**Critical Zone Science**

<table>
<thead>
<tr>
<th>Section</th>
<th>Days</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEC 01</td>
<td>MoWeFr</td>
<td>14:00 – 14:50</td>
<td>ES 054</td>
</tr>
</tbody>
</table>

Instructor: Yvonne Martin  
Office: ES 330  
Telephone: 403 220 6197  
Email: ymartin@ucalgary.ca

*Please note: The emergency evacuation assembly point for all classes taught in Science A is Social Science Food Court.*

**Official Course Description**
Examination of the Critical Zone, Earth's outer layer that extends from the top of vegetation to the bottom of the fresh groundwater zone. It is a constantly evolving boundary layer where rock, soil, water, air, and living organisms interact to regulate the landscape and natural habitats, and determine the availability of life-sustaining resources, including our food production and water quality.

**Course Objectives**
Students will be exposed to a range of interdisciplinary material considering the Critical Zone, Earth's outer layer that extends from the top of vegetation to the bottom of the fresh groundwater zone. A focus will be on understanding the complexity of earth systems and the interaction of different aspects of the Critical Zone. Student engagement and initiative in the learning experience will also be emphasized.

**Course Learning Outcomes**
The Department of Geography is committed to student knowledge and skill development. The table below lists the key learning outcomes for this course, the program-learning outcomes to which they contribute, and the expected level of achievement.

<table>
<thead>
<tr>
<th>Course Learning Outcomes</th>
<th>PLO(s)*</th>
<th>Level(s)**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain essential advanced concepts in Critical Zone Science</td>
<td>2, 4</td>
<td>2, 3</td>
</tr>
<tr>
<td>Understand operation of the various processes operating in the Critical Zone (biology, soil, geomorphology, hydrology, climate etc.)</td>
<td>2, 4</td>
<td>2, 3</td>
</tr>
<tr>
<td>Gain an appreciation and understanding of complex, interdisciplinary earth systems</td>
<td>2, 4</td>
<td>2, 3</td>
</tr>
<tr>
<td>Students will reflect on their learning and understanding of Critical Zone science and its application through writing of course assignments and a course journal</td>
<td>1, 2, 4, 7, 8</td>
<td>3</td>
</tr>
<tr>
<td>Write a final project that demonstrates original and critical thinking skills</td>
<td>1, 2, 4, 5, 7, 8</td>
<td>3</td>
</tr>
<tr>
<td>Students should be able to apply their knowledge gained in this course to other undergraduate courses and their future workplace setting</td>
<td>3, 7</td>
<td>3</td>
</tr>
</tbody>
</table>

*PLOs = Program Learning Outcomes: 1 = reflect and communicate diverse human-environment perspectives, 2 = identify and explain human-environment processes, 3 = implement sampling, data collection, analyses and communication methods, 4 = analyze spatial and temporal aspects of human-environment systems, 5 = employ knowledge, arguments, and methodologies for solving human-environment problems, 6 = evaluate geospatial data
and manipulate it to create cartographic products, 7 = communicate geographic concepts using oral, written, graphic, and cartographic modes, and 8 = demonstrate literacy skills.

**Levels:** 1 = Introductory, 2 = Intermediate, and 3 = Advanced.

**Prerequisites**
Prerequisite: 3 units from Geography 305, 307, 313, 408, 410 & 412.

**Learning Resources**
No required textbook. Course readings and other course materials will be provided as necessary (most of these will consist of online resources).

**Grading (Weighting)**
Quizzes: 30%
Course journal: 25%
In-class course engagement: 20%
Course project: 25%

There is no final examination for this course.

Students are not required to pass all components of the course to pass the course as a whole.

**Grading System**

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 – 100</td>
<td>A+</td>
</tr>
<tr>
<td>85 – 89.99</td>
<td>A</td>
</tr>
<tr>
<td>80 – 84.99</td>
<td>A-</td>
</tr>
<tr>
<td>77 – 79.99</td>
<td>B+</td>
</tr>
<tr>
<td>73 – 76.99</td>
<td>B</td>
</tr>
<tr>
<td>70 – 72.99</td>
<td>B-</td>
</tr>
<tr>
<td>67 – 69.99</td>
<td>C+</td>
</tr>
<tr>
<td>63 – 66.99</td>
<td>C</td>
</tr>
<tr>
<td>60 – 62.99</td>
<td>C-</td>
</tr>
<tr>
<td>55 – 59.99</td>
<td>D+</td>
</tr>
<tr>
<td>50 – 54.99</td>
<td>D</td>
</tr>
<tr>
<td>0 – 49.99</td>
<td>F</td>
</tr>
</tbody>
</table>

If approval is given by the course instructor for a student to write a missed test, then the student must follow the departmentally managed deferred exam system (no exceptions).

