

 Yukon University	School of Science
	GEOG 102
	Earth Systems: Landscapes and Natural Hazards
	Term: Winter, 2026 Number of Credits: 3
Course Outline	

INSTRUCTOR: Mary Samolczyk

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OFFICE PHONE: 867.456.8605

OFFICE LOCATION: inside T1090 (Earth Sciences Laboratory)

OFFICE HOURS: by appointment

LAB INSTRUCTOR: Tara Howatt

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OFFICE LOCATION: A2507

COURSE DATE: Jan. 06 – Apr. 16

LECTURE LOCATION AND TIME: Tues. and Thurs. 9:00 – 10:30 AM (A2101)

LABORATORY LOCATION AND TIME: Mon. 1:00 – 4:00 PM (T1090)

FINAL EXAM DATE: TBD

COURSE DESCRIPTION

GEOG 102 is an introduction to the physical environment and methods of earth system research. The basic principles and processes that govern climate-landform-vegetation-soil systems on the surface of the earth will be examined from a systems perspective. Natural and human-induced changes in environmental systems through time will also be addressed. Issues of spatial and temporal scale, in the context of earth systems, will be demonstrated by map construction, map and air photo interpretation, field and laboratory investigations and principles of geographic information systems and remote sensing. GEOG 102 is the complementary course of GEOG 101 (Earth Systems: Atmosphere and Climate); the two courses are taught as a single unit.

COURSE REQUIREMENTS

There are no course requirements for this course.

EQUIVALENCY OR TRANSFERABILITY

Receiving institutions determine course transferability. Find further information at:

<https://www.yukonu.ca/admissions/transfer-credit>

www.yukonu.ca

LEARNING OUTCOMES

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

- Understand the development of the planet through geologic and tectonic activity.
- Be able to identify surface formations created by fluvial, glacial, aeolian, weathering, mass movement and coastal processes.
- Understand the concept of earth systems research including the interactions between the landscape, climate, and biophysical features.
- Have developed some comfort in a field setting.
- Be able to provide examples of current research and work taking place throughout Yukon Territory and understand its implications.
- Be able to critically analyse a piece of peer-reviewed literature and discuss it with their peers.

COURSE FORMAT

Weekly breakdown of instructional hours

This course consists of two 90-minute lectures and one 3-hour laboratory period per week. A detailed course schedule will be made available the first week of classes; laboratory activities are complimentary to lecture material. Please note that the course schedule will likely be modified during the term to accommodate lecture topics that may not be finished within the predicted lecture time.

Delivery format

Lectures and labs for the Winter 2026 offering of this course will be delivered in a face-to-face setting (classroom and laboratory). Students are expected to attend each lecture and laboratory session so that they can ask questions and directly engage with the instructor and their peers. Lectures will not be recorded. Review of any missed material or completion of missed activities is the responsibility of the student. Midterms and exams will be delivered on the Ayamdigut campus.

EVALUATION

Homework activities	10 %
Weekly lab assignments	30 %
Lecture midterm exam	15 %
Lecture final exam	25 %
Lecture assignments (2)	20%
Total	100%

*****NOTE The lecture and lab are being graded separately with 70% of your mark coming from the lecture and 30% from the lab. You need a passing grade in the lecture (minimum 35%) and lab (15%)**

as they are being marked separately. For example, a passing grade in the lecture and a zero in the lab will result in failure of the course.

Attendance & Participation

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

Assignments

A lab assignment will be due following each lab activity. A schedule of lab topics and assignment due dates will be posted on Moodle for students to review. There will be two formal lecture assignments in this course that will largely be completed outside of lecture time. Each assignment will be worth a grade value of 10%. Your instructor will provide an assignment outline and expectations in lecture.

Homework Activities

Throughout the semester, several readings and short activities will be assigned to solidify lecture concepts or add supplementary content. Work for assignments will be completed outside of class time. The total value of all homework activities is 10%.

Tests

This course has two lecture examinations: a midterm and a final. The midterm exam is conducted during scheduled lecture time; the final exam is conducted during the final exam period scheduled by the Office of the Registrar. The final exam is designed to take 3 hours.

