

## **GEOGRAPHY 100: ECOSYSTEMS AND HUMAN ACTIVITY**

**FALL 2002**

### **Instructor:**

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### **Context**

When the century began, neither human numbers nor technology had the power to radically alter planetary systems. As the century closes, 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; and
- Demonstrate knowledge of courses of action which address environmental concerns.

### **Reading**

The required text for the course is Raven and Berg, 2001, Environment, Toronto: Harcourt.

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

### **Evaluation**

#### **Exams (35% of course mark)**

There are four tests spread through the course, the first worth 5% and each of the others worth 10% of course marks.

The format will be discussed at the beginning of the semester.

#### **Labs (30% 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 hand writing must be neat. Untidy and illegible writing will not be marked.

#### Class Discussion Questions (5% of course mark)

There are six 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 six students. In addressing the questions identify key concepts and structure the discussion around these. Each student will take a turn acting as chair. The chair will lead the discussion and write up the results. The chair will distribute a copy of the report to each member of the group and to the instructor. **The report will include a list of the students actually present for the discussion.**

#### Take a Stand Exercises (15% of course mark)

These exercises provide students the opportunity to work with controversial issues, to research key facts surrounding the issue and to take a position based on an evaluation of the information. We will look at the controversy around five issues:

- i) whaling
- ii) protection of BC's coastal temperate rainforest
- iii) protection of the Arctic National Wildlife Refuge
- iv) population controls versus 'freedom to breed'
- v) treatment of Victoria's sewage

Information on two of the issues is found in the Raven text, under Take a Stand, at the end of chapters 4 (whaling) and 10 (Arctic National Wildlife Refuge). Information on the other issues can be found using the internet, library and the course text and lab reading. Students will prepare a short report identifying three facts (arguments) that they see to be significant in support of each side. 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.

Students will conclude the report with a summary of their own position, based on the facts that they see to be most important (essentially this is a statement of the student's values). **The type-written report will be presented on the day of the debate. Late reports will not receive marks.** The issue will be debated in class whereby each side (students will be assigned randomly to one side) has the opportunity to present key arguments. To conclude the discussion students will look for common ground between the two sides.

#### Take a Stand Paper (15% of course mark)

Students will choose one of the five issues and write an academic 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 issue. A map, created by the author, will accompany the paper containing map elements of title, scale, direction and legend. 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. **The paper is due in the first class of the week of November 18.**

Research Papers are graded on the basis of:

- Quality of research (20%) - breadth of information and relevance
- Substance (30%) - show that you can identify important concepts and 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 (at least one is required), i.e. sources that have been peer- reviewed.

Evaluation summary:

Tests	- 35%
Lab work	- 30%
Discussion questions	- 5%
Take a Stand exercises	- 15%
Take a Stand paper	- 15%

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, must consistently use a standard bibliographic style and all sources must be fully referenced.

### 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**

Sept. 3- Introduction to the course: course outline  
The Environment: What is the problem?  
Text: Chap 1

Sept. 9- Addressing environmental problems: Part I  
Text: Chap 2

Sept. 16- Addressing environmental problems: Part II

Text: Chap 3

**Theme 2: The World We Live In**

Sept. 23- Ecosystems and Energy  
Text: Chap 4

TEST I

Sept. 30- Ecosystems and Living Organisms  
Ecosystems and the Physical Environment  
Text: Chap 5, 6

Oct. 7- Major Ecosystems of the World  
Text: Chap 7

**Theme 3: Human Population and the Environment**

Oct. 14- Population dynamics  
Text: Chap 8 & 9  
**Required reading**: Hardin, Garrett. *The Tragedy of the Commons*.  
Science, 162 (1969): 1243-1248.

TEST II

**Theme 4: Energy**

Oct. 21- Energy: fossil fuels and renewables  
Text: Chap 10 & 12

**Theme 5: Natural Resources**

Oct. 28- Water  
Text: Chap 13

Nov. 4- Wildlife and Biodiversity  
Text: Chap 16  
**Required reading**: Leakey, R., *Value in Diversity*, The Sixth Extinction  
Ch. 8. Toronto: Doubleday

Nov. 11- Food resources  
Text: Chap 18  
**Required reading**: Wackernagel, M., How Big is Our Ecological Footprint?

TEST III

**Theme 5: Environmental Concerns**

Nov. 18- Atmospheric change  
Text: Chap 20

Research paper due

Nov. 25- Water pollution

Text: Chap 21

**Theme 6: Tomorrow's World**

Dec. 2- Revisiting World Views

Text: Chap 24

TEST IV

**Lab Schedule**

*Week of*

Sept. 3- Introductory: Geography of pollution  
Introducing World Views

Sept. 9- Addressing environmental problems I:  
Research and the scientific method  
Geography of environment

Sept. 16- Addressing environmental problems II:  
Policy and economics.  
World Views.  
Video: Subdue the Earth

Sept. 23- Ecosystems I: Ecosystems and Energy

**Take a Stand:** The issue of whaling (Source: Raven text, p. 83)

Sept. 30- Ecosystems II: Ecosystems and Living Organisms  
Class discussion: The nature of community

Ecosystems II: Ecosystems and the Physical Environment  
Class discussion: Agriculture and the use of chemical fertilizers

Oct. 7- Ecosystems III: Ecosystems of the World

**Take a Stand:** The issue of BC's coastal temperate rainforest: The logging of BC's old growth temperate rainforest should be stopped immediately.

(Source: Internet/text)

For an overview of the pacific coastal temperate rain forest bioregion and a map of global distribution of the temperate rain forest, see [www.ecotrust.org/mission/bioregion.html](http://www.ecotrust.org/mission/bioregion.html)

Oct. 14- Population dynamics

**Take a Stand:** The issue of population controls versus 'freedom to breed' Population controls should be used by all nations to address social and environmental/resource problems.

(Source: Hardin's Tragedy of the Commons/text)

- Video: The population bomb
- Oct. 21- Energy  
**Take a Stand:** The issue of the Arctic National Wildlife Refuge  
 (Source: Raven text, p. 244)
- Oct. 28- Water resources  
 Class discussion: The price of water
- Nov. 4- Biodiversity  
 Class discussion: Hunting of elephants (see Globe and Mail article in lab manual)  
 Video: The Monarch Butterfly
- Nov. 11- Food Resources: Calculating your Ecological Footprint  
 Class discussion: Vegetarian diet
- Nov. 18- Climate change  
 Class discussion: Alberta's position on the Kyoto Protocol
- Nov. 25- Water pollution  
**Take a Stand:** The issue of Victoria's sewage: Victoria should be forced to put in place appropriate treatment of its sewage immediately.  
 (Source: Internet/text)
- Dec. 2- World Views revisited  
 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