complex issues, and weigh interconnected and conflicting interests;
- Increase students' capacity to comprehend and make use of quantitative and qualitative information to ground their decision-making;
- Improve students' ability to communicate their ideas clearly and effectively, with a specific focus on articulating business strategies that take environmental and societal issues into account; and
- Develop leadership skills including the ability to solve problems creatively, to communicate persuasively about complex and contentious issues, and to determine the most effective implementation for strategies aimed at improving environmental performance.

## **Course Structure**

The lecture topics are structured into four main themes with subthemes that run as currents throughout all topics:

- I. Improving Environmental Performance and Pollution Prevention
- II. Risk and Change Management
- III. Competitive Differentiation
- IV. Macro-Environmental Issues Affecting Corporations

In **Section I**, the scale of our examination of strategies to improve environmental performance and prevent pollution will progressively expand in scale. We will start with a focus on an individual company (Benziger Family Winery) and its internal policies and procedures aimed at improving environmental performance. Next, we will explore an effort to improve environmental performance from an industry perspective by examining the chemical industry's program of self-regulation entitled Responsible Care. Finally, with a presentation by a representative of China's Green Choice Alliance, an organization established to improve environmental performance throughout the supply chain, we will look across industries and sectors to examine collaborations and drivers of greening efforts in a global context. A sub-theme connecting each of the topics within this section is the role of government and the effectiveness of alternative policies/approaches in improving environmental performance.

In **Section II**, we will examine approaches companies take to deal with uncertainty; specifically, we will examine decisions that have environmental and social implications by looking at two case studies involving human exposure to potentially hazardous chemicals. A third case study (Tempes Corporation) will provide the class with an opportunity to apply the tools of financial analysis in deciding between alternative product designs with uncertain environmental implications. Finally, we will explore the realm of organizational and personal behavior science to gain insight into how firms can most effectively drive change and promote decision-making that is environmentally conscious.

**Section III** focuses on how firms gain competitive advantage through a strategy informed by an environmental lens. Guest speakers representing two of the top five industries in terms of environmental impact (building and agriculture) will discuss their experiences as entrepreneurs who started companies with an environmental mission. In addition, they will provide an overview of the environmental and strategic issues of particular importance in their industries. The perspective from these relatively small-scale locally-owned companies (CaraGreen and NC Choices) will be complemented by a focus on DuPont, a company that is one of the United States' oldest and largest companies and one that is currently at the forefront of efforts to advance a mission of sustainability despite having a checkered history of environmental performance.

The course concludes with **Section IV**'s focus on how global environmental challenges are affecting and will affect business in the future. This section includes a case study of water management issues in a Tanzanian city, a guest lecturer with expertise in ecosystem markets and trading schemes, and student presentations about the implications of climate change on different industries.

### **This Class and Kenan-Flagler Standards**

Kenan-Flagler has five core values – *Excellence, Leadership, Teamwork, Integrity, and Community* – that provide a guiding framework for the norms and standards we uphold as a community.

*Although these values should govern our objectives and behavior across programs and contexts, this course's focus on the response of business to environmental issues that have the potential to affect the health, well-being, and livelihoods of people across the globe makes critical the personal demand on each of us to develop and apply these principles.*

The following table outlines the application of these values to this course:

<b><i>KFBS Value</i></b>	<b><i>My Responsibilities</i></b>	<b><i>Your Responsibilities</i></b>
<b><i>Excellence</i></b>	<ul style="list-style-type: none"> <li>• <i>To provide rigorous, meaningful, and relevant course content and deliverables.</i></li> <li>• <i>To adhere to KFBS grading standards for evaluating performance.</i></li> <li>• <i>To seek out and incorporate feedback from students, faculty, and staff regarding course improvements.</i></li> <li>• <i>To deliver timely feedback on assignments.</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>To prepare thoroughly for each class session.</i></li> <li>• <i>To participate actively and constructively in class discussions.</i></li> <li>• <i>To contribute to discussion threads on the course's electronic forum.</i></li> <li>• <i>To deliver high quality written assignments and final presentation.</i></li> </ul>
<b><i>Leadership</i></b>	<ul style="list-style-type: none"> <li>• <i>To communicate the goals of the course and the relevance of these goals to your business education.</i></li> <li>• <i>To call on students other than just volunteers to contribute to class discussions.</i></li> <li>• <i>To challenge students to push themselves by thinking critically about the course content.</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>To challenge your peers during class discussions and study team meetings to think critically, question assumptions, and develop analytical thinking skills.</i></li> </ul>
<b><i>Teamwork</i></b>	<ul style="list-style-type: none"> <li>• <i>To set explicit standards for class attendance and consequences for absences.</i></li> <li>• <i>To provide opportunities for team assignments.</i></li> <li>• <i>To make myself available to students for questions or discussions outside of class time.</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>To attend each class session. If you're absent, you can neither teach nor learn.</i></li> <li>• <i>To self-police attendance, rather than rely on faculty-policing. If you are absent, inform me via e-mail.</i></li> <li>• <i>To contribute constructively to all group assignments.</i></li> <li>• <i>To contact me if you have concerns or questions about the course material.</i></li> </ul>
<b><i>Integrity</i></b>	<ul style="list-style-type: none"> <li>• <i>To set clear expectations for students regarding what is and is not a violation of the Honor Code in this class.</i></li> <li>• <i>To enforce these expectations by reporting suspected violations of the Honor Code to the Honor Court.</i></li> <li>• <i>To set clear expectations regarding acceptable classroom behavior.</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>To understand and uphold the behaviors mandated by the Honor Code in this class.</i></li> <li>• <i>To report any suspected violations of the Honor Code by peers to me.</i></li> <li>• <i>To understand and uphold the behavioral standards for classroom conduct.</i></li> </ul>

