

Instructor:

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INTRODUCTION

Human activities have become a significant force affecting the functioning of the Earth systems. Our use of land, water, minerals and other natural resources has increased rapidly in recent decades, and future growth in population and economic development will further increase levels of consumption of these resources. Concern has broadened from a focus on food and energy resources to embrace wider issues about global warming and its consequences, about biodiversity and its accelerating loss, and about the overall state of the environment and the sustainable use of resources.

This course is designed to provide a knowledge of contemporary natural resource issues, an understanding of how and why they have developed, and how they are being addressed, focusing on both global and Canadian contexts. There is an emphasis on integrating physical, economic, social and political considerations into our examination of natural resource issues. As such the course reflects the traditional use of geography, which integrates studies of physical and human phenomena to understand human use of the earth.

LEARNING OUTCOMES

Upon completing the course you should be able to:

- Demonstrate a knowledge of contemporary natural resource issues
- Demonstrate an understanding of concepts underlying management of natural resources
- Demonstrate an understanding of current practice in specific natural resource systems at the international and Canadian scales

COURSE OBJECTIVES

Course objectives relate to two broad themes:

NATURAL RESOURCE MANAGEMENT CONCEPTS including:

- The precautionary principle, the polluter pay principle, world view, resource scarcity, resource ownership, tragedy of the commons, cost-benefit, carrying capacity, ecological footprint, sustained yield, sustainability

NATURAL RESOURCE MANAGEMENT PRACTICE which focuses on selected natural resource systems at international, Canadian and British Columbian scales and addresses the work of resource managers and policy makers and the application of theory including:

- Institutional arrangements and decision-making - related to international, federal and BC legislation and jurisdiction.
- Management tools such as sustained yield management, cost benefit analysis, state of the environment reporting, environmental assessment
- The emerging concerns of globalization, free trade and First Nations' sovereignty

INTERNET ACCESS

This course outline and other important course materials are available through the internet on the Camosun WebCT site:

<http://deserv1.camosun.bc.ca:8950/webct/public/home.pl>

Click on "Logon to myWebCT" and type in your user name & initial password (which I will give you in class). This will lead you to your "myWebCT" which will have your name on it, and the courses you are registered in listed. Click on *GEOG 220: Natural Resource Systems*. For course outline click on course materials then course content. Here you will find the course outline, the overheads from weekly lectures, the two articles for review and information on the two values exercises. In these exercises you are asked to reflect on your values around two topic areas and post your response on the discussion board. For the discussion board you can go there directly by clicking 'Discussions' or from the WebCT home page you can click on communication tools then discussion. This will also bring you to the discussion board.

I suggest you change your initial password into something more private. You can do this by clicking on the options link in the upper right hand corner of your "myWebCT" page.

READING MATERIALS

Required reading

Mulrennan M., 1998, A Casebook of Environmental Issues in Canada. Toronto: Wiley.

There is a set of **Course Readings** for sale in the college bookstore. The readings are composed of the text:

Mather A. & K. Chapman, 1995, Environmental Resources London: Longman Scientific, with two chapters from the text:

Mitchell B., 1995, (ed.) Resource and Environmental Management in Canada. Toronto: Oxford.

Additional reading and Internet sites

The 1996 edition of The State of Canada's Environment (<http://www1.ec.gc.ca/~soer/>), Tracking Key Environmental Issues (http://www.ec.gc.ca/tkei/main_e.cfm) and Environmental Trends in British Columbia 2000

(<http://www.elp.gov.bc.ca/sppl/soerpt/index.html>). Check sites for Environment Canada

<http://www.ec.gc.ca/> and Natural Resources Canada <http://www.nrcan.gc.ca/>. Also

check out BC Environment's site <http://www.env.gov.bc.ca/>.

For several sites relating to the global environment see

<http://www.gechs.org/214/links.html>

Problem-based approach to learning

I believe that it is helpful for students to know the theory of the problem-based approach to learning, an approach that is used widely in this course. The approach is based on the notion that complex, real problems motivate students to identify and research concepts and principles they need to know in order to progress through the problems. The essential features are:

- Students are presented with a problem. In groups they organize their ideas and previous knowledge related to the problem and attempt to define its broad nature
- As they discuss, students pose questions, called "learning issues", on aspects of the problem that they do not understand. It is important that they are able to define what they know – and, more importantly, what they do not know.

- Students rank, in order of importance, the learning issues generated, deciding which questions will be followed up by the group and which can be assigned to individuals, who later teach the rest of the group. Students and instructor also discuss the resources needed to research these issues and where they can be found.
- When students reconvene, they explore the learning issues and integrate their new knowledge into the context of the problem.

