

**GEOGRAPHY 204**  
**ATMOSPHERE AND BIOSPHERE**  
Course Outline - Fall, 2002

Instructor: Hilary Sandford

Office: Ewing 304

Phone: 370-3372

Email: [sandford@camosun.bc.ca](mailto:sandford@camosun.bc.ca)  
[angusdog@island.net](mailto:angusdog@island.net)

**COURSE DESCRIPTION**

This course is intended to acquaint students with some of the fundamental components and processes that operate within the atmosphere and biosphere. The first portion of the term will be spent investigating solar energy characteristics and the associated influences on atmospheric structure, temperature distribution and weather characteristics. The second portion of the term will focus on the global biosphere. Soil formation and characteristics will lead into a discussion of plant and animal distribution, overall biodiversity and global and national conservation strategies. Specific discussions of British Columbia's programs for biogeoclimatic and ecosystem classification, field description and biodiversity protection will be included at the end of the term.

**LEARNING OPPORTUNITIES**

Lectures: There will be three hours of lecture a week; one-and-a-half hours at the start of each Tuesday and Friday class block. The blackboard will be heavily utilized and overheads and slides will augment the traditional lecture style.

Labs: There are twenty labs in the course. Each lab contains exercises to reinforce the concepts that were introduced by the preceding lecture. A variety of different lab exercises will allow students to become familiar with maps, meteorological instruments and the questioning style of the instructor. Attendance during lab periods is required to obtain a mark for the specific assignment. In the case of illness or emergency, the instructor must be contacted prior to the class time and an alternate arrangement must be made; otherwise, a mark of zero will be assigned. Due dates for each exercise will be announced at each lab period and late assignments will not be accepted.

Tests: Three tests will be given during the term. They will be held during the regular class time on Friday, **September 27<sup>th</sup>**, Tuesday, **October 29<sup>th</sup>**, and Friday, **December 6<sup>th</sup>**. These quizzes will include a selection of short-answer, multiple-choice, and skill-based questions on the material covered in lectures, labs and text readings.

NOTE: Please consult page 40 of the College Calendar, which outlines the College policies, regarding exams and tests. Note that students are expected to write tests and exams at the scheduled time and place unless a verifiable emergency existed to prevent attendance.

**TEXTBOOK**

Robert W. Christopherson. Geosystems (4<sup>th</sup> or 5<sup>th</sup> Edition). Macmillan Publishing, Toronto. This text is available at the Camosun College bookstore and is also used for Geography 206.

## **LAB MANUAL**

A lab manual to accompany this course is available for purchase in the Camosun College bookstore. This manual is required for the course and contains lab exercises, practice quizzes and handout material.

## **EVALUATION**

There will be no scheduled final exam for this course.

Quiz #1	15%
Quiz #2	20%
Quiz #3	25%
Lab Exercises	<u>40%</u>
	100%

## **GRADING**

The standard grading scale of the School of Arts and Science will be used in this course.

A+	95-100%
A	90-95%
A-	85-90%
B+	80-85%
B	75-80%
B-	70-75%
C+	65-70%
C	60-65%
D	50-60%
F	0-50%

## **COURSE OUTLINE**

<u>Class Date</u>	<u>Lecture &amp; Lab Topics</u>	<u>Text Reading</u>
Sept 3	Introduction to Physical Geography	Chap 1: pg. 2-20
Sept 6	Solar System	Chap 2: pg. 40-43; 49-55
Sept 10	Electromagnetic Radiation	Chap 2: pg. 44-49
Sept 13	Atmosphere Structure	Chap 3: pg. 62-72
Sept 17	Air Pollution	Chap 3: pg. 72-82
Sept 20	Atmospheric Energy and Greenhouse Effect	Chap 4: pg. 88-103
Sept 24	Global Temperatures and Global Warming	Chap 5: pg. 112-130
<b>Sept 27</b>	<b>Test #1</b>	
Oct 1	Wind	Chap 6: pg. 137-162
Oct 4	Atmospheric Moisture	Chap 7: pg. 172-182
Oct 8	Clouds and Fog	Chap 7: pg. 183-195
Oct 11	Air Masses and Circulation	Chap 8: pg. 202-215
Oct 15	Violent Weather	Chap 8: pg. 215-226
Oct 18	Water Storage	Chap 9: pg. 232-251
Oct 22	Koppen Climate Classification	Chap 10: pg. 262-289
Oct 25	Global Climate Change and Kyoto Protocol	Chap 10: pg. 293-299
<b>Oct 29</b>	<b>Test #2</b>	
Nov 1	Soil Properties	Chap 18: pg. 528-533
Nov 5	Soil Formation and Classification	Chap 18: pg. 533-537
Nov 8	Biological Productivity	Chap 19: pg. 556-572
Nov 12	Ecosystem Stability and Biodiversity	Chap 19: pg. 574-581
Nov 15	Canadian Conservation Strategies and SARA	Chap 21: pg. 618-625

<u>Class Date</u>	<u>Lecture Topics</u>	<u>Text Reading</u>
Nov 19	B.C.'s Describing Ecosystems in the Field	Handout
Nov 22	B.C.'s Describing Ecosystems in the Field (cont.)	
Nov 26	B.C.'s Biogeoclimatic Ecosystem Classification	Handout
Nov 29	B.C.'s Biogeoclimatic Ecosystem Classification (cont.)	
Dec 3	Review Class	
<b>Dec 6</b>	<b>Test #3</b>	

### **LIST OF LAB EXERCISES**

<u>Class Date</u>	<u>Lab Topics</u>
Sept 6	Lab 1 - Solar Energy
Sept 10	Lab 2 - The Seasons
Sept 13	Lab 3 - Vertical Atmospheric Change
Sept 17	Lab 4 - Pollution
Sept 20	Lab 5 - Heat Budgets
Sept 24	Lab 6 - Temperature Distribution
Oct 1	Lab 7 - Wind
Oct 4	Lab 8 - Atmospheric Humidity
Oct 8	Lab 9 - Adiabatic Lapse Rates
Oct 11	Lab 10 - Weather Maps
Oct 15	Lab 11 - Severe Weather
Oct 18	<i>No Lab</i>
Oct 22	Lab 12 - The Koppen Climate System
Oct 25	Lab 13 - Climate Change
Nov 1	Lab 14 - Soil Formation
Nov 5	Lab 15 - Soil Classification
Nov 8	Lab 16 - Biological Productivity
Nov 12	Lab 17 - Biodiversity
Nov 15	<i>No Lab</i>
Nov 19	Lab 18 - Site Description
Nov 22	Lab 19 - Vegetation Assessment
Nov 26	Site & Veg continued
Nov 29	Lab 20 - Site Series Classification