Faculty of Humanities and Social Sciences
Faculty of Natural and Applied Sciences

DEPARTMENT OF GEOGRAPHY AND ENVIRONMENT

GENV 121
Earth and Atmospheric Science
Summer 2017 May 1-May 19

1. Course Description

This course provides an introduction to the fundamental concepts and systems of earth and atmospheric science from a geographic perspective. Emphasis will be placed on the origins and development of Earth's surface features; the characteristics and circulations of the atmosphere, including weather and global climates; and the biophysical principles governing vegetation on Earth. Lab exercises will introduce some of the technical skills related to physical geography. This course is intended for both science and non-science majors.

- **Prerequisite:** None. (3-3)
- **Preclusion:** Students who have completed GEOG 101 or GEOG 102 prior to September 2008 are not eligible for GEOG 121 credit.
- **Additional Fees:** $95.
- **Note: GENV 121 fulfils TWU's Academic core requirement for a natural science lab course.**

2. Instructor Information

Instructor:	David Jordan
Office Hours:	Open door…or by appointment
Location:	Tree-ring Lab, Upper RNT 222
Phone:	604-888-7511 x3242
Email:	davidj@twu.ca

3. Student Learning Outcomes

The following chart demonstrates how this course meets Trinity Western University's Student Learning Outcomes. The column on the left indicates TWU's Student Learning Outcomes relevant to this course; the column on the right provides learning outcomes specific to this course. It is intended that through the range of their experiences at Trinity Western University, students should prepare for a life of learning and service by developing:

1. Knowledge and its application • a broad foundational knowledge of human culture and the physical and natural world. • a depth of understanding in any chosen field(s) of study. • applied knowledge acquired through discipline-appropriate experiential learning.	**By the end of this course, students will have gained** • broad foundational knowledge of important scientific principles and processes as they relate to earth and atmospheric science including; the scientific method, systems theory, flows of matter and energy, scale, and spatial analysis. • a depth of understanding about how the sub-disciplines of physical geography; climatology, geomorphology and biogeography continually shape physical environments and influence human activities. • applied knowledge of physical geography by participating in "hands-on" laboratory exercises and field experiences.
2. Cognitive complexity • skills including critical and creative thinking, quantitative reasoning, communication, research, and information literacy. • an ability to respond with wisdom, humility and charity to questions, issues, and problems of the human condition.	**By the end of this course, students will have gained** • skills in quantitative reasoning and communication acquired through basic data gathering, manipulation, and presentation techniques using Global Positioning Systems (GPS), Geographic Information Systems (GIS), topographic map interpretation, and basic weather instruments • the ability to write a concise and accurate scientific field report • the ability to respond with wisdom, humility, and charity to the questions, issues, and problems of the human condition explored in physical geography
4. Spiritual Formation • a spiritual dimension by means of an exposure to a reflective and caring Christ-centered community which encourages a further understanding of God.	**By the end of this course, students will have gained** • a further understanding of God, by means of exploring the integration of science and faith through a deeper understanding of the fullness of Earth's geologic timeframe; Earth's cosmic dimensions; biological evolution and global climate change

5. Social Responsibility and Global Engagement	**By the end of this course, students will have gained**
• the resources, skills, and motivation to become engaged global citizens who serve locally, nationally, and globally in socially and economically just ways.	• intellectual resources and technical skills preparing them to serve locally, nationally and globally in socially and economically just ways
• respect for creation and its sustainable use and care.	• respect for creation and its sustainable use and care by critically examining their ecological footprint through an in-depth exploration of global climate change

4. Course Materials

(A)	Texts	**Recommended:** deBlij, H.J., P.O. Muller, R.S. Williams Jr., C.T. Conrad, and P. Long. 2009. *Physical Geography: The Global Environment.* 2nd Canadian Edition. Oxford University Press, Don Mills, Ontario. This book is available in the book store, and there will also be a reserve copy in the library. • The 2nd Canadian Edition of the course text is considered the official text of reference for the course. You may use older editions, however please note figures and content are slightly different.
(B)	Lab Manual	**Required:** *LAB NOTES – GEOGRAPHY and ENVIRONMENT 121: Earth and Atmospheric Science.* Trinity Western University, Department of Geography and Environment
(C)	Lab Kit	**Required:** Regular or mechanical pencils (2), vinyl eraser, 30 cm metric ruler, simple scientific calculator **Optional:** rain gear (including waterproof jacket and boots)

5. Course Structure

- **Lectures:** This course consists of one three hour instructional block on Monday, Tuesday, Thursday, and Friday from 8:30 a.m. to 11:30 a.m. and one three hour lab block on the same days. Classes will provide the theory you need to understand the assignments and pass the tests, so attendance is mandatory. Classes will consist of oral lectures augmented by whiteboard notes and PowerPoint slides; classes will also include multimedia presentations, demonstrations, and discussions on selected topics.
- **Readings:** Keeping up with the assigned **reading** is an **essential** part of this course. The readings provide depth and context that enhance your understanding of course material, and they will be tested. Specific reading assignments are outlined below; these may be modified as the semester progresses.

