

UNIVERSITY OF WESTERN ONTARIO  
DEPARTMENT OF GEOGRAPHY  
**Geography 2330A - Geomorphology and Hydrology**  
*Fall 2011*

**Class Times**

Lectures: Wed. 12:30 – 2:30 p.m. SSC 3024

Labs: Thurs. 2:30-4:30 p.m. SSC 1425

Thurs. 4:30-6:30 p.m. SSC 1425

**Instructor**

Dr. Chris Smart

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Office hours: Wednesday 2:30-4:30 p.m. or by appointment

**Calendar Description**

Water and sediment cycles at the Earth's surface and description and explanation of the resulting landforms. The interconnection of geomorphic and hydrologic systems to environmental change, with applications to environmental management. 2 Lecture hours, plus 2 laboratory hours.

**Prerequisites**

**1.0 courses from Geography 1100, 1300A/B, 01400 F/G, 1500 F/G or the former 020E, or 0.5 from Earth Sciences 1022A/B or 1081A/B; or enrolment in the Major in Physical Geography or in an Honours Earth Science Program for Professional Registration.**

Unless you have either the pre-requisites for this course or special permission from your Dean to enrol in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

**Course objectives**

At the conclusion of the course you should be able to:

1. Recognise, and describe the characteristics of, common landforms;
2. Understand and explain the physical principles of common geomorphic and hydrologic processes;
3. Explain landform development in relation to the relevant geomorphic and hydrologic processes and anticipate the effects of environmental change on both the processes and landforms;
4. Discuss, with the help of case examples, the application of geomorphology and hydrology to environmental management;
5. Use Google Earth to visualise, represent and interpret landscapes.

**Course content**

1. Introduction –landscape form and process, the relationship between geomorphology and hydrology, landscape and human environments.
2. Physical properties of earth materials, weathering and the rock cycle.
3. Constructive geomorphology: tectonics, relief and landscapes.
4. Mass movement: forms and processes, hillslope erosion and the landslide hazard.
4. Hillslope and drainage basin hydrology: runoff generation, floods and droughts.
5. Drainage basin geomorphology: rivers and landscape evolution.
6. Glaciation continental and alpine glaciation.

**Course Materials**

There is no required textbook for this course. weekly reading materials will be placed on WebCT as each week. These will be excerpts from books, articles and various websites. The readings will be chosen to support, extend and provide cases related to each course topic and the lab assignments.

If you have not had much background in physical geography (e.g. have not taken Geography 1100 or 1300) I recommend referring to the relevant parts of an introductory Physical Geography textbook. There are a few options:

1. **Fundamentals of the Physical Environment by Smithson et al, 4th edition.** This is an introduction to physical geography and chapters **1, 10, 13, 14, 15, 17 and 24** are especially useful for this course. There is also an *e-book* of the 3rd edition of this book accessible from the library catalogue

2. I suggest the text that is assigned for Geography 1300 **“Canadian Geosystems” by Christopherson and Byrne, especially parts or all of Chapters. 9, 12, 13, 14 and 17.**

There are several intermediate textbooks on geomorphology that you might refer to. These include:

1. **“Global Geomorphology”** by M.A. Summerfield. **Chapters, 1, 6-9, 12 and 15** are most relevant for this course and might be useful as a supplement to this year’s textbook.

2. **Geomorphology; a Canadian Perspective** by Alan Trenhaile. The Third edition (2007) and Fourth (2010) editions are best.

3. **Fundamentals of Geomorphology** by Richard Huggett 2nd Edition. 2007.

### Laboratory Sessions

Labs will consist of exercises designed to consolidate and elaborate on the lecture material and lab material will be incorporated into examinations. Labs are scheduled in a computer laboratory because they will be founded on the use of Google Earth, a landscape visualisation application available as freeware. The laboratory sessions will be supervised by teaching assistants who will also be responsible for assessment of lab work. You are encouraged to work as groups in undertaking the laboratory exercises, but your report should be in your own words.