<b>Community</b>	<ul style="list-style-type: none"> <li>• To develop, communicate, and enforce a policy regarding appropriate (and inappropriate) use of technology in the classroom.</li> <li>• To start and end each class on time.</li> <li>• To use a variety of pedagogical approaches to engage and involve students in the learning process.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand and adhere to the policy regarding technology use in the classroom.</li> <li>• To be on time for each class session. Once in class, do not leave until the end of the session. Treat each class session as a key work meeting.</li> </ul>
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## **Grading and Assignments**

The evaluation criteria for each assignment (excepting the NPV assignment) are provided at the end of this syllabus. Please review the evaluation criteria before completing the assignment so that you are clear about the expectations for the assignment and how a grade will be determined.

### **Participation (25%)**

As an elective taken in the second year of an MBA program at one of our nation's most prestigious and highly ranked business schools, this class obtains a significant percentage of its value from discussions that occur during our scheduled meeting times. Because of the limitations of class time, your participation in discussion via the on-line discussion forum is a secondary, yet critical component of how learning will be accomplished. Forum contributions will account for one-third of the participation grade. In both class and on the forum, *quality* is more important than *quantity*.

At the end of the course, you will be asked to provide a contribution assessment of your peers in line with the Kenan-Flagler Core values and your responsibilities described in the table above. As part of this evaluation, you will be asked to identify four class members you believed contributed the most to each one of the four course sections. Peer evaluations of participation will contribute towards 25% of the participation grade.

### **Environmental News Briefing (15%)**

Each student will present a 5 minute presentation about a noteworthy news item that concerns environmental strategy. You have wide latitude in terms of the topic you chose. You may select to discuss news of a decision a company has made regarding its environmental strategy, a new product development, news about how legislation or an environmental issue is affecting a company or an industry. The following list provides examples of where you may find a topic to present on. This list is also provided in the slide deck from the first day of class.

- <http://www.greenbiz.com/>
- <http://www.climatebiz.com/>
- <http://www.sustainablelifemedia.com/>
- <http://www.hbrgreen.org/>
- <http://mitsloan.mit.edu/sustainability/>
- <http://www.environmentalleader.com/>
- <http://www.wbcds.org>
- <http://www.netimpact.org/>
- <http://www.thegreenguide.com/>

## Small Group Case Analysis – a.k.a. NPV Assignment (15%)

Please find the details of this assignment in the course schedule section under the heading November 5, the due date for this assignment.

### Case Brief (15%)

*Due the day the case is discussed in class*

October 22: Benziger Family Winery

October 27: Responsible Care

November 3: Cd-Te Photovoltaics

November 3: Sigg and BPA

November 12: DuPont

November 19: City Water Tanzania

Briefs should follow the traditional case brief structure and contain three parts: (1) a short description of the main issue(s) presented in the case, (2) evaluation, and (3) recommendations. Do not waste space recounting the story/data presented by the case by way of introduction. It is safe to assume that the reader has read the case and therefore does not need a complete retelling. **Focus the bulk of your brief on the evaluation section.** Conclude with your recommendations backed by a sound rationale. Briefs should be 2 pages in length (11-12pt font, line spacing between 1.5 and double-spaced, with margins within the range of ¾” to 1”).

You may find it helpful to read the “Guide to Case Analysis” presented at <http://www.mbadepot.com/content/8395/>. In addition to the guidance it provides, this article describes the learning objectives of brief writing (unfortunately, the article also contains some typos and poor grammar). As the article describes, when you are reading and writing, the mental muscles you should be exercising and attempting to develop further are your ability to do the following:

- Assess situations and ask the right questions
- Interpret data and define problems and opportunities
- Sort out and organize key information
- Identify and evaluate alternative courses of action
- Evaluate the results of past strategies and develop and defend new strategies
- Make decisions under conditions of uncertainty

Cases will be graded based on how well you demonstrate—through your writing—that you have exercised these skills. Stating your personal beliefs is not sufficient. **Your analysis and recommendations should be based on a sound business rationale and rely on the application of the principles of business strategy.** Clear and concise writing demonstrates clear and focused thinking. Impeccable grammar and spelling demonstrates focus, professionalism, credibility, seriousness, and effort. If you are not a strong writer, consider this assignment an opportunity to increase your experience enlisting the help of experts (e.g., KF’s writing center, style guides, friends who are good editors, etc.).

## **Group Project (30%)**

This group project will consist of two components: (1) a white paper with an executive summary and (2) a presentation. Groups should be comprised of 3-4 individuals. The purpose of the project is to give you the opportunity to research and analyze the potential effects of climate change on a particular industry. You may wish to consider factors such as the potential implications of pending legislation, changes in energy pricing and reporting requirements, and the strategies individual corporations within that industry have already implemented.

Ideally, your team will select an industry in which you hope to be employed or that is in some way related to the industry in which you hope to one day be employed so that an outcome of your efforts on this project will be that you have increased knowledge about that industry and consequently will be better equipped to discuss environmental strategy during the interview process.

