



COURSE OUTLINE

ENVS 100

AN INTRODUCTION TO ENVIRONMENTAL SCIENCE I

45 HOURS

3 CREDITS

PREPARED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

Scott Gilbert, Instructor

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

Margaret Dumkee, Dean

APPROVED BY ACADEMIC COUNCIL: \_\_\_\_\_

RENEWED BY ACADEMIC COUNCIL: \_\_\_\_\_

**YUKON COLLEGE**  
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Course Outline prepared by Scott Gilbert, July 2015.

Yukon College  
P.O. Box 2799  
Whitehorse, YT  
Y1A 5K4



APPLIED SCIENCE & MANAGEMENT DIVISION  
An Introduction to Environmental Science I  
3 Credits  
Fall, 2015

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AN INTRODUCTION TO ENVIRONMENTAL SCIENCE I

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**INSTRUCTOR:** Scott Gilbert, B.Sc., Ph. D.  
Kathy Piwowar, BA

**OFFICE HOURS:** Tues / Wed 1:30 -2:30 or  
by appt

**OFFICE LOCATION:** A2515

**CLASSROOM:** A2103

**E-MAIL:** [sgilbert@yukoncollege.yk.ca](mailto:sgilbert@yukoncollege.yk.ca)  
[kpiwowar@northwestel.net](mailto:kpiwowar@northwestel.net)

**TIME: Lecture:** Tues & Thurs, 10:30 - Noon  
**Lab:** Fridays, 1-4pm

**TELEPHONE:** (867) 668-8776

**DATES:** Sept 9 - Dec 18, 2015

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### COURSE DESCRIPTION

Environmental Science 100 is specifically designed for students who are not pursuing a science program but who wish to learn more about the physical and biological processes that shape our environment. Our planet, and its living and non-living parts, makes up the biosphere, which itself is a complex web of interactions. We investigate these interrelationships by studying the underlying processes in terms of their biology and chemistry.

The course has two goals. First to explain some of the basic concepts in ecology and chemistry and secondly to show how these concepts can help understand four or five of the critical problems facing our world: the size and growth rate of the world's population, atmospheric problems (green house effect, thinning of the ozone layer and acid precipitation) and sustainability of the world's agricultural and forestry industry.

### PREREQUISITES

Admission to the School of Liberal Arts or School of Science.

### EQUIVALENCY/TRANSFERABILITY:

UBC	Geog (3)	SFU	BISC 1xx (3)
UAF	Nsci Elec (n) (3)	UAS	Physical Geog Elec (3)
UR	Geog 100L (3) or Esci 200L (Educ. Students)		
UNBC	Envs 1xx (3) <u>or</u> with ENVS 101 = Envs 100 (3) & Envs 1xx (3)		
UVIC	Es 100L (1.5)		

For more information about transferability contact the School of Science office at 867-668-8887.

## LEARNING OUTCOMES:

Students that successfully complete this course will:

- Understand the basic processes and interrelationships that govern our biosphere.
- Be able to research environmental topics and prepare verbal and written arguments.
- Understand the range of environmental problems confronting the world, and be aware of potential solutions at a variety of levels (as individuals, locally and globally.)

## DELIVERY METHODS/FORMAT:

Two members of the School of Science will teach the course using a team teaching approach and several steps have been taken to ensure that this multidisciplinary approach is well integrated. The course is based on three hours of lectures per week (2 classes of 1.5 hours) and a total of seven or eight three-hour activities that range from workshops to laboratory experiments.

## COURSE REQUIREMENTS

### ASSESSMENTS

**Attendance** Students are expected to attend both lectures and the scheduled activities (including field trips). Several of the lab exercises involve collecting data or making observations and this would make it difficult or impossible for students who miss the lab to complete the lab assignment.

### EVALUATION

There will be several short class quizzes and take home assignments and some field/lab activities may require written assignments. Rather than a single mid-term examination we will have two somewhat shorter quizzes. Students must pass the field/lab portion of the course if they wish to receive a passing grade for the overall course. The final exam will be scheduled sometime in December and will be comprehensive and cover all topics taken up during the term.