This approach is used widely in this course, specifically in the case studies in lab exercises and in the group project case study.

COURSE WORK AND ASSESSMENT

LAB EXERCISES (15% of course mark)

The labs are largely designed around student interaction and discussion: debate (see structured controversy exercises below) and small group collaboration based on a case study or problem. You are expected to have read a reading or a case study before the lab and to join with others in a small group for discussion. The case studies provide the opportunity to see the relationship between theory and practice, to recognize how a knowledge of the concepts from the course curriculum enable an understanding of the practice of resource management.

You are strongly advised to keep a lab book to record findings from each lab. The lab book will be invaluable for reflection and for reviewing important material before quizzes.

Lab exercises are worth 10% of course marks. To receive the marks for a lab you must be present in the lab from start to finish and complete the assignment.

Six case studies from the Mulrennan text, A Casebook of Environmental Issues in Canada, are examined. Students are expected to choose one case study and lead a small group discussion. This is a structured discussion in which the students first identify the key concepts and issues surrounding the case study and then address the questions in the study text. Students sign up for a case study in the first lab of the semester. The leader writes up a report that identifies the key concepts and issues underlying the study and a summary of the discussion surrounding each question. The report is handed in the following week in lab, with a list of the **participating** members of the group. A copy of the report is also given to each member of the group. The report should be a maximum of 2 pages. The report is worth 5% of the course marks.

VALUES EXERCISES (10% of course mark)

This set of exercises is designed for reflection and discussion of values that relate to course curriculum.

Exercise1: Valuing resources

This exercise addresses the question of how humans think about natural resources. People or groups with different interests or values may think about a given natural resource in very different ways. The purpose is to provide students with an opportunity to explore differences in the way resources are valued.

I have selected an article that have been published by the Sierra Club (in the Sierra magazine) and are available on their web site (<http://www.sierraclub.org/Sierra/>).

Read the article in WebCT's 'Course Content' page. Write a short essay (three short -

paragraphs), identifying what you like and/or don't like about the article. Post your essay and respond to **two** other students' postings. You must post before the lab discussion of the article (Sept. 16). You then have one week to respond to other student's essays. Essays and responses not posted on time will not receive marks.

Trebbe Johnson, *The Second Creation Story*

<http://www.sierraclub.org/sierra/199811/second.asp>

Exercise 2: Structured Controversy

This exercise provides you the opportunity to work with controversial issues in resource management. You prepare pro and con arguments, debate an issue formally in class and engage in small-group discussions to discover common values and solutions.

The exercise involves three steps. The first step is preparation. A topic is chosen, one that is relevant to course content, preferably one that has been in the news and the topic is translated into a specific question that is amenable to a yes/no (or pro/con) treatment. For example: Should the government be setting stringent enforceable targets for greenhouse gas reduction? Is culling of wildlife an acceptable method of management? Should logging of old growth forest stop immediately?

The topics for this semester are:

- a) NAFTA is good for Canada.
- b) First Nations aboriginal right to natural resources is just

You individually prepare three pro and three con arguments prior to the in-class debate. Each argument must contain an assertion plus evidence. The evidence can consist of a theory, concept or study from the text or readings or class discussions that supports the assertion's validity.

Steps two and three of the exercise take place in the lab: argumentation (the formal debate) and collaboration (small group discussion to discover common values and solutions).

Before the day of the debate (weeks of September 30 and October 14) you prepare a short essay (three paragraphs) to be posted on the WebCT discussion board, that describes your own view (position) on the topic. **The essay must address your values that lead you to this view**. It is not a rehash of the arguments above. After the debate you have one week to read two other students' essays and respond. Essays and responses not posted on time will not receive marks.

The above exercises are for peer review only. I will not be grading them but checking to ensure completion.

RESEARCH PAPER (10% of course mark)

You present your findings on one of the structured controversy topics in the form of a research paper. The paper will present a thesis and arguments to support it. Here is the opportunity to present concepts that we have studied in the course and are relevant to the discussion. An important part of writing the paper is substantiating credibility of the material presented, by citing sources. The paper will follow usual academic format of introduction, discussion and conclusion.

A short paper (about 500 words) is expected. Be precise and to-the-point in presenting the material.

Research Papers are graded on the basis of:

- Quality of research (20%) - breadth of information and relevance
- Substance (30%) - show that you understand the material; explain it accurately and clearly
- Quality of thought and analysis (30%) - show that you can think intelligently and critically about the material; present some of your own ideas
- Style (20%) - write your paper in standard academic English, with proper grammar, syntax and punctuation; cite all sources using an accepted bibliographic style. Primary research sources are strongly encouraged, i.e. sources that have been peer-reviewed.