### The Nuts and Bolts

White papers should be between 8 and 10 pages, (11-12pt font, line spacing between 1.5 and double-spaced, with margins within the range of ¾" to 1"). Please use left-justification, not full, as this will make it easier for me to read. Figures, tables, and pictures should be used strategically to convey information, not to fill space. Sources should be properly cited via footnotes or endnotes. It doesn't matter which style guide you follow, as long as you consistently follow a standard and convey accurate information.

The presentation should be 10 minutes in length. Five minutes will be set aside for each team to address questions from the class. If your presentation exceeds 10 minutes, your time will expire at the end of 15 minutes; you will not have time to answer questions, and your grade will be adversely affected. While this may seem draconian, this approach is meant to provide a proxy for a corporate meeting during which you have been allotted a slice of time during the agenda and the fact that senior management and the others present at the meeting will not have a favorable impression of your presentation (despite its quality) if you exceed your allotted time by 50% and do not provide them with an opportunity to ask you questions. **Presentations will be Tuesday and Thursday, December 8<sup>th</sup> and 10<sup>th</sup>**

## ***Course Schedule***

### **1. Tuesday, October 20**

#### *Introduction to Environmentally-Minded Business Strategy*

##### Objectives:

- To solidify your understanding of what is meant by “environmental strategy”
- To introduce a suite of different corporate environmental strategies
- To place environmental strategy with the larger economic and business landscape

##### Reading Assignment:

“[Bringing the Environment Down to Earth](#)” by Forest Reinhardt. *Harvard Business Review*. July-August 1999. (CoursePack)

“Bringing the Environment Down to Earth” is a seminal reading in the field of sustainability—often cited and one with which you should be familiar. In this paper, Reinhardt posits that “...the right [environmental] policy depends on the circumstances confronting the company and the strategy it has chosen...That’s why managers should look at environmental problems as business issues. They should make environmental investments for the same reasons they make other investments: because they expect them to deliver positive returns or to reduce risk.”

When you read this paper, consider the following questions:

- Do you agree with Reinhardt’s assertion that managers should look at environmental problems as business issues? How would you make your case to someone who disagrees with you?
- In the section about differentiating products, Reinhardt lists some factors critical to this strategy succeeding. Besides patents, what other strategies can create barriers to competition?
- In the section about managing risk, Reinhardt states that companies should ask whether their policies incentivize managers to reduce risk. Consider this assertion in light of the sub-prime mortgage melt-down. Can you think of lessons to be learned from the recent economic crisis that would be transferable to companies formulating an environmentally-minded strategy?
- Also consider the question of how widespread the adoption of environmental strategies has become. How would you survey the corporate landscape to determine whether these strategies have become mainstream?

##### Optional Reading:

“[Green and Competitive](#)” by Michael E. Porter and Claas van der Linde. *Harvard Business Review*. Sept-Oct 1995.

## 2. Thursday, October 22

*Reducing Pollution, Eco-efficiency, Environmental Management Systems (EMS), and ISO14001*

### Objectives:

- Explore the similarities and differences between environmental management and continuous improvement as business strategies
- Assess the costs and benefits of environmental management systems as well as associated implementation issues
- Learn about the ISO 14001 standard and its affect on environmental performance

### Reading Assignments:

*Case Study:* “Benziger Family Winery: EMS Development and Implementation.” Murry Silverman. USF. 2003. (CoursePack)

“[Continuous Improvement Gets a Green Makeover](#)” by Brad Kenney. *Industry Week*. December 2007. (CoursePack)

The Benziger case describes a family-owned winery which is committed to environmental stewardship and the decision it faces regarding implementing a formal environmental management system. The case complements the reading about continuous improvement because both address processes organizations can implement to improve performance. If the concept of Total Quality Management (commonly associated with Toyota Motor Company) is not familiar to you, you should do some additional research to fill this knowledge gap. As you read these articles, consider the following:

- In what ways is “green a new twist on the old game of continuous improvement”?
- In what ways would defining environmental strategy as quality management be limiting?
- What are the benefits of a corporation developing an environmental management system? What are the associated costs? Should Benziger pursue ISO 14001 certification?
- How would you determine whether environmental management systems actually improve environmental performance?

### Optional Readings/Additional Resources:

“[The Lean and Environmental Toolkit](#)” by the United States Environmental Protection Agency. EPA-100-K-06-003. October 2007.

“[Improving Sustainability Performance: Specifying, Implementing and Measuring Key Principles](#)” by Marc Epstein and Marie-Jose Roy. *Journal of General Management*. 29(1): 15-31. Autumn 2003.



### 3. Tuesday, October 27

#### *Industry Self-Regulation and Evaluating Environmental Performance*

##### Objectives:

- Insight into the design of an industry association as a response to society's environmental concerns and as an alternative to government regulations
- Knowledge of key milestones related to rising environmental awareness, industry responsibility, and government intervention
- Capacity to design alternative quantitative approaches for evaluating environment performance

##### Reading Assignment:

*Case Study:* "Responsible Care" Harvard Business School Case #9-391-135 (**CoursePack**)

This case describes the Chemical Industry's efforts at self-regulation and provides background information regarding the historical environmental performance of the industry. The collaboration of corporations operating within the chemical industry represents a contrasting strategy to the efforts individual companies undertake. This case also provides an interesting context in which to explore issues of government regulation and policy formulation.