You will be provided 24/7 access to SDAL (SSC1425) based on your registration in this course. You are expected to have an active UWO computer account prior to undertaking exercise 1.

You may have to work outside the scheduled lab times to complete the required work. You will have access to the departmental laboratories, but you may prefer to *install Google Earth on your own computer*. See: <http://www.google.com/earth/index.html>

Exercises and necessary Google Earth files will be posted on WebCT. You should ensure that your own exercise files and reports are securely backed up and maintained. *A personal memory key* is the simplest way of ensuring that you can move between labs and home in the most seamless manner.

Exercises are to be *submitted in electronic form* (Word 2003/7) to the Teaching assistant for your lab section. This is an experiment to see if we can avoid heavy consumption of paper and coloured ink.

### Class Schedule (accurate 12/9/2011)

Geography 2330a Class and Laboratory Schedule				
	Class date	Lecture: approximate schedule	Lab	Due
1	14/09/2011	Introduction; weathering and the rock cycle	1. Google Earth primer	
2	21/09/2011	Constructive geomorphology (Plate tectonics)		23/09
3	28/09/2011	No class	2. Constructive Geomor	
4	05/10/2011	Mass movement 1: materials processes and forms		07/10
5	12/10/2011	Mass Movement 2: hazards and management	3. Mass Movement	
6	19/10/2011	Mid term test		21/10
7	26/10/2011	Hydrology 1: hydrologic cycle, processes and catchments	4. Hydrology	
8	02/11/2011	Hydrology 2: water balance, budgets and management		04/11
9	09/11/2011	Hillslopes	5. Rivers	
10	16/11/2011	Drainage basins 1: hydrology and fluvial processes		18/11
11	23/11/2011	Rivers : landforms and management/ Glaciers: processes	6. Glaciers	
12	30/11/2011	Glaciers: forms, resources		02/12
13	07/12/2011	Review and summary		
	10-21/12/11	Final examination period		

The anticipated lecture sequence may undergo some adjustment. There is no lecture the week of 28<sup>th</sup> September, though the lab exercise will continue. The lab exercises run on a two week cycle with the lab due the day after the second class. They will be marked and returned by next week with a brief in class review on general points. There is no lab scheduled the week of 19 October as this is the week of the mid term test. Note that the final examination may occur at any time during the 10-21 December.

### **Assessment**

1. **Laboratory exercises: 40%**

2. A 1 hour, short written answer, **mid-term test**, in class on **Wednesday, October 19<sup>th</sup>. 20%**

3. A 2 hour **final exam** with both short answers and simple Google Earth Quiz. The final examination will cover all aspects of the course, including the lab component and readings. Do not make any firm travel plans until you know the date of the final exam. **40%**

Late assignments or absences from the mid-term test without prior permission, documentation or medical reasons will be given a grade of zero. Documented absences in term are generally accommodated by waiving that portion of the course.

### **Scholastic Offenses**

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

<http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf>

### **Academic Conduct**

Students should also be familiar with the University Academic Policies and Regulations and Academic Rights and Responsibilities in the Academic Calendar on the Registrar's website and p 33-41 of the printed calendar.

[http://www.westerncalendar.uwo.ca/western/web/2007\(new\)/ACADEMIC\\_INFORMATION\\_301621.html](http://www.westerncalendar.uwo.ca/western/web/2007(new)/ACADEMIC_INFORMATION_301621.html)

### **Electronic Devices**

No electronic devices will be allowed during tests and examinations.

### **Plagiarism**

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com> )

### **Illness**

If you have an illness or critical personal circumstances during the term that affects your work or ability to write exams or to complete work on schedule please refer to UWO Policy on Accommodation for Medical Illness:

[http://www.uwo.ca/univsec/handbook/appeals/accommodation\\_medical.pdf](http://www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf)

You can download a Student Medical Certificate (SMC) from: <https://studentservices.uwo.ca> under the Medical Documentation heading.

Please contact me as soon as you can so that can help with any accommodation.