- **Labs and assignments:** Labs are important and a **required** component of this course. Labs are designed to allow students the opportunity to investigate selected topics presented during lecture in greater detail. Labs will consist of both group and individual instructional time. Typically, methods and techniques will be presented and discussed, followed by time for data gathering, individual work, and completion of assignments.

  Come prepared for labs. You will need a ruler, pencils and calculator. For outdoor labs, be sure to **be prepared for the day's weather** (e.g., rain jacket, umbrella) and field conditions (e.g., boots or waterproof shoes).

  There are **nine** lab exercises. You may gather data and consult other students about the lab exercises, but each student is responsible for writing and submitting their own answers to lab questions. Failure to submit your own work is considered plagiarism (more on this in Section 8 below). Attendance at labs is mandatory. **Lab attendance and participation will be evaluated.** You will not be graded on missed activities due to unexcused absence from lab.

  Lab assignments are due **one day (24 hrs.)** after they are assigned, unless indicated otherwise by the lab instructor.

  In addition to the dail lab assignments there will also be two or three unannounced class participation exercises. These assignments will be based on your participation in class and typically consist of responding to a video or guest lecture presentation.

- **Tests and exams:** There will be **one** mid-semester test and **one** final exam. The format for these tests and exams consists of a series of multiple choice, short answer and long answer questions. The tests and exam will evaluate both class and lab material. A comprehensive final exam, covering all course material will be held during the formal final exam period. **Note:** Trinity Western University **does not** offer supplementary or "make-up" exams.

- **Illness and extenuating circumstances:** If you miss a lab, test or exam due to illness or other serious reason, such as a car accident, you must provide a Doctor's note from the **Trinity Western University Medical Centre.** Otherwise, a mark of zero will be given for the missed assignment.

6. Classroom Management

- **It is your responsibility to read this syllabus closely and familiarize yourself with its contents.**

- **Code of conduct:** This code of conduct is a non-negotiable requirement for enrolment in this course. This code obliges each of us to ensure that the GEOG 121 environment is a safe and positive space and that all course activities involve mutual respect for all members of the class. This code necessitates an atmosphere of inclusion, free of discrimination based on culture, religion, religious denomination, national origin, class, gender, "race," sexuality or physical ability. I invite you to share your own understanding of safe spaces and respect, so that we can make this policy a shared goal for the members of this course. After that point, I will interpret your continued enrolment in this course as a tacit agreement to this code of conduct.

- **Attendance policy:** Assessment is based on much more than how well you read materials and can regurgitate facts. Attendance is imperative to success in this course.
  - Trinity Western University has a policy that students are expected to attend all classes on a regular basis. If you must miss a class, you are responsible to speak with a classmate regarding notes and an explanation of activities.
  - If you miss more than 20% of classes (2 individual class sessions) without significant medical or compassionate reasons, you may receive a mark of zero on Participation.
  - Students who are absent for more than 50% of classes are not eligible for a passing grade in the course.

- **Laptop policy:** Laptop/personal computers are not permitted in lecture. If you have a specific learning-related issue that requires the use of a laptop computer in class I am happy to accommodate your needs.

- **Policy on other digital entertainment and communication devices**: Please ensure that these devices are turned off and stored in your bag/coat/pocket so as not to be a distraction to yourself or other students in the class.

- **Contacting me:** Due to the large volume of email I receive, I prefer that you meet with me during my office hours. If you email me, you can expect a response **within 2 days**. However, if you do not hear back from me within that time frame, kindly resend your email. Note: Please use your student email account when emailing me.

Email format (example):

To: davidj@twu.ca
Subject: GEOG 121: Request for office hour meeting on ground floor

Hello Prof. Jordan,

I am currently enrolled in your GEOG 121 Earth and Atmospheric Science course. I have just read Unit 38 (Fluvioglacial Processes, Deposits, and Landforms) and found it really interesting. However, I do have a few questions regarding the difference between eskers and drumlins. I was planning on visiting you in your office this week, but broke my leg on the weekend and can't make it up the stairs to the second floor. Would it be possible to meet on the ground floor? Please let me know what office hour day(s) and time(s) work for your schedule.

By the way, I really enjoyed your lecture yesterday! Fascinating information!

