

GEOGRAPHY 100: ECOSYSTEMS AND HUMAN ACTIVITY
(TUES/FRI)

WINTER 2005

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Context

When the 20th century began, neither human numbers nor technology had the power to radically alter planetary systems. [As we begin the 21st century], not only do vastly increased human numbers and their activities have that power, but major unintended changes are occurring in the atmosphere, in soils, in waters, among plants and animals, and in the relationships among all of these. The rate of change is outstripping the ability of scientific disciplines and our current capabilities to assess and advise. It is frustrating the attempts of political and economic institutions, which evolved in a different, more fragmented world, to adapt and cope. [Bruntland report, World Commission on Environment and Development, 1987, p. 22, Oxford University Press].

Course Description

An introduction to the impact of human activity on ecological systems. Topics include ecosystem structure and function, human population change, resource management and pollution

Learning Outcomes

On completion of the course students should be able to

- Demonstrate a knowledge of ecological systems and the impact of human activity on those systems
- Demonstrate an understanding of key environmental issues
- Demonstrate knowledge of courses of action which address environmental concerns.

Reading

The required text for the course is Raven and Berg, 2004, Environment (4th edition), Toronto: Harcourt (although 3rd edition texts are acceptable).

Students should purchase the **lab manual** from the bookstore. The manual contains several readings required for specific labs.

Evaluation

Exams (40% of course mark)

There are two tests, a mid-term and a final, worth 15% and 25% of course marks, respectively. Their format will be discussed in class.

Labs (25% of course mark)

There are regular lab exercises throughout the course. These are an integral part of the course; they provide an opportunity to apply the lecture and text material to specific and practical examples. Some labs have an accompanying reading. Assignments are always due the following week at the first class of the week. The labs can be hand-written, but your hand writing must be neat. Untidy and illegible writing will not be marked.

Class Discussion Questions (15% of course mark)

There are fifteen discussion questions. These questions are intended to raise important concepts covered in class and the text and provide the opportunity for small group discussion. Discussion will take place in groups of five students. In addressing the questions identify key concepts and structure the discussion around these. Each student will take three turns acting as **recorder**. The **recorder** will keep notes of the discussion and make **a list of the names of the students present**. To receive marks, the notes and list of students will be handed in on the day of the discussion.

Research Paper (20% of course mark)

Students will choose any of the issues discussed in *Class Discussions* and write a research paper. The paper will present a thesis and discussion to support it. Here is the opportunity to present concepts that we have studied in the course and are relevant to the issue.

A **map**, created by the author, will accompany the paper at an appropriate scale to identify the location of some aspect of the issue, and containing the map elements of title, scale, and legend. Spatial referencing (e.g. latitude and longitude) will be included in the map. Remember to refer to the map in your paper.

An important part of writing the paper is substantiating credibility of the material presented, by citing sources. Primary sources (i.e. peer reviewed) are most credible in this regard. Students are expected to present a minimum of three sources. The paper will follow usual academic format of introduction, discussion and conclusion. A short paper is expected. Be precise and to-the-point in presenting the material. Use 1000 words as a guide but this is not a firm target. **The paper is due in the first class of the week of March 28.**

Research Papers are graded on the basis of:

- Quality of research (20%) - breadth of information and relevance. Choose your sources carefully. Use two primary sources.
- Substance (30%) - identify important concepts that we have discussed in the course and 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 (your text is acceptable).

Evaluation summary:

Tests	- 40%
Lab work	- 25%
Discussion questions	- 15%
Research paper	- 20%

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

General information for written work and exams

WRITTEN WORK

All written work must be typed. **The research paper must use DOUBLE SPACING.** Students are expected to use an accepted bibliographic style. All sources must be cited.

LATE WORK

Any lab or report handed in late will be penalized 10%, and very late submissions (more than one week late) will not be accepted.

EXAMS

Students missing an exam will be given a zero, unless special circumstances exist.

