

 <b>Yukon University</b>	<b>School of Science</b> <b>GEOG 101</b> <b>Earth Systems: Atmosphere and Climate</b>
	<b>Term: Fall 2024</b> <b>Number of Credits: 3</b>
<b>Course Outline</b>	

**INSTRUCTOR:** Tara Howatt, PhD  
**E-MAIL:** [thowatt@yukonu.ca](mailto:thowatt@yukonu.ca)  
**OFFICE:** A2303b, office hours by appointment

**LECTURE:** Tuesday and Thursday 1:00 – 2:20 pm  
**LECTURE CLASSROOM:** TBD  
**LAB:** Wednesday 2:30 – 5:20 pm, location TBD

## **COURSE DESCRIPTION**

GEOG 101 is an introduction to the physical environment and methods of earth system research. The basic principles and processes that govern climate-weather-water 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 laboratory investigations and principles of geographic information systems and remote sensing. The course will highlight a range of current research taking place throughout Yukon. GEOG 101 is the complementary course of GEOG 102.

## **COURSE REQUIREMENTS**

Prerequisite(s): None.

## **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:

1. Understand the processes that govern Earth’s weather, climate, and hydrological systems,
2. Understand the concept of earth systems research including the interactions between the landscape, climate, and biophysical features,
3. Have developed some comfort in a laboratory setting,
4. Provide examples of current research and work taking place throughout the Yukon Territory and understand its implications,

- Critically analyze current media and peer-reviewed articles surrounding global climate change.

## **COURSE FORMAT**

### **Weekly breakdown of instructional hours**

This course will have two 1.5-hr lectures each week and one 3-hr lab each week. Students are expected to keep up with assigned course readings and complete assignments as necessary outside of scheduled hours each week. Although it will vary from individual to individual, students should expect to spend 4-5 hours on course material outside of the classroom time (per week) on studying or completing assignments.

Students are expected to attend both lectures and lab each week. If a student is absent for a lecture or a lab, they must contact the instructor and make up for the missed material on their own time. A missed lab may result in a grade value of 0 for that activity if it cannot be completed outside of the scheduled lab period.

### **Delivery format**

This course will be delivered on campus in a face-to-face setting. Lectures will take place in a classroom (TBD) and labs will take place in a multi-purpose laboratory (TBD). Lectures and labs are complimentary. Field activities may be a part of the course curriculum. Your instructor will provide details about what to bring and expect prior to any field activity.

## **EVALUATION**

Assignments	20%
Quizzes	10%
Midterm Exam	15%
Final Exam	20%
Lab Activities	35%
Total	100%

**Students must pass both the lecture component and the lab component in order to pass the course.** For example, a passing grade in the lecture and a failing grade in the lab will result in failure of the course.

### **Assignments**

There will be two assignments in this course. Assignment #1 will be assigned in the first half of the course. Assignment #2 will be assigned in the second half of the course. Each assignment will be worth a grade value of 10%. Your instructor will provide an assignment outline and expectations in lecture.

### **Quizzes**

A quiz will be delivered each week. Quizzes are based largely on assigned readings and are created to encourage students to complete assigned readings on time each week. Students will have one week to complete the quiz, after which the quiz will be closed.

### **Late Policy**

A late penalty will be applied to assignments and lab reports when submitted after the due date. A deduction of 10% per day up until a maximum of 50% will be applied. Students are granted a one-time late submission for assignment and lab submissions, no penalty, no questions asked. Students must hand in the work *before* the graded work is returned to students.

Extensions may be granted exceptionally and under special circumstances. Please communicate with your instructor **prior to the due date**. Once the due date has passed no extension will be granted.

### **COURSE WITHDRAWAL INFORMATION**

The last date to withdraw without academic penalty is November 4, 2024. Refer to the YukonU website for other important dates.

### **TEXTBOOKS & LEARNING MATERIALS**

Christopherson, R.W. & Byrne, M.L. 2019. Geosystems: An introduction to Physical Geography—Fourth Canadian Edition. Canadian Edition. Prentice-Hall Canada, Inc.: Toronto.

This textbook is available from [www.pearson.com](http://www.pearson.com) as an e-text.

### **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](mailto:access@yukonu.ca).

## TOPIC OUTLINE

A detailed schedule with due dates will be provided to students during the first lecture. Topics that will be covered in this course include:

**\*Course outline may be altered at any point at the discretion of the instructor\***

Week	Date	Module	Lecture Topics
1	Sept 5	Introduction to Geography	Introduction and Geography Essentials
2	Sept 10	Solar Energy and Earth's Seasons	Solar Energy
	Sept 12		Solar Energy and the Seasons
3	Sept 17	Introduction to Earth's Atmosphere	Earth's modern atmosphere
	Sept 19		Atmospheric Pollution
4	Sept 24	Energy Balances on Earth and Global Temperature	Atmosphere and Surface Energy Balances 1
	Sept 26		Atmosphere and Surface Energy Balances 2
5	Oct 1	Atmospheric and Oceanic Circulation Systems	Global Temperatures
	Oct 3		Atmospheric and Oceanic Circulation 1
6	Oct 8		Atmospheric and Oceanic Circulation 2
	Oct 10		Natural Oscillations in the Atmosphere and Ocean
7	Oct 15		Midterm Review
	Oct 17		<b>Midterm Exam</b>
8	Oct 22	Water and Atmospheric Moisture	Water Properties and Atmospheric Moisture
	Oct 24		Atmospheric Stability and Clouds
9	Oct 29	Weather	Weather: Air Masses and Atmospheric Lifting Mechanisms
	Oct 31		Weather Systems
10	Nov 5	Water Resources	Water Budget
	Nov 7		Water Resources
11	Nov 12		Reading Week (No Class)
	Nov 14		
12	Nov 19	Global Climate Systems	Global Climate Systems 1
	Nov 21		Global Climate Systems 2
13	Nov 26	Climate Change	Climate Change 1
	Nov 28		Climate Change 2
14	Dec 3		Climate Change 3
	Dec 5		Semester Review