PAPERS (25% of course mark)

You will write two papers, each based on an article review. An article review critically examines the material presented by the author and comments on its value to its audience. Explain what the article is about, what are the key ideas being presented by the author, and explain why you think the article is important.

Reviewing these articles allows you to critically examine some of the important literature in the resource management field and to become comfortable in analyzing and commenting on other people's work from your own informed perspective.

Paper I (10% of course marks)

Article for review

Burger, J. and M. Gochfeld, 1998, *The Tragedy of the Commons 30 Years Later*. Environment, Vol. 40 Issue 10, December, pp. 1-16.

Here are instructions for locating the article.

The largest number of full text periodicals for Camosun is in EBSCO Academic Search. Go to the library catalogue, choose journal/magazine Indexes, choose Fulltext, choose EBSCO Academic Search elite, choose On Campus option, choose EBSCOhost Web, choose Academic Search Elite. Now you are in Academic Search. If you only want to look through one magazine, enter the name of the magazine in the magazine box that is under the Full Text checkbox (make sure you select full text) on that same page together with the month and year (put month/year in both sets of boxes if you wish to select a specific issue of the magazine).

If you are **off campus**, you choose the Off Campus option, choose Academic Search, enter the barcode from the back of your Camosun faculty card and click on Login, choose EBSCOhost Web, choose Academic Search Elite.

The first paper will be short (maximum 500 words). My expectation is that you are able to explain what the article is about and why it is important.

Paper II (15% of course mark)

Article for review

William Rees, 1996, *Revisiting Carrying Capacity: Area-Based Indicators of Sustainability*. <http://dieoff.org/page110.htm>

A link to the article can be found in WebCT's 'Course Content' page.

This is a more challenging article. I expect the paper will be longer (750 words) with more in-depth analysis and reference to other important writing in the field. Your main source for the paper will be the referenced article. However you should include reference to other writings (at least three) relevant to the subject matter that either support or refute what the author is saying. These references must be cited in an approved bibliographic style.

As one outside source you might want to look at the article:

Agarwal, Anil & Sunita Narain. 1995. *Global Warming in an Unequal World: A Case of Environmental Colonialism*. In K. Conca, M. Albery and G. Dabelko (eds.), Green Planet Blues. Boulder: Westview Press.
<http://www.gechs.org/214/Readings/unequalreading.htm>

Another article I would highly recommend: Corey L. Lofdahl, 1997, On the Environmental Externalities of Global Trade. University of Colorado, Boulder
<http://sobek.colorado.edu/~lofdahl/iiasa/iiasa.html>

Grading is based on the following:

- Research (20%) - show that you used outside readings (only for Paper II)
- Substance (30%) - show that you understand the material; explain it accurately and clearly
- Quality of thought and analysis (30%) - show that you can think intelligently and critically about the material; present some of your own ideas
- Style (20%) - write your paper in standard academic English, with proper grammar, syntax and punctuation; reference all sources in an approved style

CASE STUDY: GROUP PROJECT (10% of course mark)

This is a problem-based case study to be undertaken in small groups.

The problem requires a policy decision to be made. The assignment is (a) to identify the key issues surrounding a stated problem (b) to develop a framework for making a decision and (c) on the basis of your findings to put forward a recommended decision. As such groups should have a clear rationale for their recommendation.

You will be presenting your findings in class. The group will prepare a one-page outline to be handed in at the presentation. The outline will identify the issues and rationale for your recommendation.

The presentation and the outline will form the basis of your evaluation. Each group will also hand in a participation mark for each group member to ensure the overall student mark reflects individual effort.

Case Study: Windy Craggy

The Windy Craggy project, a proposal to mine copper in the ecologically sensitive Tatshenshini-Alsek area of BC, provides an opportunity to examine the difficult trade-offs involved in natural resource management.

Problem: Should the Windy Craggy mining project be approved?

Information on the Windy Craggy project can be found at several web sites. Here is a sample:

<http://www.american.edu/projects/mandala/TED/GEDDES.HTM>

<http://www.bc-mining-house.com/opinions/archive.htm>

<http://www.spacesfornature.org/windycraggy.html>

QUIZZES

There will be three in-class quizzes, each worth 10% of course marks. The format and dates of the quizzes will be discussed in class.

Note

- All papers submitted must be double-spaced and citations must follow an accepted bibliographic style.
- All late assignments will have 10% deducted unless my approval has been given for an extension. An assignment over one week late will not be accepted.
- Students missing an exam will be given a zero, unless special circumstances exist.

