



## **Accounting Syllabi Related to Pollution Prevention**

- *Management of Environmental Issues*  
Mark Cohen, Vanderbilt University
- *Environmental Accounting*  
Christopher Stinson, University of Texas
- *Seminar on Environmental Accounting*  
Donald E. Stone, University of Massachusetts
- *Waste Reduction, Treatment, and Disposal*  
Mark White, University of Virginia

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**Pollution Prevention  
in Accounting**

NATIONAL POLLUTION PREVENTION CENTER FOR HIGHER EDUCATION

## **Management of Environmental Issues**

Mark Cohen

*Management 5596, Spring 1993*

*Owen Graduate School of Management*

*Vanderbilt University*

Owen Graduate School of Management  
VANDERBILT UNIVERSITY

Management 5596  
Spring 1993

MW 11:10-12:30, room 216

Office Hours: Monday 2:00-3:00 PM or by appointment

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Management of Environmental Issues

COURSE OUTLINE AND SYLLABUS

GOALS OF THE COURSE:

When the first Earth Day celebration was held in 1970, environmentalists were viewed by most business and government leaders as a fringe group in society. Business leaders were almost unanimous in fighting against these "extremist" views. Management of most firms ignored environmental concerns. Aside from hiring an environmental compliance staff (generally engineers who dealt with the construction and maintenance of pollution control equipment), the only other "environmental management" issue might be lobbying Congress or EPA in favor of less stringent laws or regulations.

Today, the world is vastly different. 80% of the U.S. public claims to be an "environmentalist." Managers at major corporations are now beginning to integrate environmental considerations into literally every functional area of their organization. Some are adopting environmental quality as major components of their strategic plans and corporate cultures. Despite a growing need for "environmental literacy," few business schools offer courses dealing specifically with environmental issues. "Management of Environmental Issues" is an attempt to fill this gap at Owen.

The course will begin with an overview of the "state of the environment," and a brief look at the historical growth of the environmental movement, current public attitudes and likely future trends. We will then review some of the theoretical models of public policy, including both positive and normative theories. This section will include such issues as interest group politics, cost-benefit analysis, property rights and market approaches to solving environmental problems. We will also spend some time examining the current state of environmental law and enforcement issues. Following that introduction, we will examine topical environmental issues such as air pollution, wetlands, waste disposal, global warming, deforestation, etc. In each instance, the course will be designed to provide students with:

- (1) a basic technical/scientific understanding of the issue and the nature of any scientific controversy

- (2) the public policy issues, such as the social costs and benefits of alternative policies, and the distribution of costs and benefits
- (3) the political issues, such as interest group and media behavior
- (4) strategic management concerns

Environmental issues now touch virtually every functional area of the firm. We will spend some time exploring the implications of environmental concerns on each functional area of the firm. For example: **Finance:** emission offsets & marketable permits (e.g. Chicago Board of Trade auction of pollution credits), green investing; **Marketing:** green marketing; **Accounting:** environmental auditing, SEC disclosure requirements; **Operations:** environmental TQM and product design issues; **HRM:** Community and worker "Right-to-Know" laws; **Law Department:** criminal liability of corporate officers; **Strategic Management:** new product development and marketing issues; **International:** free trade issues, international treaties and negotiations.

This course will not attempt to indoctrinate students from either the right or the left. Instead, we will hear from both sides - including readings from such favorite environmentalists as our new Vice-President elect as well as from some very serious scientists who would be more inclined to agree with Bush's characterization of Al Gore as "Ozone Man." My goal for this course is to help you understand both sides of these very complex issues, so that you can deal with future business-related environmental issues from an informed and rational perspective.

#### COURSE REQUIREMENTS:

The course will be a combination of lectures, cases, videos and guest speakers. An extensive reading list follows, and a Class Pack is available for purchase through the Bookstore. A few readings are also on reserve at the Owen library. One textbook (Rogene A. Buchholz, Principles of Environmental Management, 1993) has also been assigned.

A major part of the class grade is devoted to participation. Students are expected to come to each class having read the assigned material. Discussion questions will often be handed out in the prior class in order to facilitate reading and subsequent class discussions. Students may be called upon to discuss the readings.

Several short writing assignments will be given throughout the semester. Examples of the type of assignments to be required include: (1) brief summaries or analyses of assigned readings, (2) preparation of an "op-ed" piece suitable for publication in the Wall Street Journal, and (3) short in-class quizzes on the

readings. In most cases, these assignments will be done in groups of 3-5 students.

Finally, students will be expected to prepare a research paper on a topic of their choice. Students may choose to work individually or in a group. I will also consider approving requests to conduct field projects (either firm-specific or consumer-oriented marketing projects) that are related to this course. All projects, topics and groups must be approved in advance by the instructor no later than 5:00 PM, Wednesday, February 3, 1992. Reports on completed project and/or papers are due no later than 5:00 PM, Friday, April 23, 1992.

The paper will constitute 50% of the class grade. The remaining 50% will be equally divided up between class participation and other short written assignments.

#### READING LIST AND COURSE OUTLINE

##### I. INTRODUCTION TO COURSE

"Life in the Balance," (film, shown in class)

##### I. A. ENVIRONMENTAL CHALLENGES: AN OVERVIEW

Buchholz, chapters 1&2

Sandra Postel, "Denial in the Decisive Decade," in Lester R. Brown, et al., State of the World 1992.

George Reisman, "The Toxicity of Environmentalism," in Jay H. Lehr, ed. Rational Readings on Environmental Concerns, 1992. [on reserve in library]

✓ Al Gore, "Dysfunctional Civilization," in Earth in the Balance, 1992, pp. 216-37.

John R. Lott, Jr., "Goring the U.S. Economy," Regulation, Summer 1992. vol. 15, no. 3, pp. 76-80.

"Rio Raised Environmental Commitment in United States, New Survey Finds," Daily Report for Executives, August 6, 1992, p. 152.

##### I. B. CAN CAPITALISTS BE ENVIRONMENTALISTS?

Buchholz, chapter 3

Barry Commoner, "Can Capitalists be Environmentalists?" Business and Society Review, Fall 1990, p. 31-5. [on reserve in library]

Richard L. Stroup and Jane S. Shaw, "The Free Market and the Environment," The Public Interest, no. 97, Fall 1989, pp. 30-43.

Stephan Schmidheiny, "The Business of Sustainable Development," Chapter 1 in Changing Course: A Global Business Perspective on Development and the Environment, 1992, pp. 1-13.

also, "Declaration of the Business Council for Sustainable Development" and "Preface"

J.A. Savage and J.M. Majot, "Industry Preaches Green But is Far From Clean," Business and Society Review, Fall 1992, no. 83, pp. 39-42.

## II. BUSINESS AND ENVIRONMENTAL INSTITUTIONS IN THE U.S.

### II. A. ENVIRONMENTAL MOVEMENT: PAST, PRESENT AND FUTURE

Buchholz, Chapter 4, pp. 102-10

Margaret E. Kriz, "Shades of Green," National Journal, July 28, 1990, p. 18-26.

Rose Gutfeld, "Eight of 10 Americans Are Environmentalists, At Least So They Say," Wall Street Journal, Aug. 2, 1991, p. A1.

Rose Gutfeld, "Environmental Group Doesn't Always Lick 'Em; It Can Join 'Em and Succeed," Wall Street Journal, Aug. 20, 1992, p. B1.

Bill Gifford, "Merchandise the Planet: The National Wildlife Federation Profits by Nature," Washington Times, April 24, 1992.

Richard L. Stroup, "The Market - Conservation's Best Friend," Wall Street Journal, April 19, 1990, p. A14.

"Protest Group Charges EDF With Corruption for Agreeing to Work with GM, Other Companies," Environment Reporter, August 14, 1992, vol. 23, no. 16, p. 1206.

Jo Ann Kwong, "In Whose Interest?" reprinted in Lehr, Rational Readings on Environmental Concerns, 1992 p. 277-289. [on reserve in library]

Stevenson Swanson, "For Poor, Pollution Just One More Hazard," Chicago Tribune, June 29, 1992, p. 1. [on reserve in library]

### II. B. MEDIA COVERAGE OF ENVIRONMENTAL ISSUES

Guest Speaker, Mike Haggerty, Reporter and Visiting Fellow, Freedom Forum

"American Forest Resource Alliance Releases Opinion Poll Results on Northern Spotted Owl Issue," October 29, 1991, PR Newswire.

Patrick J. Michaels, "Following the Sheep Over the Edge," The Plain Dealer, Aug. 10, 1992.

Jane S. Shaw, "Is Environmental Press Coverage Biased," Liberty, vol. 4, no. 1, September 1990.

Morton Mintz, "A Reporter Looks Back in Anger: Why the Media Cover Up Corporate Crime," The Progressive, Dec. 1991.

Dorothy Nelkin, "Risk Reporting and the Management of Industrial Crises," Journal of Management Studies, July 1988, pp. 341-51. [on reserve in library]

## II. CBUSINESS RESPONSE TO ENVIRONMENTAL ISSUES

Jill Abramson, "Big Oil May Have Misfired In Heavy Lobbying Drive," Wall Street Journal, May 25, 1990, p. A6.

✓ Joann S. Lublin, "'Green' Executives Find Their Mission Isn't a Natural Part of Corporate Culture," Wall Street Journal, March 5, 1991, p. B1.

Stephen E. Clark, "How to Survive in the Environmental Jungle," Institutional Investor, December 1990, pp. 89-91.

John H. Sheridan, "Environmental Issues Sap Executive Time," Industry Week, March 16, 1992, pp. 44, 48.

Eric Morgenthaler, "A Florida Utility Wins Naturalists' Praise For Guarding Wildlife," Wall Street Journal, May 7, 1987, p. A1.

Art Kleiner, "The Three Faces of Dow Chemical," Garbage, July 1991 pp. ?? (reprinted in Business and Society Review) pp. 28-35. [on reserve in library]

## II. D. GLOBAL WARMING: SCIENCE OR POLITICS?

"Fear of Frying" - Guest Speaker, Cliff Russell, VIPPS

"Future Conditional: Global Climate Change," (film)

Buchholz, chapter 5.

Douglas Cogan, "Has Global Warming Begun?" in The Greenhouse Gambit: Business and Investment Responses to Climate Change, 1992, pp. 5-22. [on reserve in library]



Al Gore, "Buddha's Breath," in Earth in the Balance, 1992, pp. 81-98.

Richard S. Lindzen, "Global Warming: The Origin and Nature of the Alleged Scientific Consensus," Regulation, Spring 1992, pp. 87-98.

Stephen H. Schneider, "Letter to the Editor," Regulation, Summer 1992, p. 2-3.

