

GEOGRAPHY 220: NATURAL RESOURCE SYSTEMS
Meeting Mon/Wed @ 8.30 am

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Instructor:

Dr Tim Elkin

Ewing 238

Phone: 370-3115

E-mail: elkint@camosun.bc.ca

Office hours: as posted or by appointment

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.

The 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. The course reflects the traditional use of geography, which integrates studies of physical and human phenomena to understand human use of the earth. The emphasis is on integrating physical, economic, social and political considerations into our examination of natural resource issues. None of these factors alone determines the suitability of a resource for any particular use at any time. It is the dynamic interplay between these four factors that causes continuing changes in methods and rates of resource extraction.

LEARNING OUTCOMES

Upon completing the course you should be able to:

- describe and explain major concepts underlying the management of natural resources
- apply these concepts to the management of specific natural resource systems
- identify and discuss significant contemporary factors that influence the management of natural resources

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

The course outline, slides of the weekly lectures and the article for review are available through the Internet at <http://elkin.disted.camosun.bc.ca>.

Information and procedures for undertaking the *Values Exercises* are available through the Camosun WebCT site: <http://deserv3.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*. Click on course materials then course content. The Values Exercises require you to reflect on your values around a recent article published in the Sierra Magazine and around two controversial topic areas. You post your response on WebCT's discussion board. For the discussion board you click 'Values Exercises' from the course content page. You click 'Compose message', write your response and click 'post'. To respond to other student postings, click 'reply' and then 'post'. I suggest you change your initial password into something more private. You can do this by clicking on the *password settings* icon of your "myWebCT" page.

READING MATERIALS

Required reading

Mitchell B., 2004, (ed.) Resource and Environmental Management in Canada. Toronto: Oxford.

There is a set of **Course Readings** for sale in the college bookstore. The readings are composed of extracts from the texts: Mather A. & K. Chapman, 1995, Environmental Resources (London: Longman Scientific) and Mulrennan M., 1998, A Casebook of Environmental Issues in Canada. (Toronto: Wiley).

Additional resources

Environment Canada's state of the environment infobase (<http://www.ec.gc.ca/soer-ree/english/default.cfm>) and Environmental Trends in British Columbia 2002 (<http://wlapwww.gov.bc.ca/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 AND CONCEPT REPORT (20% of course mark)

The labs are largely designed around student interaction and discussion, either by way of debate (see structured controversy exercises below) or 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.

Students receive their marks for lab work based on participation. Each lab is worth one mark. In total lab exercises are worth 10% of course marks. To receive the mark for a lab you must be present in the lab from start to finish and complete the assignment.

Concept report

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 act as chair in a small group discussion. This is a structured discussion in which the students first identify the key concepts 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 chair writes up a report that identifies the key **concepts** underlying the study and a summary of the discussion surrounding each question. The report (a guide for length is 500 words) is handed in the following week in lab, with a list of the **participating students**. The concept report is worth 10% of 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 has been published by the Sierra Club (in the Sierra magazine) and is 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 on the 'Discussion' bulletin board in WebCT. You must post before the lab discussion of the article (week of Sept. 15). **You then have one week to read two other student essays and respond. Essays and responses not posted on time will not receive marks.**

Article:

Valerie Taliman, *Sacred Landscapes*. Sierra Magazine. November/December 2002. <http://www.sierraclub.org/sierra/200211/sacred.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 is 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) Free Trade is good for Canada.
- b) First Nations aboriginal right to natural resources is just

You individually prepare two pro and two 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 29 and October 13) 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 (30% of course mark)

You will write a paper 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. Comment on the work based on your research of other important work in the field.

Reviewing an article 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. **This is also an opportunity to draw on course concepts; demonstrate your understanding by identifying and discussing course concepts in your review.**

Article for review

William Rees, 2001, *Macro-Economics and Sustainability: Conflict or Convergence? (An Ecological Economics Perspective)*

Your main source for your paper will be the article itself. However you should include discussion of other works (at least five) 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. The article reviewed must also be cited. Use 1500 words as a guide for the length of your paper.

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 recommend: Corey L. Lofdahl, 2002, *Does Trade Help or Hurt the Natural Environment: Perspectives from Lateral Pressure Theory*.

<http://www.colorado.edu/IBS/PEC/gadconf/papers/lofdahl.html>

Grading for the paper is based on the following:

- Research (20%) - show that you used outside readings
- Substance (20%) - show that you understand the material; explain it accurately and clearly
- Quality of thought and analysis (40%) - show that you can think intelligently and critically about the material; **identify and discuss course concepts**; 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

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 has the option to 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.

Background. The Canadian mining company Geddes Resources Limited have determined that the Windy Craggy site has such a large deposit of copper ore that a mining operation would provide a significant number of jobs for the local economy. Environmentalists are concerned about the Geddes operation.

Problem: Should the Windy Craggy mining project be approved?