As you read the Responsible Care case, consider the following:

- What are the most significant challenges confronting David Zoll? What would your recommendations to him be?
- What is necessary for Responsible Care to be successful in improving environmental performance?
- What are potential problems or short-comings of Responsible Care, considering that it is an industry-run, voluntary program?
- How could one determine whether Responsible Care has been effective in improving environmental performance? What data would you want? What factors would you need to take into account when making comparisons across the industry?
- What can we extrapolate from CMA that would be useful in addressing the issues confronting CMA and other industries today?

##### Optional Reading:

["Industry Self-Regulation without Sanctions: The Chemical Industry's Responsible Care Program"](#) by Andrew King and Michael Lennox. *Academy of Management Journal*. Vol. 43(4): 698-716. 2000.

#### 4. Thursday, October 29

*Reducing Pollution and Improving Environmental Performance within the Supply Chain; Environmental Challenges to Economic Growth in China*

##### Guest Speaker:

Christine E. Boyle, Doctoral Candidate, UNC Department of City and Regional Planning, formerly of China's Green Choice Alliance (China's Institute for Public and Environmental Affairs, [website](#))

##### Reading Assignments:

“[Small Suppliers in Global Supply Chains](#): How multinational buyers can target small and medium-sized suppliers in their sustainable supply chain management,” by the Danish Commerce and Companies Agency. January 2008.

A consultant report on a project examining Hewlett Packard's efforts at green supply chain management in Eastern and Central Europe. After skimming the **Introduction**, read **Chapter 4** (p.27-32) and **Chapter 5** (33-46) which is the Hewlett Packard case study, and **Chapter 8** “Guidelines on Sustainable Supply Chain Management” (61-64)

“[Environmental supply chain dynamics](#)” by Jeremy Hall. *Journal of Cleaner Production* 8: 455–471. 2000.

An academic article looking at cases in which companies' efforts at environmental supply chain compliance do and do not work. This article includes case studies of the British and Japanese food retail sector and the British aerospace industry as well as a discussion of the drivers behind companies' environmental efforts. Also worth noting, is the coverage this article gives to core business concepts and issues such as core competencies, the make-or-buy decision (i.e., production versus transaction costs), the consequences of globalization, and the interplay between innovation and government regulation. You will also notice reference to authors and articles you should already be familiar—e.g., Hart (*Capitalism at the Cross Roads* and “Beyond Greening: Strategies for a Sustainable World”), Prahalad (*The Fortune at the Bottom of the Pyramid*), Porter (*Competitive Strategy: Techniques for Analyzing Industries and Competitors*) and Elkington (*Cannibals with Forks*).

Themes to consider while reading in preparation for class: (1) supplier compliance, (2) supplier-buyer cost-sharing, (3) how to structure audits, and (4) locating risk in the supply chain.

##### Related to previous course topics:

“[ISO 14001 in environmental supply chain practices](#)” by Dagmara Nawrocka, Torbjorn Brorson, Thomas Lindqvist. *Journal of Cleaner Production*. 17: 1435–1443. 2009.

“[The energy and carbon intensity of wine distribution: A study of logistical options for delivering wine to consumers](#).” *Journal of Cleaner Production*. 17: 1401–1413. 2009.

## 5. Tuesday, November 3

### *Life Cycle Analysis and the Precautionary Principle*

#### Objectives:

- Familiarity with the tool of life cycle analysis and how it is utilized to make business decisions
- An understanding of what the precautionary principle is and how and when it can be applied
- Experience analyzing an issue with unfamiliar complexities but personal implications

#### Reading Assignments:

*Background Reading:* “[The Precautionary Principle in the Real World](#)” by Peter Montague. *Environmental Research Foundation*. January 21, 2008.

*Case Study:* “[Regulatory Policy governing cadmium-telluride photovoltaics: A Case Study Contrasting Life Cycle Management with the Precautionary Principle](#).” Shinha et al. *Energy Policy*. 36: 381-287. 2008. (CoursePack)

*Case Study 2:* This is not a typical case study in that the material has not been distilled by an author into one paper. Instead, the multiple short papers about the precautionary principle and BPA provide the context and background information. The opinion piece and the letter from Sigg CEO Steve Wasik tell the story of one company’s decision-making and its consequences. *Each of the following readings is approximately 1 page:*

“[An Example of the Precautionary Principle at Work: Endocrine Disruption](#)” by Joel Tickner. *Endocrine/Estrogen Newsletter*.

“[Plastic Bottles: Bisphenol A of ‘Some Concern’ According to U.S. Government Report](#)” *Science Daily*. September 8, 2008.

“[Chemical in Plastic Bottles Raises Some Concern, According to New Report](#)” *Science Daily*. April 22, 2008.

“[That Plastic Baby Bottle](#)” Editorial in *The New York Times*. September 6, 2008.

“[Study of Chemical in Plastic Bottles Raises Alarm](#)” by Deborah Kotz. *U.S. News and World Report*. April 16, 2008.

“[Is there Poison in my Plastic Bottle?](#)” by Randy Jirtle. *Duke Medicine Connect*. Fall 2008.

“[How Sigg Lost my Trust](#)” by Simran Sethi, published on GreenBiz.com. September 2, 2009.

“[Sigg CEO—‘I’m Sorry’](#)” by Steve Wasik, published on GreenBiz.com. September 18, 2009.