Richard S. Lindzen, "Reply," Regulation, Summer 1992, p. 3-5

S. Fred Singer, "Warming Theories Need Warning Label," The Bulletin of the Atomic Scientists, June 1992, pp. 34-9.

Peter M. Morrisette and Andrew J. Plantinga, "The Global Warming Issue: Viewpoints of Different Countries," Resources, Spring 1991, pp. 2-6.

Pierre R. Crosson and Norman J. Rosenberg, "Adapting to Climate Change," Resources, Spring 1991, pp. 17-20.

### III. PUBLIC POLICY ANALYSIS OF ENVIRONMENTAL ISSUES

#### III. A. POSITIVE THEORIES OF ENVIRONMENTAL REGULATION

Buchholz, chapter 4, pp. 78-102.

Richard L. Stroup and John A. Baden, "Resource Management in a Bureaucratic Setting," Chapter 4 in Natural Resources: Bureaucratic Myths and Environmental Management, 1983, pp. 39-51. [on reserve in library]

Maureen L. Cropper, William N. Evans and Paul R. Portney, "An Analysis of EPA Pesticide Regulation," Resources, Winter 1991, pp. 7-10.

see Buchholz, pp. 231-50 for background on Pesticides

Michael T. Maloney and Robert E. McCormick, "A Positive Theory of Environmental Quality Regulation," Journal of Law and Economics, April 1982, vol. 25, pp. 99-123.

B. P. Pashigian, "Environmental Regulation: Whose Self-Interests are being Protected?" Economic Inquiry, 1985, vol. 23, pp. 551-84.

#### III. B. ECONOMIC EFFICIENCY & POLICY OPTIONS FOR PROTECTING THE ENVIRONMENT

David Friedman, "How to Think About Pollution," Liberty, January 1992, pp. 55-9.

Robert N. Stavins, "Harnessing Market Forces to Protect the Environment," Environment, January 1989, vol. 31, no. 1, pp. 5-7, 28-35.

✓ Office of Technology Assessment, "Policy Options and the Challenge of Green Design," Chapter 6 in Green Products by Design, 1992, pp. 79-109

Marshall J. Breger, et al., "Providing Economic Incentives in Environmental Regulation," Yale Journal on Regulation, vol. 8, 1991, pp. 463-88. [on reserve in library]

Rose Gutfeld and Bob Davis, "Program of Pollution-Reduction Credits To Include Various Options for Business," Wall Street Journal, March 16, 1992, p. A9A.

Jeffrey Taylor and Rose Gutfeld, "CBOT Selected to Run Auction for Polluters," Wall Street Journal, Sept. 25, 1992, p. C1.

Fred L. Smith and Kathy H. Kushner, "Good Fences Make Good Neighborhoods," National Review, April 1, 1990, pp. 31-3, 59.

Peter Brimelow and Leslie Spencer, "You Can't Get There from Here," Forbes, July 6, 1992, p. 59-64.

Peter Brimelow and Leslie Spencer, "Should We Abolish the EPA?" Forbes, Sept 14, 1992, p. 432.

### III. C. COST BENEFIT ANALYSIS & THE VALUE OF ENVIRONMENTAL AMENITIES

Tom Tietenberg, "Regulating the Market: Information and Uncertainty," Chapter 4 in Environmental and Natural Resource Economics, 1988, pp. 64-89.

Donald H. Rosenthal and Robert H. Nelson, "Why Existence Value Should Not Be Used in Cost-Benefit Analysis," Journal of Policy Analysis and Management, 1992, vol. 11, no. 1, pp. 116-22.

Raymond J. Kopp, "Why Existence Value Should Be Used in Cost-Benefit Analysis," Journal of Policy Analysis and Management, 1992, vol. 11, no. 1, pp. 123-30.

Albert L. Nichols and Richard J. Zeckhauser, "The Perils of Prudence: How Conservative Risk Assessments Distort Regulation," Regulation, November/December 1986, pp. 13-24.

Albert L. Nichols, "Comparing Risk Standards: The Superiority of a Benefit-Cost Approach," Regulation, Fall 1991, pp. 85-94.

Maureen L. Cropper and Paul R. Portney, "Discounting Human Lives," Resources, Summer 1992, no 108, pp. 1-4.

Bob Davis, "What Price Safety? Risk Analysis Measures Need for Regulation, But It's No Science," Wall Street Journal, Aug. 6, 1992, p. A1.

Al Gore, "Eco-nomics: Truth or Consequences," in Earth in the Balance (New York: Houghton Mifflin, 1992), pp. 182-96.

### III. D. RISK PERCEPTION, NIMBY AND PUBLIC POLICY

Michael Gough, "Environmental Exposures and Cancer Risks," Resources, Winter 1990, pp. 9-12.

✓ Richard Morgenstern and Stuart Sessions, "Weighing Environmental Risks: Which are the Largest Problems EPA Might Tackle? Which are the Smallest?" Environment, vol. 30, no. 6, pp. 15-17, 34-39.

David Stipp, "EPA, Public Differ Over Major Risks," Wall Street Journal, Oct. 1, 1990, p. B1.

HBS Case #9-390-085: Oxford Energy

Thomas W. Lippman, "At Connecticut Plant, Tires to Burn New Tracks in Energy Production," Washington Post, July 21, 1991, p. A3.

### IV. ENFORCEMENT OF ENVIRONMENTAL LAWS

Guest Speaker, Larry Lavender, Administrative Assistant to Congressman Spencer Bachus (R-Alabama)

"The Heat's On: Environmental Law Compliance in the 1990's" (film, shown in class)

John F. Seymour, "Civil and Criminal Liability of Corporate Officers Under Federal Environmental Laws," Environment Reporter, June 9, 1989, vol. 20. no. 6, p. 337-48.

Dan A. Bailey, "The Director As Polluter," Directors and Boards, Summer 1991, pp. 40-42. [on reserve in library]

John D. Fognani, "Environmental Laws Complex, But Compliance Is Crucial," Oil and Gas Journal, Oct. 19, 1992, p. 67-72.

Michael S. Greve, "Private Enforcement, Private Rewards: How Environmental Citizen Suits Became an Entitlement Program," in Michael S. Greve and Fred L. Smith, Jr. (eds.) Environmental Politics: Public Costs, Private Rewards, 1992, pp. 106-127.

## V. CASE STUDIES IN ENVIRONMENTAL REGULATION

Toxic Release Inventory; Guest Speakers:  
Jim Tramel, TN Environmental Council (tentative)  
Ed Thackston, Professor of Civil & Environmental Engineering  
and Public Policy, Vanderbilt (tentative)

### V. A. AIR POLLUTION

Buchholz, chapter 6

Robert W. Hahn, "The Politics and Religion of Clean Air,"  
Regulation, Winter 1990, pp. 21-30.

S. Fred Singer, "My Adventures in the Ozone Layer," National Review, June 30, 1989, pp. 34-8.

Leslie Roberts, "Learning from an Acid Rain Program,"  
Science, March 15, 1991, vol. 251, pp. 1302-5.

David Wessel, "Cost vs. Benefits: Analysis Gets Soft," Wall Street Journal, April 4, 1990, p. A17.

Leslie Spencer, "Not Invented Here," Forbes, October 12,  
1992, pp. 44-5.

### V. B. WASTE DISPOSAL

Buchholz, chapter 9, pp. 271-85.

Buchholz, chapter 12, pp. 374-87.

Lynn Scarlett, "Integrated Waste Management: Rethinking  
Solid Waste Problems and Policy Options," Policy  
Insight, No. 128, May 1991 (Reason Foundation).

### V. C. HAZARDOUS WASTES AND SUPERFUND

Buchholz, chapter 9, pp. 286-305.

Marc K. Landy and Mary Hague, "The Coalition for Waste:  
Private Interests and Superfund," in Michael S. Greve  
and Fred L. Smith, Jr. (eds.) Environmental Politics:  
Public Costs, Private Rewards, 1992, pp. 67-87.

Peter Hong, "The Toxic Mess Called Superfund," Business Week, May 11, 1992, p. 32-4.

Dennis R. Connolly, "Superfund Whacks the Banks," Wall Street Journal, Aug. 28, 1990, p. A10.

Stephen Kleege, "ABA Conference to Focus on Cleanup-Liability Issue," American Banker, May 12, 1992, p. 10.

James Bovard, "Some Waste Cleanup Rules Are a Waste of Resources," Wall Street Journal, Feb 14, 1989, p. A14.

Robert Tomsho, "Big Corporations Hit By Superfund Cases Find Way to Share Bill," Wall Street Journal, April 2, 1991, p. A1.

Don J. DeBenedictis, "How Superfund Money is Spent," ABA Journal, Sept. 1992, p. 30.

#### V. D. WETLANDS

Buchholz, chapter 11

H. Jane Lehman, "A Changing Tide on Wetlands Decisions," Washington Post, January 18, 1992, p. E1.

"Many Businesses Say Wetlands are Overregulated," Philadelphia Business Journal, March 30, 1992, p. 1.

"EPA's Most Wanted," Wall Street Journal, Nov. 18, 1992, p. A16.

#### VI. MANAGING ENVIRONMENTAL ISSUES

Guest Speaker: Gary Minck, Senior Manager of Environmental Affairs, Northern Telecom

##### VI. A. CRISIS MANAGEMENT: OIL SPILL CASE

HBS CASE: Exxon Valdez

John R. Hall, "Managing in Crisis," Owen Manager, Spring 1992, vol. 13, no. 2, pp. 10-13.

##### VI. B. GREEN PRODUCT DESIGN: TQM

Guest Speaker, Steve Hays, Gobbell Hays Partners

✓ Scott McMurray, "Chemical Firms Find That It Pays to Reduce Pollution at Source," Wall Street Journal, June 11, 1991, p. A1.

Office of Technology Assessment, Chapters 2-4, Green Products by Design: Choices for a Cleaner Environment, 1992, pages 23-31, 35-46 and 53-63.

VI. C. GREEN MARKETING

Buchholz, chapter 12, pp. 388-94.

Randolph B. Smith, "Environmentalists, State Officers See Red As Firms Rush to Market 'Green' Products," Wall Street Journal, March 13, 1990, p. B1.

Randolph B. Smith, "Rush to Endorse 'Environmental' Goods Sparks Worry About Shopper Confusion," Wall Street Journal, April 16, 1990, p. B1.

Alecia Swasy, "P&G Gets Mixed Marks as It Promotes Green Image but Tries to Shield Brands," Wall Street Journal, Aug. 26, 1991, p. B1.

✓ Federal Trade Commission, "Guides for the Use of Environmental Marketing Claims," July 1992.