Topic Outline

Week starting

Theme 1: Humans in the Environment

Jan 10- Introduction to the course: course outline
The Environment: What is the problem?
Text: Chap 1

Jan 17- Addressing environmental problems: Part I
Text: Chap 2

Jan 24- Addressing environmental problems: Part II
Text: Chap 3

Theme 2: The World We Live In

Jan 31- Ecosystems and Energy
Text: Chap 4

Feb 7- Ecosystems and Living Organisms
Text: Chap 5

Reading Break: Feb 10/11

Feb 14- Ecosystems and the Physical Environment
Text: Chap 6

TEST I

Feb 21- Major Ecosystems of the World
Text: Chap 7

Environmental issue paper/Research paper: introduction

Theme 3: Human Population and the Environment

Feb 28- Population dynamics
Text: Chap 8 & 9

Theme 4: Energy

March 7- Energy: fossil fuels and renewables
Text: Chap 10 & 12

Theme 5: Natural Resources

March 14- Water
Text: Chap 13

Environmental issue paper due

March 21- Wildlife and Biodiversity
Text: Chap 16
Required reading: Leakey, R., *Value in Diversity*, The Sixth Extinction
Ch. 8. Toronto: Doubleday

March 28- Biodiversity
Class discussion: Hunting of elephants (see Globe & Mail article in lab manual).
In 1989, after protracted debate, CITES delegates (the Convention on International Trade in Endangered Species) voted to ban trade in elephant ivory. That vote was strongly opposed by southern African nations who saw ivory sales as a potential way to fund conservation efforts in their nations. In the following ten years, elephant poaching has decreased. In 1999, CITES approved ivory sales in three southern African nations and there is a perception among the eastern and central African states that continued sales - even if restricted to these three nations - will fuel an increase in elephant poaching and further decline of elephant populations across the continent. Should ivory sales be banned entirely? Should ivory sales be limited to nations that can demonstrate effective elephant population management practices, including anti-poaching efforts? How can the conflicts between elephants and a growing human population be best handled?
For additional information see 'Take a Stand' in Raven text, p. 378)

A controlled hunt of elephants should be re-introduced in Sub-Saharan Africa.

Examine arguments for and against this statement.

Research paper due

Theme 5: Environmental Concerns

April 4- Atmospheric change
Text: Chap 20

Theme 6: Tomorrow's World

April 11- Sustainability
Text: Chap 24

Case study/class discussion: The Monarch Butterfly (see Globe and Mail article in lab manual). The importance of an ecosystem approach to the environment is emphasized by examining this case study. Is there a real risk of extinction for the Monarch butterfly? Should farmers and urban park managers and residents in Canada be required to protect the Monarch's food, milkweed? Should Mexicans be compensated by North Americans to protect Monarch forest habitat from logging? What does this case study tell us about sustainability?

Video: The Monarch

Lab Schedule

Week of

Jan 10- Geography of pollution
Introducing World Views

Class discussion: Human impact on the environment.
What are the most important environmental problems facing us today?

Jan 17- Addressing environmental problems I:
Research and the scientific method
Geography of environment

Class discussion: Risk and the precautionary principle.
What chemicals pose a risk to the environment? What chemicals pose a risk to human health? Should there be greater controls on the use of chemicals in society? Are genetically modified foods a risk to society?

Jan 24- Addressing environmental problems II:
Policy and economics.
World Views.

Class discussion: How 'green' is our campus?
What environmental problems exist on the Camosun campus? What solutions can you identify to these problems?

Video: Subdue the Earth

Jan 31- Ecosystems I: Ecosystems and Energy.

Class discussion: The issue of whaling.