#### Questions to consider:

- How does the environmental management tool of life cycle analysis complement the philosophical management approach embedded in the precautionary principle?
- What factors should a manager weigh most heavily when determining whether to act from a stance of precaution?
- What is your assessment of the decisions made by Sigg CEO Steve Wasik?
- What recommendations would you make to him for moving forward?

## 6. Thursday, November 5

### *Financial Analysis and Decision Making in the Face of Uncertainty*

#### Objective:

- To gain experience analyzing a management decision with environmental and social consequences using tools learned in the core finance class

#### Reading Assignment:

*Case Study:* Tempes Corporation. World Resources Institute. (**CoursePack**)

The Tempes Corporation case describes a situation in which managers in a specialty products firm must analyze and choose between two re-designs of one of the firm's strategic product lines. One design offers an apparently higher return but is potentially environmentally harmful; while the other is not as attractive financially, at least at first examination, but is environmentally preferable. The challenge to the firm is to evaluate qualitative data and incorporate it into its decision-making.

#### Group Assignment:

1. Conduct a cash flow analysis and calculate an NPV to analyze the alternative product lines presented in the Part A of the case. You should also calculate the payback period of the needed investment.
2. Based on Part B, compile a list of factors likely to affect design choice.
3. Using the information presented in Part C, conduct three scenario analyses/sensitivity tests. Identify assumptions built into DCF analysis and distinguish the strengths and weaknesses of both approaches of analysis.

***Deliverable:*** An executive briefing consisting of 3 PowerPoint slides showing your analysis and your recommendation for which product line should be pursued. Include 4<sup>th</sup> slide with your team members' names. 2-3 groups will be randomly selected to present their analysis in class. This assignment counts towards 15% of your final grade.

## 7. Tuesday, November 10

### *Effective Strategies for Promoting Environmentally Responsible Action*

#### Objectives:

- Insights from psychological science to influence employee, customer, and other stakeholder behavior to promote pro-environmental action
- Practice crafting effective communication messages that advance an organization's environmental strategy

#### Assignments:

“[Society's Grand Challenges: Climate Change—Insights from Psychological Science](#)” by Etienne Benson. *American Psychological Association*. 2008.

This pamphlet provides an introduction to the next two assignments you will need to prepare for class. It refers to the work of Cialdini and Nolan and contains pictures from one of the experiments described in the “Crafting Normative Messages” reading.

“[Crafting Normative Messages to Protect the Environment](#)” by Robert Cialdini. *Current Directions in Psychological Science*. Vol. 12(4): 105-109. 2003. (**CoursePack**)

This article describes novel and interesting insights into how managers and marketers can craft communication strategies that will be more or less effective in promoting desired behaviors. Although presumably quite different from the majority of the readings you will have been exposed to in your other classes, this paper's insights have meaningful implications about how to drive behavior change—a problem relevant to managers charged with addressing all manner of issues, not only environmental ones.

“[Understanding and Overcoming Psychological Resistance to Promote Environmental Behaviors](#),” Webcast by Jessica M. Nolan.

Continuing with the non-traditional theme of today's assignments, this assignment requires you to listen to a Webcast. Nolan's work complements and extends the work of Cialdini by asking what causes people to be resistant to changing their behavior. Nolan also presents simple to implement strategies for overcoming resistance to pro-environmental behaviors.

#### To Prepare for Class:

When you read the pamphlet and article and as you listen to the webcast, consider how the information presented can be leveraged by different organizations. In advance of class, prepare 2-3 communications designed (1) to further a company's environmental strategy and (2) to promote “greening” efforts at UNC/Kenan-Flagler.

#### Optional Webcast:

[Encouraging Pro Environmental Behavior – How Social Psychology Can Help Us](#), Webcast by Robert Cialdini.

This webcast is information dense and contains reference to several more interesting and easy-to-emulate experiments.

## 8. Thursday, November 12

*Environmentally-Minded, Pro-Active Business Strategy: Focus on Sustainability at DuPont*

### Objectives:

- Knowledge of best practices implemented within a large corporation with a checkered history of environmental performance
- Integration of concepts presented in the first section of the course (I. Pollution Reduction)—i.e., the environmental strategies presented by Reinhardt, EMS as first explored through the Benziger case, and Responsible Care which DuPont played and still plays a key role in creating and implementing—and the concepts of (1) innovation and (2) new business model design which was addressed in the 1st-year Sustainable Enterprise course and which are critical to sustainable profit-making.

### Reading Assignments:

“[Sustainable Growth, the DuPont Way](#)” by Chad Holliday. *Harvard Business Review*. Reprint #R0108J. September 2001. (CoursePack)

“Shifting from Risk Management to Business Opportunity at DuPont” [Getting Ahead of the Curve: Corporate Strategies that Address Climate Change](#). By Andrew Hofmann et al. Prepared for the Pew Center on Global Climate Change. **Pages 88-100**. October 2006.