Jerry Taylor, "The Greening of the First Amendment," Regulation, Fall 1991, pp. 35-9.

VI. D. GREEN FINANCE & ACCOUNTING

✓ Rajib N. Sanyal and Joao S. Neves, "The Valdez Principles: Implications for Corporate Social Responsibility," Journal of Business Ethics, vol. 10, 1991, pp. 883-90.

Nell Minow and Michael Deal, "The Shareholders' Green Focus," Directors and Boards, Summer 1991, pp. 35-9. [on reserve in library]

Donna Brown, "Let the Buyer Beware," Management Review, June 1990, pp. 18-21.

Reed Abelson, "Messy Accounting," Forbes, Oct. 14, 1991, p. 172-3.

Amal Kumar Naj, "See No Evil: Can \$100 Billion Have 'No Material Effect' On Balance Sheets?" Wall Street Journal, May 11, 1988, p. A1.

Halley I. Moriyama, "The Environmental Audit," Directors and Boards, Summer 1991, pp. 21-4. [on reserve in library]

## VII. OTHER GLOBAL ENVIRONMENTAL ISSUES

### VII. A. DEFORESTATION & SPECIES EXTINCTION

Buchholz, chapter 10

Robert J. Smith, "The Endangered Species Act: Saving Species or Stopping Growth?" Regulation, Winter 1992, pp. 83-87.

Terry L. Anderson, "Wolves in the Marketplace," Wall Street Journal, Aug. 12, 1991, p. A10.

Roger A. Sedjo, "Preserving Biodiversity as a Resource," Resources, Winter 1992, pp. 26-9.

Richard C. Morais, "Save the Elephants!" Forbes, Sept. 14, 1992, pp. 338-40, 344-5.

### VI. B. INTERNATIONAL TREATIES & FREE TRADE ISSUES

✓ Office of Technology Assessment, "International Comparison of Policies Affecting Green Design," Chapter 5 in Green Products by Design, 1992, pp. 67-75.

Peter Uimonen, "Trade Policies and the Environment," Finance & Development, June 1992, p. 26-7.

Robert Tomsho, "Environmental Posse Fights a Lonely War Along the Rio Grande," Wall Street Journal, Nov. 10, 1992, p. A1.

Jonathan Ferguson and Peter Gorrie, "Trade Pact Under Fire on Environment," Toronto Star, Nov. 4, 1992, p. A12.

Raymond J. Kopp, Paul R. Portney and Diane E. DeWitt, "Comparing Environmental Regulation in the OECD Countries," Resources, Fall 1990, pp. 10-13.



## Pollution Prevention in Accounting

NATIONAL POLLUTION PREVENTION CENTER FOR HIGHER EDUCATION

# Environmental Accounting

Christopher H. Stinson  
*Accounting 380K, Spring 1994*  
*University of Texas*



**Accounting 380K: Environmental Accounting**  
Spring 1994

Monday and Wednesday, 11:00 AM - 12:30 PM, UTC 1.118

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Office Hours: Monday, 1:00-4:00 PM

Businesses use accounting systems to collect and aggregate information that is used by management, investors, lenders, and other parties. Since the National Environmental Policy Act was passed in 1969, there has been an extremely rapid increase in the number of state and federal environmental laws and regulations affecting businesses. This increase in laws and regulations has affected every traditional area of accounting (i.e., financial accounting for public reports, managerial accounting for internal analysis, and tax accounting). Environmental laws and regulations have even created a new area of substance "accounting" in the effluent monitoring reports that many firms must submit to regulators.

The class will review relevant laws and regulations, discuss how these impact the information being reported by different accounting systems (e.g., managerial accounting, tax accounting, financial accounting), and consider how business decisions are being affected by these different sources of information. This class will also consider the impacts of environmental regulations on product costs, the firm's incentive systems, reporting requirements, etc. An environmental accounting class offers several potential benefits to students of environmental management (as well as to students in other areas) including (i) the opportunity to integrate decision-making across several areas of a business (e.g., simultaneous consideration of effects on managerial cost estimates, financial accounting results, and tax effects of a decision), and (ii) the opportunity to analyze the *effects* of environmental regulations on a business (in addition to simply understanding the underlying rules).

Course grades will be based on the following assignments:

Written assignments (4)	20%	[5% each]
Course project	45%	
Quality of class participation	15%	
Final exam	<u>20%</u>	
<b>FINAL GRADE</b>	<b>100%</b>	

The readings for this class will be taken from contemporary literature; they will be available on reserve in the library and in the course packet which you may purchase.

## Environmental Accounting (Accounting 380K) Lecture Schedule

Monday, Wednesday -- 11:00 AM-12:30 PM -- UTC 1.118

- 19 January (W) Introduction to environmental accounting; overview of class.
- 24 January (M) Financial accounting: The discovery and cleanup process at a hazardous waste site.
- 26 January (W) Financial accounting: GAAP disclosures of contingent environmental liabilities.
- 31 January (M) Financial accounting: GAAP disclosures of contingent environmental liabilities (continued).
- 1 February (W) Financial accounting: SEC disclosures of contingent environmental liabilities.
- 7 February (M) Financial accounting: Accounting for pollution permits.
- 9 February (W) Financial accounting: International accounting requirements for environmental issues.
- 14 February (M) Managerial accounting: Environmental compliance costs.
- 16 February (W) Managerial accounting: Environmental compliance costs (continued).
- 21 February (M) Managerial accounting: Pollution-prevention planning.
- 23 February (W) Managerial accounting: Regulatory requirements for pollution-prevention planning.
- 28 February (M) Tax accounting: Environmental taxes and environmental policy.
- 2 March (W) Tax accounting: U.S. environmental taxes.
- 7 March (M) Tax accounting: International environmental taxes.
- 9 March (W) Summary case: Accounting for environmental mitigation costs at Boeing's Everett plant.
- 14-19 March SPRING BREAK
- 21 March (M) Environmental audits: Due-diligence audits.
- 23 March (W) Environmental audits: Compliance audits.
- 28 March (M) Environmental audits: Regulatory policy.
- 30 March (W) Environmental issues and financial institutions.
- 4 April (M) Environmental issues and insurance companies.
- 6 April (W) Environmental issues and chemical companies.
- 11 April (M) Environmental issues and the oil/gas industry.
- 13 April (W) Materials accounting: Introduction.
- 18 April (M) Materials accounting: Life-cycle analysis.
- 20 April (W) Materials accounting: Assessing environmental impacts of emissions.
- 25 April (M) Materials accounting: Regulatory Requirements.
- 27 April (W) Presentation of student cases.
- 2 May (M) Presentation of student cases.
- 4 May (W) Presentation of student cases.
- 11-17 May Final Exams

## **Environmental Accounting (Accounting 380K) Course Readings**

Monday, Wednesday -- 11:00 AM-12:30 PM -- UTC 1.118

Readings for this class will be taken from two general sources: chapters in the assigned texts and individual papers. The individual papers either are part of the reading packet for this class or will be handed out in class.

### **Recommended Texts: (available for purchase at the Co-op)**

- Canadian Institute of Chartered Accountants. 1992. *Environmental Auditing and the Role of the Accounting Profession*. Canadian Institute of Chartered Accountants. Toronto, Canada.
- Canadian Institute of Chartered Accountants. 1993. *Environmental Costs and Liabilities: Accounting and Financial Reporting Issues*. Canadian Institute of Chartered Accountants. Toronto, Canada.
- CH2M HILL. 1993. *The Role of Internal Auditors in Environmental Issues*. The Institute of Internal Auditors Research Foundation
- Stephan Schmidheiny. 1992. *Changing Course: A Global Business Perspective on Development and the Environment*. MIT Press.

### **Recommended Texts: (to be handed out in class)**

- Environmental Protection Agency. 1991. *Pollution Prevention 1991: Progress on Reducing Industrial Pollutants*. EPA 21P-3003. Washington, D.C.
- Environmental Protection Agency. 1992. *Facility Pollution Prevention Guide*. Office of Research and Development, U.S. Environmental Protection Agency, Washington, D.C.
- Environmental Protection Agency. 1992. *Total cost assessment: accelerating industrial pollution prevention through innovative project financial analysis*. Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, D.C.

## Environmental Accounting (Accounting 380K) Course Project

Monday, Wednesday – 11:00 AM-12:30 PM – UTC 1.118

The business costs associated with environmental regulations have increased rapidly in the past 10-15 years. Traditionally, these costs have *not* been traced to specific production processes, but have been assigned to general overhead and then allocated across all of a firm's production processes. In the past, this has been an acceptable way of accounting for these costs because (i) the information system costs of tracking environmentally-related costs were relatively high, and (ii) the environmentally-related expenses were relatively low. The economic cost of product production was not grossly distorted by this traditional allocation method.

However, these traditional cost allocation methods are less appropriate than they once were because many environmental regulations have become more expensive, more specific, and more time-consuming to comply with. As these compliance costs increase relative to other costs, it becomes more important in competitive business environments to accurately assign these costs. Furthermore, many new regulatory policies are designed to pass social costs of the environmental impacts of business activities directly to the businesses; however, if firms aren't tracing these costs in an appropriate fashion, the regulations won't work as designed.

**Assignment:** Working in groups of no more than 4 students, locate a firm that is willing to work with you on this project. Your assignment is (i) to document the environmental issues that affect this firm, (ii) to describe the costs and benefits associated with these issues, and (iii) to describe how the firm accounts for these costs. The environmental issues may include (but are not limited to) non-hazardous waste generation, hazardous waste generation, recycling requirements, air pollution regulations, and water pollution regulations. In examining how the firm accounts for these costs, you should consider (at the least) whether there are any costs that specifically arise from particular parts of the firm's operations, how these costs are treated in the firm's cost accounting system, and whether environmental costs affect employee compensation. Your final report should discuss how the observed accounting practices might be improved as well as what factors constrain the firm's ability to modify its accounting practices.

### Course Project Due Dates:

31 January: Hand in list of group participants.

9 March: Hand in signed letter of understanding between your group members and liaison for project firm.

30 March: Hand in draft list of environmental costs that your project firm faces.

27 April, 2 May, and 4 May: In-class presentation of project results (order determined randomly).

4 May: Course Project writeup due at beginning of class

## Environmental Accounting (Accounting 380K) Class Assignments

Monday, Wednesday -- 11:00 AM-12:30 PM – UTC 1.118

1. **19 January (W)** Introduction to environmental accounting; overview of class.

Objective: To provide an overview of the topics encompassed by environmental accounting.

