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|  Yukon University | School of Science |
| | GEOG 102 |
| | Earth Systems: Landscapes and Natural Hazards |
| | Term: Winter, 2024 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

E-MAIL: thowatt@yukonu.ca

COURSE DATE: Jan. 04 – Apr. 11

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

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

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>

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 2024 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

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| 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.

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](#) for resources or to arrange academic accommodations: access@yukonu.ca.

TOPIC OUTLINE

| Module | Course topic(s) |
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| 1 | Introduction to physical geography |
| 2 | Earth's crust, earth materials and the rock cycle |
| 3 | Plate tectonics: theory, crustal formation, and deformation, orogenesis |
| 4 | Earthquakes: anatomy of an earthquake, global earthquake zones, intensity and magnitude, forecasting |
| 5 | Volcanoes: volcanic settings, materials and landforms, eruption types |
| 6 | Weathering: chemical and physical weathering, landform denudation, karst topography |
| 7 | Mass movement: processes and classification |
| 8 | River systems: basic fluvial concepts, fluvial processes, channel patterns and fluvial landforms, floods, and river management |
| 9 | Oceans and coastal systems: coastal environment, coastal system actions, depositional and erosional features |
| 10 | Wind processes: erosion, deposition, and related landforms |

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| 11 | Glaciers: formation and types, movement, mass balance, erosional and depositional landforms |
| 12 | Periglacial environments: distribution, processes, and landforms |
| 13 | Soils: soil forming factors and processes, soil horizons, Canadian classification system |
| 14 | 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 |