Assignment evaluation summary:

Labs	= 15%
Values Exercises	= 10%
Case Study	= 10%
Papers x 2	= 25%
Quizzes	= 30%
Research paper	= 10%

Class participation -- can be used to adjust a final grade upwards by one or two percent

TOPICS AND READINGS

Week starting

Week 1 Introduction to the course
Sept. 3- Course overview

Week 2 Key concepts
Sept. 9- Resource definition; resource scarcity; World View; sustainability
Reading:
Mather A. & K. Chapman, Ch.1: *Introductory concepts*, pp.1-23

Week 3 The political economy of natural resources
Sept 16- Economic systems; economics and natural resources; sustainability and maximum sustained yield; ownership and control of resources
Reading:
Mather & Chapman, Ch.2: *The political economy of environmental resources* pp.24-46

Week 4 Natural resources in space and time
Sept 23- Historic perspective; the environmental movement
The World Economy
Reading:
Mather & Chapman, Ch.3, Environmental resources in space and time

Week 5 Natural resources and free trade
Sept 30- **Reading:**
Gale R., *NAFTA and its Implications for Resource and Environmental Management*. In B. Mitchell (ed.) Resource and Environmental Management in Canada, pp.99-127

In-class test

Week 6 Natural resources and First Nations' sovereignty
Oct 7- Jurisdiction of natural resources
Reading:
Wolfe-Keddie J., *First Nations Sovereignty and land Claims: implications for resource mangement*. In B. Mitchell (ed.) Resource and Environmental Management in Canada, pp.55-79.

Week 7 [Oct. 14 – Thanksgiving Holiday]
Oct. 14-

Week 8 Forestry
Oct. 21- Mather & Chapman, Ch.5, *The land resource: forests*, pp.92-117

Week 9 Energy
Oct 28- **Reading:**
Mather & Chapman, Ch.7, *Energy resources*, pp.136-162

In-class test

Week 10 Nov. 4-	Water Reading: Mather & Chapman, Ch.9, <i>Water resources</i> , pp.182-205
Week 11 Nov. 11-	[November 11 - Remembrance Day]
Week 12 Nov. 18-	Fisheries and Oceans Reading: Mather & Chapman, Ch.10, <i>Ocean resources</i> , pp. 206-224
Week 13 Nov. 25-	Limits to growth Sustainable development Reading: Mather & Chapman, Ch.11, <i>Environmental wealth and limits to growth</i> , pp.225-244; Ch.12, <i>Transition to sustainability</i> , pp.245--260
Week 14 Dec 2-	Final class

LAB/ASSIGNMENT SCHEDULE

Week starting

Sept. 9-	The case of the Monarch butterfly Video: The Monarch: a butterfly beyond borders
Sept. 16-	Mulrennan, Case Five: Atlantic Sealing: Immoral Slaughter or Sustainable Harvest Discussion of the Sierra Club article, <i>The Second Creation Story</i>
Sept. 23-	Mulrennan, Case Eight: Banff National Park: Defining Ecological Integrity Introduction to Paper I
Sept 30-	Structured controversy exercise: The issue of Free Trade Debate: NAFTA is good for Canada.
Oct. 7-	Mulrennan, Case Seven: Polar Bears: The Politics of Protection <u>Paper I due</u>
Oct. 14-	Structured controversy exercise: The issue of First Nations sovereignty Debate: First Nations aboriginal right to natural resources is just
Oct. 21-	Case study 1: Windy Craggy - <i>Getting Started</i> Students are expected to have undertaken some initial research on the problem (i.e. visited web sites and explored background/identified issues) <u>before</u> coming to the lab

Introduction to Paper II

- Oct 28 - Mulrennan, Case Two: Great Whale: Lessons from a Power Struggle
- Nov 4- Mulrennan, Case Six: Sustainable Agriculture and Biodiversity Conservation in the Prairie Provinces

Research Paper due

- Nov. 11- Case study: Windy Craggy – *In-class Session*
- Nov. 18- Mulrennan, Case One: Fraser River: The Mystery of the Missing Sockeye

Paper II due

- Nov. 25- Calculating an Ecological Footprint
Reading: Mathis Wackernagel, 1993, *How Big is Our Ecological Footprint?*
- Dec. 2- Case study: Windy Craggy - *Presenting the decision*

GRADING SYSTEM

95 - 100% A+	Superior levels of achievement
90 - 94% A	
85 - 89% A-	
80 - 84% B+	High levels of achievement
75 - 79% B	
70 - 74% B-	
65 - 69% C+	Satisfactory level of achievement
60 - 64% C	Sufficient level of achievement
50 - 59% D	Minimum level of achievement
0 - 49% F	Minimum level is not achieved