



**COURSE OUTLINE**

**GEOL 102**

**GEOMORPHOLOGY**

**81 HOURS  
3 CREDITS**

PREPARED BY: \_\_\_\_\_  
Mary Samolczyk, Instructor

DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_  
Dave McHardy, Acting Dean

DATE: \_\_\_\_\_

**YUKON COLLEGE**  
Copyright August, 2013

All rights reserved. No part of this material covered by this copyright may be reproduced or utilized in any form or by any means, electronic or mechanical, traded, or rented or resold, without written permission from Yukon College.

Course Outline prepared by Mary Samolczyk, 27 August 2013.

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

**APPLIED SCIENCE AND MANAGEMENT DIVISION**  
**GEOLOGY 102**  
**3 Credit Course**

**GEOMORPHOLOGY**

---

**INSTRUCTOR:** Mary Samolczyk, M.Sc.  
**OFFICE HOURS:** Mondays and Thursdays (12 – 1 pm)  
**OFFICE LOCATION:** A2314 (inside A2313)  
**TELEPHONE/E-MAIL:** 668-8743 (W) / msamolczyk@yukoncollege.yk.ca  
**FAX:** 668-8828

---

**COURSE OFFERING:** September 4, 2013 – December 3, 2013  
**DAYS & TIMES:** Lectures: Monday/Wednesday 4 -5:30pm  
Lab: Thursday 1-4pm

---

**COURSE DESCRIPTION:**

Geology 102 addresses surface and near-surface geological processes and deposits, and their implications for land use and present, past, and future landscape development. Students are introduced to a wide range of introductory geomorphology topics such as weathering, glacial and fluvial processes and landforms, mass wasting, and tectonic controls on landforms. Topical issues in geomorphology in the Yukon and northern Canada are discussed in detail, including (1) the impact of climate change on periglacial environments and human infrastructure, and (2) the relationship between glaciofluvial systems and the placer mining industry. Laboratory instruction includes soil classification, surficial deposit identification, map and air photo literacy, and hydrological monitoring.

**LEARNING OUTCOMES:**

Upon successful completion of the course, students will be able to:

- Analyse the role of active and ancient Earth surface processes in landform evolution, including weathering and soil formation.

- Apply the basic concept of a balance between driving and resisting forces shaping landforms.
- Evaluate the geomorphic and climatic significance of anthropogenic activities.
- Identify a variety of landforms on the ground and using topographic maps, aerial photographs, and satellite imagery.
- Analyse the relationships between precipitation, surface water and groundwater systems.
- Understand surficial geology processes unique to northern latitudes and the implications of changing environmental conditions.

### **DELIVERY METHODS/FORMAT:**

This course consists of two 90-minute lectures and one 3-hour lab period per week. Laboratory exercises will be conducted in both laboratory and field settings.

### **PREREQUISITES:**

Admission to the Mineral Resources, Science, or Northern Science programs; and/or permission from the instructor.

### **COURSE REQUIREMENTS/EVALUATION:**

#### **Attendance and Participation**

Students are strongly encouraged to attend all lectures and laboratory exercises. Lab exercises can be completed only during class time and materials may not be available outside those hours. Off-campus field exercises must be completed during the allocated time with the instructor present.

#### **Assignments**

Weekly lab exercises will be due at the start of the following lab section. All lab exercises will require a write-up from the student, with length appropriate to the exercise completed. As some labs will require more than a single week, deadlines for each lab write-up will be announced at the start of each new module. Three writing assignments will be due over the course of the term and will focus on current research and literature in geomorphology.

<b><i>Tests and Assignments</i></b>	<b><i>Weight</i></b>	<b><i>Dates</i></b>
Weekly Lab Assignments	35%	Due at the start of each subsequent lab exercise.
Midterm Test*	15% (or 5%)	During lecture class time.
Final Lab Exam	15%	During schedule lab time in the final week of classes.
Final Lecture Exam*	20% (or 30%)	During exam period, as scheduled by registrar.
Writing Assignments (3)	15% (5% each)	During lecture class time.
<b>Total</b>	100%	

\* The test weighting scheme that is most advantageous to the student's final grade will be chosen.

The letter-grading scheme used in this course is the Yukon College standard scheme. Final grades will be rounded up to the nearest decimal place and assigned a letter grade based on this scheme. Grades will not be raised in order to facilitate a better overall grade standing at the end of the course. Final grades will be changed in the event that an error in grade addition or entry occurs. In such a case, students are asked to contact the instructor immediately. The College policy on grading and related matters is described in the "Student Evaluation, Grades, and Records" section of the current College Calendar.