The Situation: The hunting of whales (whaling) has a long history. Traditional hunts by small groups of primarily indigenous peoples have been replaced by high tech factory-style whaling. Until the modern era, whale populations were rarely at the point of extermination. Now, populations of most of the large species and many of the smaller species are at critical levels. Should whaling in international waters be allowed to continue? Should whaling be limited to closely monitored hunts by indigenous people? What kind of whale products should be traded internationally? Place yourself in the position of an owner of a Japanese factory whaler working in the Great Southern Ocean and in the position of someone who opposes whaling (See Raven text, p. 80).

Whaling is an unacceptable practice and should be stopped immediately.

Examine two arguments for and two against this statement.

Feb 7- Ecosystems II: Ecosystems and Living Organisms.

Class discussion: The nature of community.

Is community based mostly on competition or cooperation between members? (Consider the concepts in the chapter that are supportive of your answer)

READING BREAK

Feb 14- Ecosystems II: Ecosystems and the Physical Environment.

Class discussion: Agriculture and the use of chemical fertilizers.

Society should use legislation to prohibit farmers using fertilizers?

Examine arguments for and against this statement.

Is there an alternative to chemical fertilizers?

Feb 21- Ecosystems III: Ecosystems of the World

Class discussion: The issue of BC's coastal temperate rainforest.

Logging of BC's old growth temperate rainforest be stopped immediately?

Examine arguments for and against this statement.

Video: Battle for the Trees

Feb 28- Population dynamics

Class discussion: Addressing the 'tragedy of the commons': closing the commons and the viability of the voluntary approach.

The issue of population controls versus 'freedom to breed'.

Strict population controls should be used by all nations to address social and environmental problems.

Examine arguments for and against this statement.

Video: The population bomb

March 7-

Energy

Class discussion: The issue of offshore oil & gas in BC

The Situation: Oil and gas, a critical, non-renewable energy source, has been found offshore the west coast of BC, a pristine ecosystem. The area is included in the land claim of the Haida Nation.

Should oil exploration and production be allowed or prohibited in the offshore?

Offshore oil & gas in BC should be developed immediately.

Examine arguments for and against this statement.

There are many websites relating to this issue. For example, see:

http://dominionpaper.ca/firstnations/2004/11/06/the_strugg.html

<http://www.livingoceans.org/oilgas/index.shtml>

<http://www.offshoreoilandgas.gov.bc.ca/>

For similar discussion of issues relating to the development of the Arctic Wildlife Refuge in Alaska, see 'Take a Stand' in Raven text, p. 232.

March 14-

Water resources

Class discussion: The issue of dam removal.

Dams can provide clean energy, water storage, and flood control. Hydro electricity forms an important part of the BC economy. However, dams also can cause environmental degradation and can prevent fish from migrating and breeding. In the Pacific Northwest, salmon populations have declined greatly.

For addition information, see 'Take a Stand' in Raven text, p. 306)

Strategic dam removal should take place on BC rivers and all future dam building be prohibited.

Examine arguments for and against this statement.

Video: Cadillac desert

March 21-

EASTER HOLIDAY

March 28-

Food

Text: Chap 18

Required reading: Wackernagel, M., How Big is Our Ecological Footprint?

Calculating your Ecological Footprint

Class discussion: Vegetarianism

Canadians should be required to follow a vegetarian diet.

Examine arguments for and against this statement.

April 4 -

Climate change

Class discussion: Canada's position on the Kyoto Protocol. Should Canada have ratified its commitment to the Kyoto Agreement, given that the US has declined to ratify the Agreement?

April 11- World Views revisited

Class discussion: Worldview
Identify and discuss three personal values that have been challenged or re-enforced during study for this course.

Video: The man who planted trees

Grades

Please note that grades at Camosun are determined as follows:

<u>Letter grade</u>	<u>Numeric grade</u>	<u>Description</u>
A+	95-100%	Superior Level Achievement
A	90-94	
A -	85-89	
B+	80-84	High Level Achievement
B	75-79	
B -	70-74	
C+	65-69	Satisfactory Achievement
C	60-64	Sufficient Achievement
D	50-59	Minimum level of achievement
F	0-49	Minimum level 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