Sincerely,
Moraine Stone
TWU undergraduate student

7. Basis of Student Evaluation

Evaluation will be based on accuracy, thoroughness, and neatness. On tests and lab assignments, always show your work and keep track and express units of measurement. When your work is graded, we are looking for proof of your understanding. If you complete your work clearly and carefully, showing all steps, you may get partial credit, even for wrong answers. Grading is done fairly and consistently, however if you have any questions regarding assessment, feel free to come to **my office** and ask about it. I **will not** discuss grading of tests and assignments via email.

Determination of course grade

(a)	Lab Assignments	8 x 2% each:	16%
	Final lab Report	1 x 24%:	24%
		Sub-total:	40%
(b)	Mid-semester Test		20%
(c)	Participation Exercises		5%
(d)	Final Exam		35%
	Grand Total		100%

- **Note: You must attain a passing grade (50%) in both the lecture component and the lab component of the course in order to receive course credit.**

- **Late policy:** Late assignments are deducted 10% for the first day late, 20% for the second day late, and 30% for the third day late. Each student is allowed one late assignment grace (no deduction).

- **Grading system:** Letter grades are assigned according to the standard Trinity Western University grading system. The Standard Grading System can be found at: University Homepage > Academics > Academic Calendar > Academic Information > Grading Practices.

A+ = 90-100%	B+ = 77-79%	C+ = 67-69%	D+ = 57-59%	F = below 50%
A = 85-89%	B = 73-76%	C = 63-66%	D = 53-56%	
A- = 80-84%	B- = 70-72%	C- = 60-62%	D- = 50-52%	

- **Grade interpretation guidelines:**

  A: Outstanding, excellent work; excellent problem solving ability in scientific or mathematical contexts with virtually no computational errors.
  B: Good, competent work; good problem solving ability, with few computational or conceptual errors in scientific subjects.

C: Adequate, reasonably satisfactory work; limited problem solving ability in scientific subjects; satisfactory grasp of basic elements of the course but frequent lapses in detailed or in-depth understanding.
D: Minimally acceptable work; weak problem solving ability in scientific subjects. Shows inadequate grasp of some basic elements of the course
F: Inadequate work; shows little evidence of even basic competency in the course content or skills.

8. Academic Integrity and Avoiding Plagiarism at TWU

One of the core values of Trinity Western University is the integration of academic excellence with high standards of personal, moral, and spiritual integrity. The University considers it a serious offence when an individual attempts to gain unearned academic credit. It is the student's responsibility to be informed about what constitutes academic dishonesty. For details on this, and on identifying and avoiding plagiarism go to the University Homepage > Academics > Academic Calendar > Academic Information > Academic Policies > Academic Dishonesty and Plagiarism.

9. Campus Closure Policy

In the event of extreme weather conditions or other emergency situations go to the University Homepage > Campus Notification (in the page footer) > Class cancellation policy.

10. Students with a Disability

Students with a disability who need assistance are encouraged to contact the Equity of Access Office upon admission to TWU to discuss their specific needs. All disabilities must be recently documented by an appropriately certified professional and include the educational impact of the disability along with recommended accommodations. Within the first two weeks of the semester, students must meet with their professors to agree on accommodations appropriate to each class. Students should follow the steps detailed by the Equity of Access Office outlined in the Student Life section of the University Calendar.

11. Course schedules:

Day	Topic	Reading
Monday May 1	First day of class, Review course syllabus, Introduction to Physical Geography Lab 1: GPS Mapping	Units: 1, 2, 3
Tuesday May 2	***The Lithosphere*** Lab 2: Topographic Map Use and Interpretation	Units: 20, 22, 23, 25, 26, 24, 28, 29, 30
Thursday May 4	Lab 3: Rock Cycle	
Friday May 5	***The Hydrosphere*** Lab 4: The Work of Streams	Units: 28, 31, 32, 33, 34, 41, 42
Monday May 8	***The Cryosphere*** Lab 5: Google Earth Geomorphology	Units: 36, 37, 38, 39
Tuesday May 9	**Midterm Test 2:30 p.m.**	
Thursday May 11	***The Atmosphere*** Lab 6: Atmospheric Observations	Units: 4, 5, 6, 7, 8, 9, 11, 12, 13, 14
Friday May 12	Lab 7: Weather Systems	
Monday May 15	***The Biosphere*** Lab 8: Biogeography	Units: 43, 44, 46, 47, 18
Tuesday May 16	Lab 9: Kanaka Creek Field Trip	
Thursday May 18	Last day of lectures. No Lab meeting	
Friday May 19	**Final Exam 9:00 a.m.**	

N.B. The course schedule is provided for general planning purposes only and is subject to change and revision as necessary.