Information on the Windy Craggy project can be found at several web sites.

<http://www.american.edu/projects/mandala/TED/geddes.htm>

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

http://oldfraser.lexi.net/publications/forum/1998/january/cover_story.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	= 10%
Concept paper	= 10%
Values Exercises	= 10%
Case Study	= 10%
Paper	= 30%
Quizzes	= 30%

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. 7- Course overview

Reading:

Mitchell, *Introduction: Policy Context, issues, and Challenges*, pp. 1-18

Week 2 Key concepts

Sept. 13- Resource definition; resource scarcity; world view; sustainability; ecosystem approach; precautionary principle; adaptive management

Reading:

Course Readings: Mather A. & K. Chapman, Ch.1: *Introductory concepts*, pp.1-23

Week 3 The political economy of natural resources

Sept 20- Economic systems; economics and natural resources; maximum sustained yield; ownership and control of resources

Reading:

Course Readings: Mather & Chapman, Ch.2: *The political economy of environmental resources* pp.24-46

Week 4 Natural resources and globalization

Sept 27-

Reading:

Mitchell, Ch. 2, *Globalization and Neo-Conservatism: Implications for Resource and Environmental Management*, pp. 54-79

Week 5 Natural resources and First Nations' sovereignty

Oct 4- Jurisdiction of natural resources

Reading:

Mitchell, Ch. 3, *First Nations Access and Rights to Resources*, pp. 80-103

Week 6 Thanksgiving Holiday

Oct. 11-

Week 7 Atmosphere and climate change

Oct 18-

Reading:

Mitchell, Ch. 5, *Climatic Change: addressing Complexity, Uncertainty, and Conflict*, pp. 132-165

Week 8 Oct. 25-	Water Reading: Mitchell, Ch. 6, <i>Water Security: From Exports to Contamination of Local Water Supplies</i> , pp. 166-194
Week 9 Nov 1-	Fisheries Reading: Mitchell, Ch. 7, <i>Marine and Freshwater Fisheries</i> , pp. 200-232
Week 10 Nov. 8-	Forests Reading: Mitchell, Ch. 9, <i>Towards Sustainable Development of Canada's Forests</i> , pp. 265-286 In-class test
Week 11 Nov.15-	Test Case study: Windy Craggy
Week 12 Nov. 22-	Environmental assessment Reading: Mitchell, Ch. 17, <i>Assessing Environmental Impacts in Canada</i> , pp. 467-496
Week 13 Nov. 29-	Sustainability; equity Reading: Mitchell, Ch. 20, <i>Incorporating Environmental Justice</i> , pp. 555-578
Week 14 Dec 6	Test Case study: Windy Craggy

LAB/ASSIGNMENT SCHEDULE

Week starting	
Sept. 13-	The case of the Monarch Butterfly
Sept. 20-	Course Readings: Mulrennan, Case Five: Atlantic Sealing: Immoral Slaughter or Sustainable Harvest Completion of essays in response to Sierra Club article, <i>Sacred Landscapes</i> (All essays must be posted on WebCT by the time of the lab)
Sept. 27-	Structured controversy 1: The issue of Free Trade Debate: NAFTA is good for Canada. (All essays must be posted on WebCT by the time of the lab)
Oct. 4 -	Course Readings: Mulrennan, Case Seven: Polar Bears: The Politics of Protection

- Oct. 11- **Test**
Research paper
- Oct. 18- Structured controversy 2: The issue of First Nations sovereignty
Debate: First Nations aboriginal right to natural resources is just.
(All essays must be posted on WebCT by the time of the lab)
- Oct. 25- Case Study: BC Hydro's Site C Project (for background information, see
Course Readings.
- Nov. 1 - Course Readings: Mulrennan, Case One: Fraser River: The Mystery of
the Missing Sockeye
- Nov. 8- Case study: Windy Craggy - *Getting Started*
Students are expected to have undertaken some initial research on the
problem (i.e. read the chapter below and visited web sites to explore
background/issues) before coming to the lab
- Reading: Mitchell, Ch. 12: *Canadian Mineral Resource Development: A
Sustainable Enterprise?* pp. 342-370
- Nov. 15- Course Readings: Mulrennan, Case Six: Sustainable Agriculture and
Biodiversity Conservation in the Prairie Provinces
- Nov. 22- Course Readings: Mulrennan, Case Two: Great Whale: Lessons from a
Power Struggle
- Paper due
- Nov. 29- Course Readings: Mulrennan, Case Eight: Banff National Park: Defining
Ecological Integrity
- Dec. 6- 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

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College Calendar, Registrar's Office or the College web site at <http://www.camosun.bc.ca>

ACADEMIC CONDUCT POLICY

There is an Academic Conduct Policy. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, Registration, and on the College web site in the Policy Section.

www.camosun.bc.ca/divisions/pres/policy/2-education/2-5.html