Reading Assignment:

- Schmidheiny, S.C. 1993. "The Business of Sustainable Development," Chapter 1 in *Changing Course*. MIT Press, Cambridge, MA.
- Stinson, C.H., and S.C. Schaltegger. 1993. Environmental accounting. Unpublished working paper.

2. **24 January (M)** Financial accounting: The discovery and cleanup process at a hazardous waste site.

Objectives:

- Review Federal laws affecting hazardous waste-site cleanup: RCRA, CERCLA, and SARA.
- Understand process of (and associated problems with) identifying Superfund sites, establishing a cleanup plan, conducting site cleanup, and monitoring the site after cleanup.
- Understand how hazardous-waste site cleanup costs are generated.
- Review alternatives to current laws (and their potential problems).

Reading Assignment:

- Dower, R.C. 1990. Hazardous wastes. Pp. 151-194 in P.R. Portney (ed.) *Public Policies for Environmental Protection*. Resources for the Future, Washington, D.C.

Discussion Questions:

- What are the major steps in an EPA-mandated cleanup of a hazardous waste site?
- What are the different costs that businesses potentially face in cleaning up hazardous waste sites?

3. **26 January (W)** Financial accounting: GAAP disclosures of contingent environmental liabilities.

Objectives: Understand contemporary GAAP disclosure requirements regarding environmental liabilities.

Understand probable changes in GAAP disclosure requirements regarding environmental liabilities.

Reading Assignment:

- Abelson, R. 1991. Messy accounting. *Forbes*, 14 October 1991, pp. 172-173.
- Barrett, M.J., W.H. Beaver, W.W. Cooper, J.A. Milburn, D. Solomons, and D.P. Tweedle. 1991. American Accounting Association Committee on Accounting and Auditing Measurement, 1989-1990. *Accounting Horizons* 5(3):81-105.
- Creative Crockery—A Company Going to Pot? 1989. Deloitte & Touche.
- Emerging Issues Task Force. 1989-1993. Accounting for the cost of asbestos removal, Capitalization of costs to treat environmental contaminants, and Accounting for environmental liabilities.

- Johnson, L.T. 1993. Research on environmental reporting. *Accounting Horizons* 7(3):118-123.
- Surma, J.P., and A.A. Vondra. 1992. Accounting for environmental costs: a hazardous subject. *Journal of Accountancy* (March 1992):51-55.
- Zuber, G.R., and C.G. Berry. 1992. Assessing environmental risk. *Journal of Accountancy* (March), pp. 43-48.

Discussion Questions:

- Based on Zuber and Berry (1992) and Surma and Vondra (1992), what environmental disclosures are required under GAAP? Where are these disclosures made?
- Prepare answers to the Creative Crockery case.
- What is the basis of Abelson's (1991) criticism of the actual disclosures?
- What recommendations does the EITF (1989-1993) make regarding the treatment of environmental costs? What unresolved issues in financial reporting does Johnson (1993) perceive? What shortcomings in environmental disclosures are described by Barret *et al.* (1991) (and by Cooper in his Minority Report)?

**4. 31 January (M)** Financial accounting: GAAP disclosures of contingent environmental liabilities (con't).

Objectives: Review contemporary research on the effect of unreported environmental liabilities and voluntary disclosures on the market value of publicly-traded corporations.

Reading Assignment:

- Aeppel, T. 1993. Firms reveal more details of environmental efforts but still don't tell all. *Wall Street Journal* (13 December 1993), p. B1.
- Bailey, J. 1992. Safety-Kleen plans to take a write-off due to snafu over wastes; stock sags \$3. *Wall Street Journal* (6 August 1992), p. A4.
- Barth, M.E., and M.F. McNichols. 1994. Estimation and market valuation of environmental liabilities relating to Superfund sites. Unpublished working paper.
- Blacconiere, W.G., and D.M. Patten. 1994. Environmental disclosures, regulatory costs, and changes in firm value. *Journal of Accounting and Economics*, in press.
- McMurray, S. 1992. Monsanto doubles liability provision for treating toxic waste to \$245 million. *Wall Street Journal* (23 March 1992), p. A7.

Discussion Questions:

- What factors would affect whether there is (e.g., Bailey 1992) or isn't (e.g., McMurray 1992) a change in stock price in response to an announcement of an anticipated environmental liability?
- Blacconiere and Patten (1994) find a positive market reaction to voluntary environmental disclosures. Aeppel (1993) describes some additional voluntary disclosures. What factors encourage and discourage voluntary (i.e., non-mandated) disclosures?
- What contingent environmental liabilities do Barth and McNichols (1994) find correlate with firms' market value? What are the implications of these results for standards-setting bodies such as FASB?

Course Project Progress Report Due: Hand in list of group participants.

**5. 1 February (W)** Financial accounting: SEC disclosures of contingent environmental liabilities.

Objective: Understand contemporary SEC disclosure requirements regarding environmental liabilities.

Reading Assignment:

- Berton, T. 1993. SEC rule forces more disclosure. *Wall Street Journal* (13 December 1993), pp. B1, B3.
- Securities and Exchange Commission. 1989. Management' discussion and analysis of financial condition and results of operations; certain investment company disclosures. *Federal Register* 54:22427-22436.
- Securities and Exchange Commission. 1992. *Regulation S-K*. SEC, Washington, D.C.
- Securities and Exchange Commission. 1993. *Staff Accounting Bulletin No. 92*. SEC, Washington, D.C.
- Surma, J.P., and A.A. Vondra. 1992. Accounting for environmental costs: a hazardous subject. *Journal of Accountancy* (March 1992):51-55.
- Zuber, G.R., and C.G. Berry. 1992. Assessing environmental risk. *Journal of Accountancy* (March), pp. 43-48.

Discussion Questions:

- Based on Zuber and Berry (1992), Surma and Vondra (1992), and the three SEC documents, what environmental disclosures are required by the SEC? Where are these disclosures made? What is the relationship between FASB requirements and SEC requirements?
- What business decisions are likely to be influenced by current GAAP and SEC requirements for disclosure of environmental assets and liabilities?
- Review the 1992 annual report for the Fortune 100 manufacturing company you were assigned. What disclosures related to environmental issues are made in this annual report? Where in the annual report are each of disclosures made? Which of these disclosures are required? (Hand in; not graded).

**6. 7 February (M)** Financial accounting: Accounting for tradeable pollution permits.

Objectives:

- Understand the economic and regulatory rationale for pollution permits.
- Understand the accounting treatment of pollution permits.

Reading Assignment:

- Anonymous. 1993. Right to pollute. *Economist* (30 October 1993), pp. 77-78.
- Byrd, J., and T. Zvirlein. 1993. Environmental protection and forward contracts: sulfur dioxide emission allowances. *Journal of Applied Corporate Finance* 6(3):109-110.
- Cairncross, F. 1992. Making polluters pay. Chapter 4, pp. 89-109 in *Costing the Earth*. Harvard Business School Press, Cambridge, MA. See especially pp. 100-106.
- Ewer, S.R., J.R. Nance, and S.J. Hamlin. 1992. Accounting for tomorrow's pollution controls. *Journal of Accountancy* (July), pp. 69-74.

- Johannes, L. 1993. State bank for pollution-control credits generates low interest among business. *Wall Street Journal* (24 November 1993), p. T4.
- Klebnikov, P. 1993. Pollution rights, wronged. *Forbes* (22 November 1993), p. 128.
- Taylor, J. 1992. New rules harness power of free markets to curb air pollution. *Wall Street Journal* (14 April 1992), pp. A1, A9.
- U.S. General Accounting Office. 1992. *Water Pollution: Pollutant trading could reduce compliance costs if uncertainties are resolved*. GAO RCED-92-153, Washington, D.C.
- Wald, M.L. 1992. He doesn't call them dirty deals. *New York Times* (13 May 1992), p. C4.
- Wald, M.L. 1992. Utility reports second sale of its pollution allowances. *New York Times* (13 May 1992), p. C4.

Discussion Questions:

- What are tradeable pollution permits (Cairncross 1992, GAO 1992), who issues them (Anonymous 1993, Byrd and Zwirlein 1993, Johannes 1993, Taylor 1992), and how are they traded (Wald 1992)?
- How should firms account for these permits under GAAP (Ewer, Nance, and Hamlin 1992)? Will additional disclosure required by the SEC? How do regulatory bodies account for these permits (Klebnikov 1993)?
- What are the advantages and disadvantages of using pollution permits as regulatory tools (Cairncross 1992, Klebnikov 1993)? How does accounting treatment affect the business to sell or purchase tradable permits?

**7. 9 February (W) Financial accounting: International accounting requirements for environmental issues.**

Objective: Begin to understand international financial accounting requirements for environmental issues.

Reading Assignment:

- Anonymous. 1992. Paying for the past. *Economist* (29 February 1992), p. 80.
- Anonymous. 1993. Dirty legacy. *Economist* (18 September 1993), pp. 74-75.
- Canadian Institute of Chartered Accountants. 1993. *Environmental Costs and Liabilities: Accounting and Financial Reporting Issues*. Canadian Institute of Chartered Accountants. Toronto, Canada. Chapters 3, 4, 6, and 7.

Written Assignment Due Noon 8 February:

- For the country that you are assigned, identify all external (i.e., financial accounting) reporting requirements associated with environmental accounting issues. Your analysis should include both the treatment of remediation costs and the recognition of environmental liabilities. A summary of all reports will be distributed in class on 9 February.

Discussion Questions:

- Be prepared to discuss the main results in the report you prepared on your assigned country.
- The two articles from the *Economist* illustrate that many countries have environmental problems. How are remediation and regulatory costs reflected in financial statements around the world?
- How do Canada's financial reporting requirements differ from the U.S.'s?



## 8. 14 February (M) Managerial accounting: Environmental compliance costs.

### Objectives:

- Understand the main environmental compliance costs that affect businesses.
- Understand costs and benefits associated with tracing these costs to their “source” process.

### Reading Assignment:

- Dower, R.C. 1990. Hazardous wastes. Pp. 151-194 in P.R. Portney (ed.) *Public Policies for Environmental Protection*. Resources for the Future, Washington, D.C.
- Hamner, B., and C.H. Stinson. 1994. Managerial accounting and environmental compliance costs. *Journal of Cost Accounting*, in press.
- Spitzer, M.A. 1992. Calculating the benefits of pollution prevention. *Pollution Engineering* (September), pp. 33-38.
- Todd, R. 1992. Zero-loss environmental accounting systems. New York University working paper.

### Discussion Questions:

- What are the advantages of tracing environmental costs in the manner proposed in the articles by Todd (1992) and Spitzer (1992)? What factors do Spitzer (1992) and Hamner and Stinson (1993) suggest have kept companies from adopting these practices?
- Some countries currently require firms to take back and recycle their product packaging. Additionally, there are proposals to make businesses take back and recycle (or dispose of) worn-out products. From a managerial accounting perspective, how should these potential costs be treated? From a financial accounting perspective, how should these contingent liabilities be treated? What do companies do currently?