### Questions to Consider:

- The DuPont article is part of Harvard Business Review’s “Best Practices” Series. What are the strategies implemented by DuPont that provide examples for other companies to implement? How did DuPont implement these strategies successfully? That is, what are the lessons learned regarding implementation at DuPont that should be emulated?
- The three prongs of DuPont’s environmental strategy are Integrated Science, Knowledge Intensity, and Productivity Improvements. Given DuPont’s core competencies, where do you believe the greatest opportunities lie? In which areas has DuPont most convincingly demonstrated success?
- How do DuPont’s efforts to address climate change align with its three pronged approach to sustainability? What untapped synergies or strategy gaps do you see?
- Holliday asserts “For a company to embark on a process of sustainable growth, its leaders and employees have to understand two critical things: what they value and how they create value.” According to Holliday, DuPont is driven by the values of a commitment to safety, health and environment; integrity; and the fair and respectful treatment of people. Holliday also describes that DuPont creates value through science and technology. Consider the firm for which you wish to work or one where you have worked, what are its values and how does it create value. Are these sustainable strategies? What could be added that would leverage these critical values while advancing or improving the organization’s environmental strategy?
- Holliday said DuPont needed a new metric for measuring sustainability: “shareholder value added per pound of production (SVA/lb).” What new metric(s) would you recommend for the company you chose?

### Optional Reading:

“[Why Sustainability is the Now the Key Driver of Innovation](#)” by Ram Nidumolu, C.K. Prahalad, and M.R. Rangaswami. *Harvard Business Review*. September 2009. Pages 57-64.

## 9. Tuesday, November 17

### *Business Models Based on Environmentally Added Value*

#### Objectives:

- Knowledge of lessons learned provided via an overview of many corporation's efforts to gain competitive advantage through environmental product differentiation.
- Insights from two entrepreneurs are using environmental strategy as a way to increase profits, generate value, innovate, and gain competitive advantage.

#### Assigned Reading:

“[Environmental Product Differentiation: Implications for Corporate Strategy](#)” by Forest Reinhardt. *California Management Review*. Vol. 40(4): 43-73. 1998. (CoursePack)

#### Guest Speakers:

Stacy Glass, President of [CaraGreen](#), Distributor of sustainable architectural materials  
Jennifer Curtis, [NC Choices](#), Supporter of sustainable food systems

#### To Prepare for Class:

- 1) Visit the CaraGreen and NC Choices Web Sites and prepare 2 questions you would like addressed by our guest speakers.
- 2) While reading, consider the following questions:
  - What potential implications do you see of the reading on the industries and companies our guest speakers represent?
  - Reinhardt asserts, “Instead of asking whether it pays to be green, we ought to be asking about the circumstances under which it might pay.” What are these circumstances? What are there others that the author does not identify? What can a company do to alter the circumstances in which it competes?
  - Reinhardt authored this paper over a decade ago. How have changes in the marketplace affected the validity of the arguments he asserts? Or have they not? Identify 2-3 examples of strategies companies have implemented in the last five years that either prove or disprove one or more of Reinhardt's points.

#### Additional, Highly Recommended Reading:

Capturing the Green Advantage: What Green Consumers Want and How to Deliver It” – Special Coverage by MIT Sloan Management Review:  
<http://sloanreview.mit.edu.libproxy.lib.unc.edu/special-report/capturing-the-green-advantage/>

## 10. Thursday, November 19

### *Ecosystem Services and Markets*

#### Objectives:

- Familiarity with the concepts of ecosystem services, ecosystem markets, wetland mitigation banking, habitat conservation banking, and natural resource value accounting
- Insight into the economic issues associated with ecosystem service markets

#### Guest Speaker:

Martin Doyle, Ph.D., M.E.E.

University of North Carolina

Department of Geography and Institute for the Environment

<http://www.unc.edu/depts/geog/people/faculty/doyle/>

#### Reading Assignment:

“[Valuing Ecosystem Services](#)” by Edward Barbier and Geoffrey Heal. *The Economists’ Voice*. February 2006. **(Course Portal)**

This is a very short and easy to read article that will provide a valuable introduction to the day’s topics.

“Markets for Freshwater Ecosystem Services” by Martin W Doyle and Todd BenDor. 2009. **(Course Portal)**

This article was written by and selected by our guest speaker. Read this article to get a *general idea of the principles discussed*, paying particular attention to *Section 4* which contains a section focusing on economic issues in depth.

#### Questions to Consider:

- What are the pros and cons of having private enterprises bank and trade ecosystem services?
- What issues faced in wetlands markets and in lieu fee (ILF) programs do you see having parallels in a carbon market?
- Prepare 2-3 questions to ask our guest speaker based on the readings, your knowledge of proposed cap-and-trade regulation, and the functioning of financial markets.

#### Additional Optional Readings:

“[Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection](#)” by Lisa Heinzerlig and Frank Ackerman. *Georgetown Environmental Law and Policy Institute and Georgetown University Law Center*. 2002.

“[Markets for Ecosystem Services: A Potential Tool for Multilateral Environmental Agreements](#)” by Anantha Kurmar Duraiappah. *International Institute for Sustainable Development*. August 2006.

“[A Roadmap for Natural Capitalism](#)” by Amory B. Lovins, L. Hunter Lovins, and Paul Hawken. *Harvard Business Review*. July-August 2007.



## 11. Tuesday, November 24

### Water

#### Objectives:

- Familiarity with the threats and opportunities in the water sector, specifically, this case illustrates the challenges associated with reaching the 10th target in the United Nations Millennium Development Goal: “to cut in half, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.”
- Insight into the types of ongoing tensions and divergent decision angles that influence the formation and performance of public-private partnerships in providing clean water and sanitation in developing countries.

#### Assigned Readings:

*Case Study:* “City Water Tanzania (**A and B**): Water Partnerships for Dar es Salaam” by Oana Branzei and Kevin McKagu. *Ivey School of Business*. #907M25-PDF-ENG. June 2007.