Missed exams will be assigned a grade of 0% unless re-scheduling for a valid reason is approved and determined *in advance* of scheduled exam date. If there are known conflicts with exam scheduling, please see the instructor as soon as possible to discuss an alternative examination date.

Late Policy

Any assignments (lab and lecture) submitted past the due date will be graded based on the following scheme: a deduction of 10% per day up until a total deduction of 50% is reached, following that, assignments must be submitted prior to the date that the instructor hands back the graded assignment (set by the instructor). Please note that due to the nature of lab activities, some missed activities cannot be completed after the scheduled lab date and a grade value of zero will be assigned.

Any variation from this late policy, for example, where late assignments will not be accepted, will be clearly communicated by the instructor.

COURSE WITHDRAWAL INFORMATION

Refer to the YukonU website for important dates.

TEXTBOOKS & LEARNING MATERIALS

Christopherson, R.W. & Byrne, M.L. 2016. Geosystems: An introduction to Physical Geography—Fourth Canadian Edition. Canadian Edition. Prentice-Hall Canada, Inc.: Toronto.

This textbook is available from www.pearson.com as an etext.

ACADEMIC INTEGRITY

Students are expected to contribute toward a positive and supportive environment and are required to conduct themselves in a responsible manner. Academic misconduct includes all forms of academic dishonesty such as cheating, plagiarism, fabrication, fraud, deceit, using the work of others without their permission, aiding other students in committing academic offences, misrepresenting academic assignments prepared by others as one's own, or any other forms of academic dishonesty including falsification of any information on any Yukon University document.

Please refer to Academic Regulations & Procedures for further details about academic standing and student rights and responsibilities.

Note that artificial intelligence tools such as Chat GPT can be useful in the same way as a web search or Wikipedia. They can be a starting point but cannot be used to do the work for you. Simply copying the output from something like Chat GPT and submitting it as your own work will be considered plagiarism the same as if you copied directly from a book, webpage, or classmate. Furthermore, appropriate referencing is expected in submitted work. You would not reference Chat GPT as it is not an actual source of information, much as you would not reference the results of a web search. References should be to the published scientific literature, or, when appropriate, to the popular scientific media. Please consult with the instructor if you have any questions regarding the appropriate use of AI in this course.

ACCESSIBILITY AND ACADEMIC ACCOMMODATION

Yukon University is committed to providing a positive, supportive, and barrier-free academic environment for all its students. Students experiencing barriers to full participation due to a visible or hidden disability (including hearing, vision, mobility, learning disability, mental health, chronic or temporary medical condition), should contact [Accessibility Services](mailto:access@yukonu.ca) for resources or to arrange academic accommodations: access@yukonu.ca.

TOPIC OUTLINE

Module	Course topic(s)
1	Introduction to physical geography
2	Major concepts in Earth's materials, structure, and major earth cycles
3	Major concepts in plate tectonics - crustal formation and deformation, orogenesis, isostasy
4	Introduction to natural hazards science

5	Earthquakes: anatomy of an earthquake, global earthquake zones, intensity and magnitude, forecasting
6	Volcanoes: volcanic settings, materials and landforms, eruption types and hazards
7	Weathering: chemical and physical weathering, landform denudation, karst topography
8	Mass movement: processes and slope stability, classification
9	River systems: basic fluvial concepts, fluvial processes, channel patterns and fluvial landforms, floods, and river management
10	Oceans and coastal systems: coastal environment, coastal system actions, depositional and erosional features
11	Wind processes: erosion, deposition, and related landforms
12	Glaciers: formation and types, movement, mass balance, erosional and depositional landforms
13	Periglacial environments: distribution, processes, and landforms; permafrost degradation and thermokarst features
14	Soils: introduction and the geography of soils
15	Ecosystem essentials and biogeography: Earth's major terrestrial biomes and biogeographic divisions, introduction to energy flows and nutrient cycles, communities and species distributions, invasive species