## 9. 16 February (W) Managerial accounting: Environmental compliance costs (continued).

Objectives: Evaluate how four different firms account for environmental compliance costs.

### Reading Assignment:

- Stinson, C.H. 1994. Cascade Cabinet. Case prepared for World Resources Institute.
- Stinson, C.H. 1994. Eldec Corporation. Case prepared for World Resources Institute.
- Stinson, C.H. 1994. Heath Techna. Case prepared for World Resources Institute.
- Stinson, C.H. 1994. Spectrum Glass. Case prepared for World Resources Institute.

### Discussion Questions:

- What environmental compliance costs affect each of these four firms?
- When should costs arising from environmental regulations be traced to their “source” within the company and when should they be treated as part of general overhead?
- What similarities do you note *across firms* in how these costs are accounted for?
- What differences do you note *across firms* in how these costs are accounted for?

10. 21 February (M) Managerial accounting: Pollution-prevention planning.

Objectives:

- Understand the motivation for “pollution prevention”.
- Understand how to financially evaluate pollution prevention opportunities.

Reading Assignment:

- Environmental Protection Agency. 1991. *Pollution Prevention 1991: Progress on Reducing Industrial Pollutants*. EPA 21P-3003. Washington, D.C. Chapters 1 and 2; skim Chapter 3.
- Environmental Protection Agency. 1992. *Facility Pollution Prevention Guide*. Office of Research and Development, U.S. Environmental Protection Agency, Washington, D.C. Optional: Chapters 1, 6, and 8.
- Environmental Protection Agency. 1992. *Total cost assessment: accelerating industrial pollution prevention through innovative project financial analysis*. Office of Pollution Prevention and Toxics, U.S. Environmental Protection Agency, Washington, D.C. Chapter 3.
- Schmidheiny, S. 1992. *Changing Course: A Global Business Perspective on Development and the Environment*. MIT Press. Chapter 7.
- Wittman, M.R. 1991. Lightolier, Inc. July 1991 manuscript prepared for Northeast Waste Management Officials' Association and Commonwealth of Massachusetts Office of Technology Assistance.

Discussion Questions:

- What is “pollution prevention”? Is *all* pollution prevented?
- What is total cost assessment (Chapter 3 in *Total Cost Assessment*)? Why might this be preferable to conventional cost assessment?
- Read the Lightolier case (Wittman 1991). Critique the analysis provided by the consultant.

11. 23 February (W) Managerial accounting: Regulatory requirements for pollution-prevention planning.

Objectives: Understand the main regulatory requirements for pollution-prevention planning.

Reading Assignment:

- Environmental Protection Agency. 1991. *Pollution Prevention 1991: Progress on Reducing Industrial Pollutants*. EPA 21P-3003. Washington, D.C. Chapters 4 and 5, Appendices A and B.
- Hamner, B., and C.H. Stinson. 1994. Managerial accounting and environmental compliance costs. *Journal of Cost Accounting*, in press.

Discussion Questions:

- What federal *requirements* are there for pollution prevention?
- Hamner and Stinson (1994) describe some managerial accounting practices that must be reported in some states. What are the economic benefits of mandating certain managerial accounting practices? What are the economic costs of these requirements? How would you decide whether the regulation's costs were worth their potential benefit?

12. 28 February (M) Tax accounting: Environmental taxes and environmental policy.

Objective: Understand the economic motivation for using taxes as a tool for implementing environmental policy.

Reading Assignment:

- Cairncross, F. 1992. Making polluters pay. Chapter 4, pp. 89-109 in *Costing the Earth*. Harvard Business School Press, Cambridge, MA. See especially pp. 95-100.
- Perlis, M.L. 1992. Comparing taxes and marketable allowances as policy tools for reducing pollution emissions and energy consumption. *National Tax Association—Tax Institute of America Proceedings of the Eighty-fourth Annual Conference 1991*:201-205.
- Schmidheiny, S. 1992. *Changing Course: A Global Business Perspective on Development and the Environment*. MIT Press. Chapter 2.
- Stinson, C.H. 1993. What should an energy tax do? *Northwest Environmental Journal* 9:131-135.

Discussion Questions:

- How are taxes used to implement environmental policy (Cairncross 1992, Schmidheiny 1992)?
- What are the economic effects of energy taxes (Perlis 1992, Stinson 1993)?

13. 2 March (W) Tax accounting: U.S. environmental taxes.

Objective: Understand the main federal taxes affecting environmental policy.

Reading Assignment:

- Yancey, T.H. 1992. Tax consequences of environmental cleanups. Pp. 241-254 in Thomas F.P. Sullivan (ed.) *The Greening of American Business*. Government Institutes, Inc. Rockville, Maryland.

Discussion Questions:

- Does the current “Superfund” tax fairly tax those who are responsible for the U.S.’s hazardous waste problems?
- How does the tax treatment of Superfund cleanup costs differ from the financial accounting treatment of those costs?

14. 7 March (M) Tax accounting: International environmental taxes.

Objective: Begin to understand some of the tax policy options that have been implemented internationally.

Reading Assignment: No reading assignment; review lecture handout after class.

Written Assignment Due Noon 6 March:

- For the country that you are assigned, identify all environmental taxes imposed by the federal government. A summary of all reports will be distributed in class on 7 March.

Discussion Question:

- Be prepared to discuss the main results in the report you prepared on your assigned country.

15. 9 March (W) Summary case: Accounting for environmental mitigation costs at Boeing's Everett plant

Objectives: Review financial, managerial, and tax accounting treatment of some environmental costs.

Reading Assignment:

- Lobos, L. 1992. Boeing will pay fine over hazardous waste. *Seattle Times* (14 January 1992), p. B1.
- Soderstrom, N., and C.H. Stinson. 1994. Accounting for Government-imposed Mitigation Costs: Expansion of Boeing's Everett Airplane Manufacturing Facility.

Written Assignment Due at 11:00 AM in class:

- Study the Boeing case materials (Soderstrom and Stinson 1994). How should Boeing account for the mitigation costs imposed by the City of Everett? Where does Boeing have flexibility in their accounting decision, and where do regulators or accounting standards impose binding constraints? What management issues have to be considered with these accounting decisions? Justify your conclusions.

Discussion Questions:

- Be prepared to describe and defend the recommendations you make in your write-up.

Course Project Progress Report Due:

- Hand in signed letter of understanding between your group members and liaison for project firm.

14-19 March SPRING BREAK

16. 21 March (M) Environmental audits: Due-diligence audits.

Objectives:

- Understand the motivation for due-diligence audits.
- Understand some of the problems that arise during the course of due-diligence audits.

Reading Assignment:

- Canadian Institute of Chartered Accountants. 1992. *Environmental Auditing and the Role of the Accounting Profession*. Canadian Institute of Chartered Accountants. Toronto, Canada. Chapter 3.
- CH2M Hill. 1993. *The Role of Internal Auditors in Environmental Issues*. The Institute of Internal Auditors Research Foundation, Altamonte Springs, Florida. Chapters 1 and 2.
- Skellenger Bender Mathias Bender & Gould, P.S. 1992. Limitation of liability clauses gaining popularity among environmental consultants. *Environline: The Bulletin of the Association of Northwest Environmental Professionals* (Spring 1992):4-5.
- Stipp, D. 1992. Toxic chemicals have fewer places to hide. *Wall Street Journal* 29 April 1992, p. B1.

Discussion Questions:

- What are the different kinds of environmental audits (CICA 1992, CH2M Hill 1993)?
- What is a due-diligence audit? How does a due-diligence (or "transactional") audit differ from compliance financial-statement audits?

- Although most people usually think of accountants as being responsible for audits, most transactional audits are undertaken by environmental engineers. Environmental engineers typically limit their liability (in the event of audit failure) to the cost of the transactional audit (Skellenger *et al.* 1992). CPAs may have unlimited liability if they fail to discover material mistakes in financial statements. How will this differential liability affect auditor behavior and user confidence in the different types of audits?

17. 23 March (W) Environmental audits: Compliance audits.

Objectives:

- Understand the motivation for compliance audits.
- Understand some of the problems that arise during the course of compliance audits.

Reading Assignment:

- Canadian Institute of Chartered Accountants. 1992. *Environmental Auditing and the Role of the Accounting Profession*. Canadian Institute of Chartered Accountants. Toronto, Canada. Chapters 3 and 6.
- CH2M Hill. 1993. *The Role of Internal Auditors in Environmental Issues*. The Institute of Internal Auditors Research Foundation, Altamonte Springs, Florida. Chapters 3 and 4.
- Roussey, R.S. 1992. Auditing environmental liabilities. *Auditing: A Journal of Practice & Theory* 11:47-57.

Discussion Questions:

- How does a compliance audit differ from a traditional audit?
- How does an operational audit differ from compliance or transactional audits? Who bears the cost of mistakes made in an operational audit?
- What environmental issues does Roussey (1992) suggest should be considered by an independent auditor when auditing a firm's financial statements?

18. 28 March (M) Environmental audits: Regulatory policy.

Objectives:

- Understand U.S. and international regulatory policy regarding environmental audits.
- Understand some of the incentive problems created by these regulatory policies.

Reading Assignment:

- Canadian Institute of Chartered Accountants. 1992. *Environmental Auditing and the Role of the Accounting Profession*. Canadian Institute of Chartered Accountants. Toronto, Canada. Pages 15-23.
- Doyle, J. 1992. Audits are their own reward. *The Environmental Forum* (January/February), pp. 38-39.
- Environmental Protection Agency. 1986. Environmental auditing policy statement. *Federal Register* 51:25004-25010.
- Moore, J.R. 1992. Protection will increase compliance. *The Environmental Forum* (January/February), pp. 39-41.

- Walker, M.J. 1992. Trust in auditing, but verify. *The Environmental Forum* (January/February), pp. 41-42.
- Welks, K. 1992. Recognize admissions, don't excuse violations. *The Environmental Forum* (January/February), pp. 42-43.

Discussion Questions:

- What incentive problem associated with compliance audits is described by Moore (1992)? How have the EPA and the U.S. Department of Justice responded to this problem? Should they do more?

Written Assignment Due at 11:00 AM in class:

- In the next four classes, we will review how environmental issues affect financial institutions, insurance companies, chemical companies, and oil/gas companies. Prior to these classes, you are to choose one of these four industry groups and you will become relatively expert in how environmental issues and costs affect your chosen industry. Write a 2-5 page description (with references) of the major environmental issues, potential regulatory (and other) costs, and prospective benefits affecting your chosen industry both in the U.S. and in international markets.