#### **(CoursePack)**

*\*If you are writing a brief about this case, you should read Part A and write your brief based on just that part. You should then read Part B. After reading Part B, write an additional paragraph or two (beyond the 2-page limit) to describe whether or how your original analysis and recommendations would change.\**

*Foundational Reading:* “[Watching Water: A Guide to Evaluating Corporate Risks in a Thirsty World](#)” by Marc Levnison et al. *JP Morgan Global Equity Research*. March 2008. **Read through page 19.** The rest is **optional**.

#### Additional Readings/Resources:

“[Aqueous Solutions](#)” Chapter 11 in *Natural Capitalism: Creating the Next Industrial Revolution* by Paul Hawken, Amory B. Lovins, and L. Hunter Lovins. 1999.

“[The State of the Water Industry: A Concise Review of the Challenges and Opportunities in the World Water Market](#)” by Steve Maxwell. TechKNOWLEDGEy Strategic Group. April 2009.

“[Water Scarcity and Climate Change: Growing Risks for Businesses and Investors](#)” by the Pacific Institute. *A Ceres Report*. February 2009.

#### Additional Resources Recommended by the Case Authors:

“[Creating Sustainable Local Enterprise Networks](#)” by David Wheeler et al. *MIT Sloan Management Review*, Fall 2005, pp. 33–40.

“[Paths Out of Poverty: The Role of Private Enterprise in Developing Countries](#),” International Finance Corporation, Washington DC, 2000.

“[Making Markets Work for the Poor: CARE Canada’s Strategy for Helping the Poor through Enterprise](#),” CARE Canada, Ottawa, 2005.

“[Making Markets Work for the Poor: Challenges to Sida’s Support to Private Sector Development](#),” Sida, Stockholm, 2003.

**Thursday, November 26** — All classes cancelled. *Happy Thanksgiving!*

**Tuesday, December 1** — All classes cancelled. *Career Management Day*

## 12. Thursday, December 3

### *Climate Change*

#### Objective:

- An increased understanding of how and why businesses are and can position themselves for competitiveness in response to the challenges posed by climate change and its consequences.

#### Reading Assignments:

“[Business Strategies for Climate Change](#)” by Enkvist et al. *McKinsey Quarterly*. 004755394-2. 2008. (CoursePack)

“[Competitive Advantage on a Warming Planet](#)” by Jonathan Lash and Fred Wellington. *Harvard Business Review*. Reprint #R0703F. March 2007. (CoursePack)

#### Questions to Consider:

- In “Competitive Advantage on a Warming Planet,” the authors assert that responding to the forces of climate change is not enough—that businesses “have to do it better—and more quickly—than [their] competitors.” Based on their paper and the McKinsey briefing paper, what competences and strategies best equip companies to be able to do this?
- Why do the consequences of climate change demand different approaches than the traditional approach which Lash and Wellington describe as regulatory compliance, potential liability, and pollutant release mitigation?
- Using the steps Lash and Wellington outline for improving a company’s competitiveness, look back and assess DuPont’s efforts as described in the readings you did for November 12<sup>th</sup>.

#### Additional Optional Background Readings:

*(If you are not already familiar with climate change science, policy options, and the implications of both on business, you should read the following articles.)*

“[The Latest Myths and Facts on Global Warming](#)” by James Wang and Michael Oppenheimer. Environmental Defense.

“[A Business Executive’s Guide to Global Warming](#)” by Wally Broecker.

*Briefing Papers by the World Resources Institute:* (each is less than 2 pages)

[Bottom Line on Cap-and-Trade](#)

[Bottom Line on Carbon Taxes](#)

[Bottom Line on Climate Policy Terminology](#)

[Bottom Line on Corporate GHG Inventories](#)

## 13. Tuesday, December 8 – Team Presentations

## 14. Thursday, December 10 – Team Presentations

## Appendix A: Assignment Evaluation Criteria

### *Case Brief*

***On a scale of 1-4, to what degree did you in the submitted brief:***

[4 = Excellent (Top 20% of class) 3 = Clearly meets all expectations 2 = Fair 1 = Poor]

- Begin the brief with an accurate and concise description of the significant issues presented in the case. (1/15)
- Use the models and frameworks of basic business strategy in the **analysis** of the case. (3/20)
- Correctly apply (and cite) the assigned readings or other resources in your analysis of the case demonstrating a clear understanding of the concepts/ideas covered in the course and readings. (3/15)
- Present feasible recommendations that were on target given the case context and implications and correctly incorporated ideas from assigned readings. (3/15)
- Prioritize recommendations; explain the prioritization; refer to examples demonstrating the successful outcome of the proposed strategy. (3/15)
- Present a professional document worthy of presentation to a corporate executive or senior management. (Well written and presented; within the page limit). (2/15)

### *Environmental News Briefing*

***On a scale of 1-4, to what degree did you in your news brief:***

[4 = Excellent (Top 20% of class) 3 = Clearly meets all expectations 2 = Fair 1 = Poor]

- Provide a thorough yet concise description of the issue. (3/15)
- Provide relevant background information necessary for the class to understand the context and the significance of the news item. (3/15)
- Identify the implications of the news item for the company or industry in terms of its strategy. (3/15)
- Provide a clear statement of what valuable lesson(s) there is to be learned from the item covered. (3/15)
- Successfully demonstrate good public speaking skills. (3/15)