Any student who is absent from a test or exam for legitimate reasons will be eligible to write a deferred exam. Please note that excuses such as car trouble, vacation travel, oversleeping, and misreading the test schedule are not considered legitimate reasons and do not qualify the student for a deferred exam. For missed midterm tests, the student must contact the instructor within 48 hours of the missed test by phone or email. For missed final exams, students must contact the Chair of the School of Science. Any deferred exams will be scheduled by the Chair.

## **Plagiarism**

Plagiarism involves representing the words of someone else as your own, without citing the source from which the material is taken. If the words of others are directly quoted or paraphrased, they must be documented according to recommended document style. The resubmission of a paper for which you have previously received credit is considered a form of plagiarism.

Plagiarism is academic dishonesty, a serious academic offence, and will result in you receiving a mark of zero (F) on the assignment or the course. In certain cases, it can also result in dismissal from the College.

## **Writing Centre**

All students are encouraged to make the Writing Centre a regular part of the writing process for coursework. Located in C2231 (adjacent to the College Library), the Writing Centre offers half-hour writing coaching sessions to students of all writing abilities. Coaching sessions are available in person and through distance technologies (e.g. Skype or phone plus email). For further information or to book an appointment, visit the Centre's website: [dl1.yukoncollege.yk.ca/writingcentre](http://dl1.yukoncollege.yk.ca/writingcentre).

## **STUDENTS WITH DISABILITIES OR CHRONIC CONDITIONS:**

Reasonable accommodations are available for students with a documented disability or chronic condition. It is the student's responsibility to seek these accommodations. If a student has a disability or chronic condition and may need accommodation to fully participate in this class, he/she should contact the Learning Assistance Centre (LAC) at (867) 668-8785 or [lassist@yukoncollege.yk.ca](mailto:lassist@yukoncollege.yk.ca).

## **REQUIRED TEXTBOOKS/MATERIALS:**

Geomorphology: A Canadian Perspective by A.S. Trenhaile. Fifth edition (2012). Oxford University Press Canada, Don Mills, Ontario. ISBN-13: 978-0195446054.

## **EQUIVALENCY/TRANSFERABILITY:**

There are no established course transfer agreements for GEOL 102.

**TOPIC OUTLINE/SYLLABUS:**

Lecture #	Date	Topic
1	4/09/13	Introduction to surficial geology
2	9/09/13	Soils
3	11/09/13	Soils
4	16/09/13	Fluvial processes and landforms
5	18/09/13	Fluvial processes and landforms
6	23/09/13	Introduction to hydrogeology
7	25/09/13	Lake geomorphology
8	30/09/13	Glacial processes and landforms
9	2/10/13	Glacial processes and landforms ***** 1 <sup>st</sup> article due *****
10	7/10/13	Aeolian processes and landforms
11	9/10/13	Environmental change and paleoenvironmental records
THANKSGIVING	14/10/13	No lecture
MIDTERM	16/10/13	Midterm exam
12	21/10/13	Tectonic geomorphology
13	23/10/13	Tectonic geomorphology
14	28/10/13	Mass wasting
15	30/10/13	Mass wasting
16	4/11/13	Periglacial processes and landforms ***** 2 <sup>nd</sup> article due *****
17	6/11/13	Periglacial processes and landforms
REMEMBRANCE DAY	11/11/13	No lecture
18	13/11/13	Economic geology
19	18/11/13	Surficial Geology of Yukon
20	20/11/13	Hazard mapping in the Yukon (YRC) (tentative)
21	25/11/13	Coastal processes and landforms
22	27/11/13	Coastal processes and landforms
REVIEW CLASS	2/12/13	***** 3 <sup>rd</sup> article due *****

**LAB SCHEDULE AND GRADING SCHEME**

Lab #	Date	Topic	Grade
1	12/09/13	Introduction to soil classification ( <b>field exercise</b> )	3%
2	19/09/13	Introduction to applied hydrology ( <b>field exercise</b> )	3%
3	26/09/13	Contaminant hydrogeology and groundwater flow models	3%
4	3/10/13	Remote sensing and glacial landforms	3%
5	10/10/13	Grain size analysis lab	5.5% (full write-up)

	17/10/13	No lab	0% (attendance only)
6	24/10/13	Tectonic geomorphology	3%
7	31/10/13	Mass wasting activity	5.5% (full write-up)
8	7/11/13	Permafrost and geophysical characterization	3%
9	14/11/13	Introduction to air photo interpretation	3%
10	21/11/13	Mapping surficial deposits and hazards	3%
Exam	28/11/13	Final laboratory exam	0% (attendance only)

\* Outdoor labs will require a clipboard, sturdy footwear (e.g. hiking boots), and weather appropriate clothing.