**19. 30 March (W) Environmental issues and financial institutions.**

Objective: Understand current and future environmental issues affecting financial institutions.

Reading Assignment:

- Bank of America. 1993. "Environmental responsibility" Section 1.2 in *Corporate Credit Lending Policy*. Bank of America, San Francisco.
- Bank of America. 1993. Section dealing with hazardous wastes and toxic substances, *Credit Policy Manual*. Bank of America, San Francisco.
- Canadian Institute of Chartered Accountants. 1992. *Environmental Auditing and the Role of the Accounting Profession*. Canadian Institute of Chartered Accountants. Toronto, Canada. Appendix 3.
- Schmidheiny, S. 1992. *Changing Course: A Global Business Perspective on Development and the Environment*. MIT Press. Chapters 4 and 14.

Discussion Questions:

- What environmental issues and costs should *proactive* financial-institution managers be thinking about?
- If this was the industry group you chose for your 28 March written report, be prepared to discuss the main points in your report.

Course Project Progress Report Due: Hand in draft list of environmental costs that your project firm faces.

**20. 4 April (M) Environmental issues and insurance companies.**

Objective: Understand current and future environmental issues affecting insurance companies.

Reading Assignment:

- Canadian Institute of Chartered Accountants. 1992. *Environmental Auditing and the Role of the Accounting Profession*. Canadian Institute of Chartered Accountants. Toronto, Canada. Appendix 2.

- Oster, S. 1993. Insurance for environmental hazards. Paper presented at October 27, 1993 AICPA Environmental Conference, Orlando, Florida.
- Roush, C. 1993. The hurricane called Superfund. *Business Week* (2 August 1993), pp. 74-75.

Discussion Questions:

- What environmental issues and costs should *proactive* insurance-company managers be thinking about?
- If this was the industry group you chose for your 28 March written report, be prepared to discuss the main points in your report.

21. 6 April (W) Environmental issues and chemical companies.

Objective: Understand current and future environmental issues affecting chemical companies.

Reading Assignment:

- Schmidheiny, S. 1992. *Changing Course: A Global Business Perspective on Development and the Environment*. MIT Press. "Du Pont" pp. 193-196, "S.C. Johnson" pp. 217-220, "The Chemical Industry" pp. 221-223, and Chapter 15.

Discussion Questions:

- What environmental issues and costs should *proactive* chemical managers be thinking about?
- If this was the industry group you chose for your 28 March written report, be prepared to discuss the main points in your report.

22. 11 April (M) Environmental issues and the oil/gas industry.

Objective: Understand current and future environmental issues affecting the oil/gas industry.

Reading Assignment:

- Amoco and U.S. Environmental Protection Agency. 1992. "Executive Summary," pp. 1-1 through 1-23 in *Amoco/USEPA Pollution Prevention Project: Project Summary*. Amoco Corporation.
- Schmidheiny, S. 1992. *Changing Course: A Global Business Perspective on Development and the Environment*. MIT Press. "Shell" pp. 201-204, "ENT" pp. 312-314

Discussion Questions:

- What environmental issues and costs should *proactive* oil/gas managers be thinking about?
- If this was the industry group you chose for your 28 March written report, be prepared to discuss the main points in your report.

23. 13 April (W) Materials accounting: Introduction.

Objective: Understand the motivation for materials accounting.

Reading Assignment:

- National Research Council. 1990. "Executive Summary," pp. 1-8 in *Tracking Toxic Substances at Industrial Facilities: Engineering Mass Balance versus Materials Accounting*. National Academy Press, Washington, D.C.

Discussion Questions:

- What is materials accounting (NRC 1990)?
- From an accounting systems perspective, what problems and opportunities does materials accounting create.

24. 18 April (M)      Materials accounting: Life-cycle analysis.

Objective: Understand the motivation and limitations of life-cycle analysis.

Reading Assignment:

- Huizing, A., and H.C. Dekker. 1992. Helping to pull out planet out of the red: an environmental report of BSO/Origin. *Accounting, Organizations and Society* 17(5):449-458.
- Schmidheiny, S. 1992. *Changing Course: A Global Business Perspective on Development and the Environment*. MIT Press. Chapter 16.

Discussion Questions:

- What is life-cycle analysis? What role can a firm's accounting staff play in undertaking life-cycle analysis?
- BSO's president says the company won't repeat the exercise of extensive environmental disclosure (reviewed by Huizing and Dekker [1992]) because much of their environmental impact is "forced" on them by the companies from whom BSO buys products and supplies and, consequently, BSO's actual impact is overstated. What are the implications of this perspective for future disclosures of environmental impacts in corporate annual reports?

25. 20 April (W)      Materials accounting: Assessing environmental impacts of emissions.

Objective: Understand some of the scientific and policy issues involved in assessing the *impact* of emissions.

Reading Assignment:

- Grimsted, B.A., S.C. Schaltegger, C.H. Stinson, and C.S. Waldron. 1993. Assessing environmental impacts of chemical emissions. Unpublished working paper.

Discussion Question:

- Why might managers be interested in estimating the *impact* of their emissions rather than simply satisfying themselves (e.g., via compliance audits) that they are complying with current regulatory limits?

26. 25 April (M)      Materials accounting: Regulatory Requirements.

Objective: Understand the major federal requirements for materials accounting.

Reading Assignment: No reading assignment; review lecture notes after class.

Discussion Question:

- How do federal requirements for materials accounting affect the design of a firm's accounting systems?



27. 27 April (W) Presentation of Course Project results.

28. 2 May (M) Presentation of Course Project results.

29. 4 May (W) Presentation of Course Project results.

Written Assignment Due at 11:00 AM in class: Course Project writeup due.

Final Exam: Takehome final exam will be handed out at the end of class; this exam will be due in my office at the end of our regularly-scheduled exam time.

11-17 May Final Exams



**Pollution Prevention  
in Accounting**

NATIONAL POLLUTION PREVENTION CENTER FOR HIGHER EDUCATION

## Seminar on Environmental Accounting

Donald E. Stone

*SOM 591A, Fall 1993*

*School of Management,*

*University of Massachusetts*

envacsem/2

**SOM 591A\***

**SEMINAR ON ENVIRONMENTAL ACCOUNTING**

FALL SEMESTER 1993

*Prof. Donald E Stone*

Mondays, 6:30 - 9:00 PM, SOM rm 102

Sch. No. 667925

**COURSE DESCRIPTION:**

Environmental accounting is concerned with the ways in which existing accounting theory and practice fail to adequately account for the increasing environmental concerns and crises which are attributed to the economic activities of nations, regional economies, and organizations (especially business and commercial organizations). Equally important, environmental accounting is also concerned with developing new and improved theory and practices that will contribute in positive and constructive ways to developing more ecologically sound and sustainable economic decisions and performance by governments and organizations.

This concern for the environmental implications of economic activity and decision making is often expressed under the term, **sustainable development**. Given credence and currency first by the United Nations World Commission on Economic Development (Brundtland) Report in 1987, and reinforced by "The Environmental Summit" in 1992, sustainable development has been defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." There have been many other definitions suggested, and the concept has been debated and challenged, but I believe it represents the most compelling and challenging problem facing this generation, and it is of paramount relevance to accounting and accountants.

There can be no meaningful definition or implementation of **sustainable development** without substantial modifications to existing accounting practice and the development of a wide range of new accounting concepts and techniques to support efforts of governments and organizations to achieve the goals of sustainable development.

Within the last five years, accounting for the environment has moved from being considered the most marginal and irrelevant of topics to its present position of occupying an increasingly central role in the deliberations of the worldwide accounting profession. There is a large and rapidly increasing body of literature in the accounting and business

journals covering a broad spectrum of issues and topics that are legitimately included under the heading, ENVIRONMENTAL ACCOUNTING. There is a steadily increasing amount of environmentally related reporting and disclosure in published corporate annual reports, and more explicit concern with such reporting taken by the accounting profession and regulatory agencies. Even reactionary and environmentally less sensitive businesses are acutely aware of the increasing environmental cost, risks and liabilities in their activities and decision-making, while more environmentally pro-active businesses are seeing environmental strategy and performance as a source of competitive advantage and profitability. These developments have led to modification of existing accounting practices and the creation of a variety of new techniques and practices that constitute a substantial and growing environmental accounting practice.

The purpose of this seminar will be to begin to explore this growing literature on environmental accounting and to learn about some of the successful (and unsuccessful) efforts and applications in environmental accounting practice. We will pursue this goal through a substantial reading program, centered around the recently published book by Rob Gray, ACCOUNTING FOR THE ENVIRONMENT, plus a number of journal articles and other readings assembled by the instructor (see attached partial reading list) and identified by the individual research efforts and interests of the seminar participants. We will also make use of published annual reports, case studies, and even plant visits to environmentally concerned organizations in the area. Indeed, one of the primary goals of this experimental seminar is to identify and develop suitable and effective materials and methods for learning more about environmental accounting.

In addition to the above activities, each seminar participant will be responsible for researching and presenting a written and oral report on some topic related to environmental accounting. Also, we may work some case studies together which could require written reports. No formal examinations are likely, but there will be some formal effort to secure accountability for each participant's efforts and accomplishments for the semester.

### **WHO SHOULD TAKE PART IN THIS SEMINAR?**

This seminar is open to graduate students and advanced undergraduate (usually seniors) with a serious interest in and concern for environmental issues in management. It is not limited to accounting majors and may even be appropriate for non-SOM students. The seminar will surely be enriched by a multiple disciplinary participation since the environmental concerns and potential solutions are also clearly multi-disciplinary in nature.

Due to the accounting focus, however, it is expected that participants have at least a basic background in financial and managerial accounting (Accounting 221 and 222 for undergraduates, SOM 630 and 631 for graduate students) or the consent of the instructor.

Enrollment will be limited to a maximum of ten students. Participation by other faculty is welcome.

## **TIME AND PLACE:**

The seminar will normally meet once a week, tentatively scheduled for Monday evenings, 6:30 - 9:00 PM. The meeting time is negotiable and will be reestablished to meet the needs and desires of the participants. Some field trips to local organizations are also to be arranged, and guest speakers will be invited as appropriate and available.

## **INSTRUCTOR:**

Professor Donald E. Stone  
201-E SOM Building <sup>413</sup> 545-5685

Don Stone has been interested and concerned with environmental accounting issues for several years, and has recently written two working papers (see partial reading list) on environmental accounting which were presented at professional meetings over the past two years. He has also been invited to be an Associate and Visiting Research Fellow at the Center for Social and Environmental Accounting Research (CSEAR) at the University of Dundee, (SCOTLAND), a post he will fill on his sabbatical leave beginning January 1994.