### *Team Climate Change Project*

***On a scale of 1-4, to what degree did you in your news brief:***

[4 = Excellent (Top 20% of class) 3 = Clearly meets all expectations 2 = Fair 1 = Poor]

- Provide an accurate and concise analysis of the selected industry/company and the ways it may be affected by climate change. (8/30)
- Present feasible recommendations for how the firm can address the climate change with reference to applicable examples of other firms within the same industry and with reference to theories of general management strategy informed by the “green lens” of sustainability. (5/30)
- Present a professional document worthy of presentation to a corporate executive or senior management—i.e., well written, with proper attention paid to the rules of grammar and within the page limit. (4/30)
- Present a professional presentation worthy of presentation to executive or senior management—i.e., well organized, clear, within the time limit. Answer questions authoritatively, seeking clarification when necessary or admitting you don’t know the answer but providing alternatives and sources for additional research. (11/30)
- Correctly cite *credible* resources. (2/30)

## Appendix B: Key Sustainable Business Internet Resources from the Kenan-Flagler Center for Sustainable Enterprise

### Resource Portals

- Sustainable Life Media – [www.sustainablelifemedia.com](http://www.sustainablelifemedia.com)
- JustMeans – [www.justmeans.com](http://www.justmeans.com)
- GreenBiz – [www.greenbiz.com](http://www.greenbiz.com)
- BlueEgg – [www.blueegg.com](http://www.blueegg.com)
- WorldChanging – [www.worldchanging.com](http://www.worldchanging.com)
- WISER Business – [www.naturalcapital.org/wiserbusiness.htm](http://www.naturalcapital.org/wiserbusiness.htm) (*still in development*)

### Sustainable Business News

- CSRwire – [www.csrwire.com](http://www.csrwire.com)
- Ethical Corporation – [www.ethicalcorp.com](http://www.ethicalcorp.com)
- GreenBiz – [www.greenbiz.com](http://www.greenbiz.com)
- Environmental News Network – [www.enn.com](http://www.enn.com)
- ClimateBiz – [www.climatebiz.com](http://www.climatebiz.com)
- Environmental Finance – [www.environmental-finance.com](http://www.environmental-finance.com)
- Sustainable Business News – [www.sustainablebusiness.com/news/index.cfm](http://www.sustainablebusiness.com/news/index.cfm)
- SocialFunds.com – [www.socialfunds.com](http://www.socialfunds.com)
- Origo Social Sector News – [www.origonews.com](http://www.origonews.com)
- WRI's Development through Enterprise – [www.nextbillion.net](http://www.nextbillion.net)
- Ecosystem Marketplace – [www.ecosystemmarketplace.com](http://www.ecosystemmarketplace.com)

### Indices & Sustainability Reports

- Dow Jones Sustainability Index – [www.sustainability-index.com](http://www.sustainability-index.com)
- Global 100 Most Sustainable Companies – [www.global100.org](http://www.global100.org)
- Calvert Social Index – [www.calvert.com/sri\\_calvertindex.html](http://www.calvert.com/sri_calvertindex.html)
- FTSE4Good – [www.ftse.com/Indices/FTSE4Good\\_Index\\_Series/](http://www.ftse.com/Indices/FTSE4Good_Index_Series/)
- Ethibel Sustainability Index – [www.ethibel.org/subs\\_e/4\\_index/main.html](http://www.ethibel.org/subs_e/4_index/main.html)
- CERES Company Sustainability Reports – [www.ceres.org/sustreporting/](http://www.ceres.org/sustreporting/)
- Global Reporting Initiative (GRI) Corporate Reports – [www.globalreporting.org](http://www.globalreporting.org)
- ReportAlert – [www.reportalert.info](http://www.reportalert.info)

### Issue Briefs & White Papers

- Business for Social Responsibility (BSR) Issue Briefs – [www.bsr.org/CSRResources/IssueBriefsList.cfm?area=all](http://www.bsr.org/CSRResources/IssueBriefsList.cfm?area=all)
- SustainAbility Issue Briefs – [www.sustainability.com/insight/issue-briefs.asp](http://www.sustainability.com/insight/issue-briefs.asp)
- UNC Center for Sustainable Enterprise Knowledge Bank – [www.cse.unc.edu/knowledge](http://www.cse.unc.edu/knowledge)

### Organizations

- Business for Social Responsibility (BSR) – [www.bsr.org](http://www.bsr.org)
- World Business Council for Sustainable Development (WBCSD) – [www.wbcsd.org](http://www.wbcsd.org)
- U.S. Business Council for Sustainable Development (USBCSD) – [www.usbcsd.org](http://www.usbcsd.org)
- CERES – [www.ceres.org](http://www.ceres.org)
- Chicago Climate Exchange – [www.chicagoclimatex.com](http://www.chicagoclimatex.com)
- U.S. EPA Climate Leaders – [www.epa.gov/stateply/](http://www.epa.gov/stateply/)
- Society for Organizational Learning (SoL) – [www.solonline.org](http://www.solonline.org)
- Pew Center's Business Environmental Leadership Council – [www.pewclimate.org/companies\\_leading\\_the\\_way\\_belc/](http://www.pewclimate.org/companies_leading_the_way_belc/)
- World Resources Institute – [www.wri.org](http://www.wri.org)
- Social Enterprise Alliance – [www.se-alliance.org](http://www.se-alliance.org)