**Supplementary Fees**

n/a

For additional detailed course information posted by the instructor, visit the course Desire2Learn page online at [https://d2l.ucalgary.ca/d2l/home](https://d2l.ucalgary.ca/d2l/home).

**SUPPLEMENTAL INFORMATION**

**Principles of Conduct**
The University Calendar includes a statement on the principles of conduct expected of all members of the university community (including students, faculty, administrators, any category of staff, practicum supervisors, and volunteers), whether on or off university property. This statement applies in all situations where members of the university community are acting in their university capacities. All members of the university community have a responsibility to familiarize themselves with the principles of conduct statement, which is available at: [www.ucalgary.ca/pubs/calendar/current/k.html](http://www.ucalgary.ca/pubs/calendar/current/k.html).

**Plagiarism, Cheating, and Student Misconduct**
The University of Calgary is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect.
Academic dishonesty is not an acceptable activity at the University of Calgary, and students are strongly advised to read the Student Misconduct section in the University Calendar at: www.ucalgary.ca/pubs/calendar/current/k-3.html. Often, students are unaware of what constitutes academic dishonesty or plagiarism. The most common are (1) presenting another student’s work as your own, (2) presenting an author’s work or ideas as your own without adequate citation, and (3) using work completed for another course. Such activities will not be tolerated in this course, and students suspected of academic misconduct will be dealt with according to the procedures outlined in the calendar at: www.ucalgary.ca/pubs/calendar/current/k-5.html.

Instructor Intellectual Property

Freedom of Information and Protection of Privacy
Freedom of Information and Protection of Privacy (FOIP) legislation in Alberta disallows the practice of having students retrieve assignments from a public place, such as outside an instructor’s office, the department office, etc. Term assignments will be returned to students individually, during class or during the instructor’s office hours; if students are unable to pick up their assignments from the instructor, they must provide the instructor with a stamped, self-addressed envelope to be used for the return of the assignment.

Human subjects
n/a

Internet and electronic communication device information
There is no restriction on the use of laptops and tablets in class if they are used to take notes or find information relevant to the class, and if there is no disturbance or distraction of other students or the instructor. Phones must be turned off during class, unless you have previously identified yourself to the instructor as a health care or law enforcement professional. The use of calculators (with specific instructions on the type of calculator allowed) during examinations may be allowed for some tests (details on whether they can be used for a particular test will be provided in lecture and lab and these rules must be adhered to).

Posting of Grades and Picking-up of Assignments
Graded assignments will be returned by the instructor or teaching assistant personally during scheduled lecture or laboratory periods, unless they are made available electronically through the course D2L webpage. Grades and assignments will not be available at the Department of Geography’s main office.

Academic Accommodations
It is the student’s responsibility to request academic accommodations, according to the university policies and procedures listed in the University Calendar.

The student accommodation policy can be found at: www.ucalgary.ca/access/accommodations/policy. Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf.

Students needing an accommodation based on a protected ground other than disability should communicate this need, preferably in writing to their instructor or the Department Head (email: david.goldblum@ucalgary.ca).

Documentation for Absences or Missed Course Assessments
Students who are absent from class assessments (tests, participation activities, or other assignments) should inform the instructor as soon as possible. Instructors may request that evidence in the form of documentation be provided. If the reason provided for the absence is acceptable, instructors may decide that any arrangements made can take forms other than make-up tests or assignments. For example, the weight of a missed grade may be added to another assignment or test. For information on possible forms of documentation, including statutory declarations, please see https://www.ucalgary.ca/pubs/calendar/current/m-1.html

Copyright Legislation
All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf) and requirements of the copyright act (https://laws-lois.justice.gc.ca/eng acts/C-42/index.html) to ensure they are aware of the consequences of unauthorised sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplines under the Non-Academic Misconduct Act.

Wellness and Mental Health Resources
The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness, and academic success and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support, or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, https://www.ucalgary.ca/wellnesscentre/services/mental-health-services) and the Campus Mental Health Strategy website (http://www.ucalgary.ca/mentalhealth/).

Contact Information for Student and Faculty Representation
• Student Union VP Academic 403-220-3911, suvpaca@ucalgary.ca
• Students Union Representatives for the Faculty of Arts – 403-220-3913, arts1@su.ucalgary.ca, arts2@su.ucalgary.ca, arts3@su.ucalgary.ca, arts4@su.ucalgary.ca
• Student Ombuds Office information can be found at: www.ucalgary.ca/ombuds/

Campus Safewalk
Campus Security, in partnership with the Students' Union, provides the Safewalk service, 24 hours a day, to any location on Campus, including the LRT station, parking lots, bus zones, and university residences. Contact Campus Security at 220-5333 or use a help phone, and Safewalkers or a Campus Security officer will accompany you to your campus destination.