## **TOPIC OUTLINE:**

### I. Introduction to the Issues

- A. Business and the Environment: The Challenge for Accounting and Finance
- B. Business and the Environment: Agenda, Attitudes, and Actions
- C. Sustainability and Sustainable Development
- D. Natural Capital: the Accounting Challenge

### II. Ecological and Environmental Limitations of Traditional Accounting

### III. Management Information and Accounting for Environment

- A. Greening the Organization: Getting Started
- B. Environmental Policy: Adoption, Establishment, and Implementation
- C. Environmental Audit: Assessment, Review, Management, and Attestation
- D. Accounting and the control of Energy Costs
- E. Accounting and controlling for the costs of waste, packaging, and recycling
- F. Total Environmental Quality Management and Accounting
- G. Investment, Budgeting, and Appraisal: Environment at the Heart of the Accounting and Financial System
- H. Life Cycle Analysis and Assessment

#### IV. External Reporting, Accountability and Disclosure for Environment

A. The Greening of Finance: Bank Lending, Insurance and Ethical/ Environmental Investment

B. Environmental Legislation. Risks, Liabilities, and Disclosure

C. External Reporting I: Reporting within the financial framework

D. External Reporting II: Non-financial reporting.

E. External "Social" Audits

#### V. Future Directions

A. Accounting and reporting for a future: Sustainability, Accountability, and Transparency

B. A change in paradigm? Is truly sustainable development possible?

## **PARTIAL READING LIST:**

Gray, Rob (with Bebbington and Walters), ACCOUNTING FOR THE ENVIRONMENT, (London: Paul Chapman Publishing Company and the Chartered Association of Certified Accountants (ACCA), 1993).

(This will be the principal text, available at the Textbook Annex. It contains a 26 page bibliography with over 600 entries. There is no shortage of published material, although some of it may be hard to find at the UMASS library)

Gray, Rob., THE GREENING OF ACCOUNTANCY, ACCA, 1990.

Stone, Donald E., "Accounting and Sustainability" 1991

"Management Accounting and Sustainable Development" 1993

Brown, Lester R., ed. STATE OF THE WORLD 1993, (WW Norton Co, NY,), 1993

Cairncross, Frances, COSTING THE EARTH, Harvard Business School Press, 1992.

Daly, Herman E. and Cobb, FOR THE COMMON GOOD: Redirecting The Economy Toward Community, Environment, and a Sustainable Future, Beacon Press, 1989.

Gallon, Gary, "Reconceptualizing Economic Development: Brown Economics vs. Green Economics", unpublished working paper, 1993

Gladwin, Thomas, "Envisioning the Sustainable Corporation", unpublished working paper, 1992.

Goodland, Daly, El Serafy and von Droste, ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT: BUILDING ON BRUNDTLAND, UNESCO, 1991

Donella Meadows, et al., BEYOND THE LIMITS -:CONFRONTING GLOBAL COLLAPSE - ENVISIONING A SUSTAINABLE FUTURE. Chelsea Green Publishing Co. 1992

ACCOUNTING, ORGANIZATIONS AND SOCIETY, Special issue on environmental accounting, Vol. 17, No. 5, 1992

ENVIRONMENTAL ACCOUNTING: THE ISSUES, THE DEVELOPING SOLUTIONS--A Survey of Corporate America's Accounting for Environmental Costs, Price Waterhouse, 1991

ENVIRONMENTAL COSTS: ACCOUNTING AND DISCLOSURE-- A Price Waterhouse Desktop Resource, Price Waterhouse, 1992

Environmental Protection Agency, "TOTAL COST ASSESSMENT: Accelerating Industrial Pollution Prevention through Innovative Project Financial Analysis", United States Environmental Protection Agency, 1992

Society of Management Accountants of Canada, "Accounting and the Environment", 1992

Gray, Owen and Maunders, CORPORATE SOCIAL REPORTING: ACCOUNTING AND ACCOUNTABILITY, Prentice-Hall Inc, 1987

Repetto, Robert, "Accounting for Environmental Assets", SCIENTIFIC AMERICAN, June 1992

"Wasting Assets: The Need for Natural Resource Accounting", TECHNOLOGY REVIEW, Jan. 1990

WCED, OUR COMMON FUTURE (The Brundtland Report), 1987

Surma, J. and Vondra, J., "Accounting for Environmental Costs: A Hazardous Subject", JOURNAL OF ACCOUNTANCY, March, 1992.

Meadows, Meadows, and Randers, BEYOND THE LIMITS: Confronting Global Collapse, Envisioning a Sustainable Future, 1992

Buhr, Nola "Environmental Accounting Comes of Age", The Western Business School, University of Western Ontario Working Paper Series, No, 91-09 (1991)

Sefcik, Soderstrom, and Stinson, "Accounting Through Green-Colored Glasses", unpublished working paper, 1993

(The above listing is intended to be suggestive, not exhaustive).





## Pollution Prevention in Accounting

NATIONAL POLLUTION PREVENTION CENTER FOR HIGHER EDUCATION

# Seminar on Environmental Accounting

Mark A. White

*Commerce 470, Spring 1992  
McIntire School of Commerce,  
University of Virginia*

McIntire School of Commerce  
University of Virginia

Commerce 470  
**Environmental Financial Management**

Spring 1992

*The Four Laws of Ecology*

1. Everything is connected to everything else.
2. Everything must go somewhere.
3. Nature knows best.
4. There is no such thing as a free lunch.

Barry Commoner  
*The Closing Circle*, 1971

**PROFESSOR:** Mark A. White

211 Monroe Hall  
(204) 924-7365

**CLASS HOURS:** Tues Thurs 12:30 - 1:45 PM

122 Monroe Hall

**OFFICE HOURS:** Tues Wed Thurs 10:00 - 11:30 AM, *and by appointment*

**COURSE OBJECTIVES:** The management of environmental issues ranks as one of the leading concerns for businesspersons in the 1990s. A growing litany of problems (global warming, acid rain, ozone layer depletion, tropical rainforest destruction, air and water pollution, hazardous waste disposal and widespread species extinctions) is altering business practices throughout the world and will continue to influence them well into the next century. Increasingly, concerned individuals in the business sector are adding their voices to the chorus of consumers, government regulators and environmental activists demanding cleaner air, cleaner water, better management of non-renewable resources and less reliance on fossil fuels. This course will introduce students to a wide variety of environmental problems and discuss solutions advanced by the business community. By the end of this course, students should have gained a deeper understanding of the environmental challenges facing tomorrow's managers and be better prepared to evaluate alternative methods for their resolution. Course pedagogy will consist of lectures, case studies, video presentations, field trips and talks by guest speakers. Participants are expected to take an active role in class discussions.

**TEXTS:** *Costing the Earth*, by Frances Cairncross (London: Business Books, 1991), 256 pp. [Cairncross]

*Managing Environmental Issues: A Casebook*, by Rogene A. Buchholz, Alfred A. Marcus and James E. Post (Englewood Cliffs, NJ: Prentice Hall, 1992), 286 pp. [BMP]

*Design for a Livable Planet*, by Jon Naar (New York: Harper and Row, 1990), 338 pp. [Naar]

*Ecotopia*, by Ernest Callenbach (New York: Penguin, 1975), 212 pp.

Various assigned readings on reserve in the Commerce Library

**GRADING POLICIES:** Grades will be assigned on a 'plus/minus' basis. The relative importance of assignments is as follows:

Midterm Exam:	30 percent
Final Exam:	30 percent
Paper/Presentation:	25 percent
Class Participation/Assignments:	15 percent
	=====
	100 percent

Exams will consist of objective questions and short essays designed to test your understanding of concepts and factual material. No make-up exams will be given. Homework assignments and/or pop quizzes will be assigned as the need arises. Your performance on these instruments will be factored into the class participation portion of your final grade. As one small step towards putting the ideals of this course into practice, please submit all written assignments on previously-used paper.

The paper assignment is intended to allow you to explore a particular topic in environmental management in greater depth. In choosing a topic, you should focus on a specific *business solution* to a specific *environmental problem*. For instance, you may wish to discuss the pros and cons of degradable plastic as a solution to the growing problem of waste disposal, or the implications resulting from widespread adoption of "vampire" machines to recycle CFCs from automobile air conditioners. Do NOT spend a great amount of space discussing the dangers of a particular problem. Rather, concentrate your efforts on explaining *how* your solution works and *why* you think it will solve the problem. Look at your problem from all sides and be sensitive to Garrett Hardin's literate, numerate and ecolate "reality filters" in crafting your arguments. Do not just hand in a book report containing a summary of the popular press' views on your topic – take a stand and indicate *why your solution is the best solution*. Of course, your paper must be prepared in a professional manner with complete footnotes, bibliography, etc. See *The MLA Handbook for Writers of Research Papers, 3rd. Ed.* (New York: Modern Language Association of America, 1988) for recommended style sheets.

Each of you must present the gist of her or his paper to the class towards the end of the semester. Presentations are to last 5-7 minutes, with 3-5 minutes left for questions. This means that you must be EXTREMELY well-organized and should rehearse your performance to ensure you do not run over the time limit. You might consider giving a "poster talk," in which the main points of your arguments are summarized in panels on a large poster or flip-chart. The exact forum and amount of time devoted to each presentation may change, subject to class enrollment.

### *Tentative Schedule*

Thurs 16 Jan 92 **Introduction**

Cairncross, "Introduction," pp. 11-22, 143-152.

Cairncross, "The Questions That Count," pp. 23-36.

Russell, Dick and Owen deLong. "Can Business Save the Environment?," *E Magazine* (November/December 1991), pp. 28-37, 57.

Hardin, Garrett. "Three Filters of Reality," Chapter 3 in *Filters Against Folly* (New York: Penguin Books, 1985), pp. 15-25.