Book review	10
Class participation/assignments	5
Field/lab activities	25
Quiz (2 @ 15%)	30
Final examination	<u>30</u>
<b>Total</b>	<b>100</b>

## REQUIRED TEXTBOOKS/MATERIALS:

Freedman, Bill *Environmental Science: A Canadian Perspective* - 5th Edition 2010

## **ACADEMIC AND STUDENT CONDUCT**

Information on academic standing and student rights and responsibilities can be found in the Academic Regulations:

[http://www.yukoncollege.yk.ca//downloads/Yukon\\_College\\_Academic\\_Regulations\\_and\\_Procedures\\_-\\_August\\_2013\\_final\\_v1.pdf](http://www.yukoncollege.yk.ca//downloads/Yukon_College_Academic_Regulations_and_Procedures_-_August_2013_final_v1.pdf)

## **PLAGIARISM**

Plagiarism is a serious academic offence. Plagiarism occurs when students present the words of someone else as their own. Plagiarism can be the deliberate use of a whole piece of another person's writing, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material. Whenever the words, research or ideas of others are directly quoted or paraphrased, they must be documented according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Resubmitting a paper which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the College.

## **YUKON FIRST NATIONS CORE COMPETENCY**

Yukon College recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see [www.yukoncollege.yk.ca/yfnccr](http://www.yukoncollege.yk.ca/yfnccr).

## **ACADEMIC ACCOMMODATION**

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC) at (867) 668-8785 or [lassist@yukoncollege.yk.ca](mailto:lassist@yukoncollege.yk.ca).

## ENVS 100 -2015 Lecture Outline\* - May 22 draft

Date	Topic	Readings
Sept. 10	Introduction: environmental science, ecology, sustainable development, ecological footprint, I=PAT, worldviews. Scientific method and hypothesis testing.	Chapter 1 + 2, pp. 164-166, 171-175
Sept. 15	Physical world: hydrosphere & atmosphere Biomes. Succession	pp.33 - 39, 55-57, Biomes (pp. 93-102), pp. 118-119
Sept. 17	Energy flow through ecosystems: ecosystem structure, photosynthesis, consumers, decomposers. Nutrient flows.	Chapter 4
Sept. 22-24	Key ecological concepts niche, species interactions,	Chapter 9 (pp 109-112, 115-118)
Sept. 29 Oct. 1	Questions of abundance: Animal populations - density, mortality and birth rates. Human populations - historical view of Malthus	Chapter 9 (pp 112-115)
Oct. 6-8	Human populations - current population explosion.	Chapter 10 + 11
Oct. 13-15	Chemistry: What is matter composed of? What is a chemical equation	To be assigned
Oct. 20-22	Chemistry: Atomic structure and simple acid:base relationships	"
Oct. 27-29	Chemistry:	"
Nov 3-5	Chemistry:	
Nov. 10	<b>Quiz II</b> / then start Biological impacts of acid precipitation.	Chapter 19
Nov. 12	Biological impacts of acid precipitation (conclude)	
Nov. 17	Agriculture: historical survey of trends. Impacts of agriculture: nutrient cycles, deforestation, energy consumption	pp. 101-102, 126-131, 201-211, and Chapter 24
Nov. 19	Agriculture continued	

Nov. 24	Survey of forestry practices - Carbon budgets and agricultural and forestry practices	pp. 210-215 & Chapter 23
Nov. 26	Pesticides in agriculture and forestry: What are they? Why do we use them? What are the disadvantages?	p 285 + Chapter 22
Dec 1	Alternatives to pesticides - Integrated Pest Management (IPM), bio control, changes in land culture practices	
Dec. 3	Contaminants in northern ecosystems &: course summary	

\* Readings based on your text: *Environmental Science: A Canadian Perspective 5th Ed* - Bill Freedman 2010.

## ENVS 100 - Lab Activity Schedule

Here is the schedule for our Friday afternoon lab activities. You'll note that we cover a range of activities from field exercises to lab studies and tutorials. The common theme is that you **MUST** read over the background information and directions for each activity before class. Past experience shows that students who forget to prepare for the lab ahead of time, by doing the readings, get confused and frustrated. Take the time to prepare so you can get the most out of these activities.

Date	Activity
Sept. 11	Group A: McIntyre Creek Vegetation field survey - meet in Room A2103  Group B: Library Tour at 1:00 (front desk) - Library Research Assignment due next Friday
Sept. 18	Group A: Library Tour at 1:00 (front desk) - Library Research Assignment due next Friday  Group B: McIntyre Creek Vegetation field survey - meet in Room A2103
Sept. 25	Living with the neighbours: Soapberry bushes as bear attractants on campus
Oct.. 2	Population growth - tutorial
Oct. 9	<b>Quiz I</b>
Oct. 16	Chemistry Lab I : [ <i>Meet at Chemistry Lab</i> ]
Oct. 23	Chemistry Lab I : [ <i>Meet at Chemistry Lab</i> ]
Oct. 30	Chemistry Lab II (Location TBA)
Nov. 6	Chemistry Lab II (Location TBA)
Nov. 13	Tragedy of the Commons activity
Nov. 20	
Nov 27	Karimlam Role Playing exercise
Dec. 4	