VIDEO "Spaceship Earth," 1990, 25 minutes

- Tues 21 Jan 92 **History of the Environmental Movement**
- BMP, "Changing Perspectives on the Environment," pp. 1-7.
- Goldfarb, Theodore D. "The Environmental Movement," *Taking Sides: Clashing Views on Controversial Environmental Issues, 4th Ed.* (Guilford, CT: Dushkin Publishers, 1991), pp. xii-xxi.
- Gilbert, Bil. "Earth Day Plus 20, and Counting," *Smithsonian* (April 1990), in *Taking Sides*, pp. 4-10.
- Comp, T. Allan, "Earth Day and Beyond," *American Forests* (March/April 1990), in *Taking Sides*, pp. 11-14.
- "A Century of Concern," 1992 *Information Please Environmental Almanac* (Boston: Houghton Mifflin, 1992), pp. 20-29.
- ASSIGNMENT "Famous Figures in Environmentalism"
- Tues 23 Jan 92 **Limited Resources**
- Meadows, Donella H. and Dennis L. Meadows. "A Summary of *Limits to Growth* – Its Critics and Its Challenge," in "Growth and its Implications for the Future, Part 1," hearings before the Subcommittee on Fisheries and Wildlife Conservation and the Environment of the Committee on Merchant Marine and Fisheries, U.S. House of Representatives, Ninety-Third Congress, First Session, May 1, 1973.
- Schumacher, E. F. "The Problem of Production," Chapter 1 in *Small is Beautiful* (New York: Harper and Row, 1973), pp. 13-22.
- Simon, Julian L. "Life on Earth is Getting Better, Not Worse," *The Futurist* (August 1983), in *Taking Sides*, pp. 306-311.
- Keyfitz, Nathan. "The Growing Human Population," in *Managing Planet Earth: Readings from Scientific American* (New York: W. H. Freeman, 1990), pp. 61-72.
- VIDEO "World Population," 1990, 6 minutes
- DISCUSSION Callenbach, Ernest. *Ecotopia* (New York: Penguin, 1975), 212 pp.
- Thurs 28 Jan 92 **Economics and the Environment**
- Cairncross, "Greening Growth," pp. 37-53.
- Friedman, Milton. "The Social Responsibility of Business is to Increase its Profits," *New York Times Magazine*, 13 September 1970.
- Hardin, Garrett. "The Tragedy of the Commons," *Science* 162:1243-1248 (1968).
- Pearce, David, Anil Markandya and Edward Barbier. *Blueprint for a Green Economy*, (London: Earthscan, 1989), pp. 1-11.
- Brown, Lester R. "The New World Order," in *State of the World 1991*, edited by Lester R. Brown et al., (New York: W. W. Norton & Company, 1991), pp. 3-20.

- Thurs 30 Jan 92 **Ethics and the Environment**
- Baxter, William F. *People or Penguins: The Case for Optimal Pollution*, (New York: Columbia University Press, 1974), pp. 1-13.
- Freeman, A. Myrick III. "The Ethical Basis of the Economic View of the Environment," Center for the Study of Value and Social Policy, University of Colorado at Boulder, 1983
- SPEAKER Ed Freeman (Darden School)
- Tues 4 Feb 92 **Corporate Environmental Responsibility**
- Baron, David P. "Corporate Social Responsibility," Chapter 18 *in Business and Its Environment* (Englewood Cliffs, NJ: Prentice Hall, 1991), pp. 580-603.
- Kleiner, Art. "What Does It Mean to Be Green?" *Harvard Business Review*, July/August 1991, pp. 38-47.
- Post, James E. "Managing As If the Earth Mattered," *Business Horizons*, July/August 1991, pp. 32-38.
- ROLE PLAY "Universal Widgets"
- Thurs 6 Feb 92 **Waste Disposal**
- Naar, Chapter 1 ("Garbage")
- Tues 11 Feb 92 **Hazardous Waste**
- Naar, Chapter 2 ("Bad Chemistry")
- VIDEO "The Rush to Burn," 1989, 35 minutes
- Thurs 13 Feb 92 **Water Pollution**
- Naar, Chapter 3 ("Troubled Waters")
- CASE BMP, "The Big Spill: Oil and Water Still Don't Mix," pp. 43-60.
- VIDEO "The Wrath of Grapes," 1987, 15 minutes
- Tues 18 Feb 92 **Air Pollution and Acid Rain**
- Naar, Chapter 4 ("Air Pollution")
- Naar, Chapter 5 ("Acid Rain")
- Thurs 20 Feb 92 **Deforestation and Loss of Species Diversity**
- Naar, Chapter 6 ("Deforestation")
- Cairncross, "Making Conservation Pay," pp. 54-72.
- Wilson, Edward O. "Threats to Biodiversity," *in Managing Planet Earth*, pp. 49-60.
- CASE BMP, "The Amazon Rain Forest," pp. 8-25.
- VIDEO "Our Threatened Heritage," 1988, 19 minutes

- Tues 25 Feb 92 **Global Warming**  
 Naar, Chapter 7 ("Global Warming")  
 Schneider, Stephen H. "The Changing Climate," *in Managing Planet Earth*, pp. 25-36.  
 Schneider, Stephen H. "Debating Gaia," *Environment* 32 (May 1990), pp. 5-9, 29-30, 32.
- Thurs 27 Feb 92 **Depletion of the Ozone Layer**  
 Graedel, Thomas E. and Paul J. Cruzen. "The Changing Atmosphere," *in Managing Planet Earth*, pp. 13-24.  
 VIDEO "Prophets and Loss," 1991, 49 minutes
- Tues 3 Mar 92 **Radiation and Nuclear Energy**  
 Naar, Chapter 8 ("Radiation")  
 VIDEO "Chernobyl: Chronicle of Difficult Weeks," 1991, 40 minutes
- Thurs 5 Mar 92 **Environmental Legislation**  
 Naar, Chapter 10 ("Environmental Law")  
 CASE BMP, "The Forgotten Dumps," pp. 130-140.  
 SPEAKER Peter Glubiak (CEM Group)  
 MIDTERM EXAM (Take Home)
- Tues 10 Mar 92 **The Role of Environmental Organizations**  
 Naar, Chapter 11 ("Eco-Action")  
 Gifford, Bill. "Inside the Environmental Groups," *Outside*, September 1990, pp. 69-84.
- Thurs 12 Mar 92 **Green Consumerism**  
 Cairncross, "The Consumer: Green but Fickle," pp. 153-171.  
 Elkington, John, Julia Hailes and Joel Makower. *The Green Consumer* (New York: Penguin Books, 1990), pp. 5-11.  
 "Against Green Consumerism," abstracted from Sandy Irvine's *Beyond Green Consumerism* (London: Friends of the Earth, 1989), pp. 7-8, 15-22; *in The Green Reader*, edited by Andrew Dobson (San Francisco: Mercury House, 1991).  
 SPEAKER David Hartmann (McIntire School of Commerce)
- Tues 17 Mar 92 **Spring Break**
- Thurs 19 Mar 92 **Spring Break**

- Tues 24 Mar 92 **Energy Use and Alternative Energy Sources**  
 Cairncross, "Conserving Energy," pp. 107-120.  
 Naar, Chapter 9 ("Renewable Energy")  
 Davis, Ged R. "Energy for Planet Earth," *Scientific American* (September 1990), pp. 55-60, 62.  
 Buder, Robert et al. "Conservation Power," *Business Week*, 16 September 1991, pp. 86-92.
- SPEAKER David Roop (VEPCO) ... pending
- Thurs 26 Mar 92 **Waste Management and Recycling**  
 Cairncross, "Making Polluters Pay," pp. 93-106.  
 Cairncross, "Second Time Around," pp. 201-221.  
 Berss, Marcia, "No One Wants to Shoot Snow White," *Forbes*, 14 October 1991, pp. 40-42.  
 Bloom, Gordon F. and Scott Morton, Michael S., "Hazardous Waste is Every Manager's Problem," *Sloan Management Review*, Summer 1991, pp. 75-84.
- CASE BMP, "The Politics of Recycling in Rhode Island," pp. 141-156.
- Tues 31 Mar 92 **Green Business - Overview**  
 Cairncross, "Here to Stay," pp. 172-182.  
 Cairncross, "Along the Pipe," pp. 183-192.  
 Zetlin, Minda. "The Greening of Corporate America," *Management Review*, June 1990, pp. 10-17.
- SPEAKER Bruce Smart (World Resources Institute)
- Thurs 2 Apr 92 **Marketing and the Environment**  
 Cairncross, "The Problem is the Product," pp. 193-200.  
 Letto, Jay. "Madison Avenue Goes Green," *Buzzworm*, September/October 1991, pp. 25-30.
- CASE BMP, "ARCO Solar, Inc.," pp. 230-246.
- Tues 7 Apr 92 **Environmental Finance - Life Cycle Analysis and Lender Liability**  
 Hunt, Robert, Jere Sellers and William Franklin. "Resources and Environmental Profile Analysis," Forthcoming in *Environmental Impact Assessment Review*, Spring 1992.  
 Hocking, Martin B. "Paper Versus Polystyrene: A Complex Choice," *Science* 251:504-505 (1991).  
 Opheim, Teresa. "Lender Liability," *Investor's Environmental Report*, Summer 1991, pp. 1, 13-15.

- Thurs 9 Apr 92 **Environmental Finance - Green Investing**
- White, Mark A. "Effects of the 'Green' Movement on Investors," Forthcoming in *The Greening of American Business: Financial Management and Environmental Trends* (Rockville, MD: Government Institutes, 1992).
- Brown, Donna. "Let the Buyer Beware," *Management Review*, June 1990, pp. 18-21.
- von Moltke, Konrad and Paul J. DeLong. "Negotiating in the Global Arena: Debt-for-Nature Swaps," *Resolve* 22, 1990, pp. 1,3-10.
- Environmental Protection Agency, "Proposed Acid Rain Rules: Overview," October 1991, 4 pp.
- Environmental Protection Agency, "Allowance System: Proposed Acid Rain Rule," October 1991, 6 pp.
- Tues 14 Apr 92 **Accounting for the Environment**
- Gray, Robert H. "The Accountant's Task as a Friend to the Earth," *Accountancy*, June 1990, pp. 65-69.
- Wainman, Dwight. "Balancing Nature's Books," *CA Magazine*, March 1991, pp. 17-21.
- White, Mark A. "SEC Disclosures of Environmental Matters," Forthcoming in *The Greening of American Business*.
- CASE BMP, "Polaroid's Toxic Use and Waste Reduction Program," pp. 193-210.
- PAPERS DUE
- Thurs 16 Apr 92 **Paper Presentations**
- Tues 21 Apr 92 **Paper Presentations**
- Thurs 23 Apr 92 **Paper Presentations**
- Tues 28 Apr 92 **Sustainable Development**
- Cairncross, "Managing Greenly," pp. 222-235.
- Brown, Lester R., Flavin, Christopher and Sandra Postel. "Vision of a Sustainable World," in *The Worldwatch Reader on Global Environmental Issues*, edited by Lester R. Brown, (New York: W. W. Norton & Company, 1991), pp. 299-315.
- Postel, Sandra and Christopher Flavin. "Reshaping the Global Economy," in *State of the World 1991*, pp. 170-188.
- SIMULATION "Balance of the Planet"
- FINAL EXAM (Take Home)