



UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
ENVIRONMENTAL SCIENCE PROGRAM
COURSE OUTLINE

1. **Course:** ENSC 401, Environmental Science Field Course I -- Fall 2018

Instructor Name	Email	Phone	Office	Hours
<i>B01:</i> (MWFTR 08:00 - 18:00 in ES 443 and SSun 08:00 - 18:00 in)				
Mary Reid	mreid@ucalgary.ca	403-220-3033	BI 339	TBA
William Holden	wnholden@ucalgary.ca	(403) 220-4886	ES 416	T & R 09:15 to 10:45.

Course Site:

D2L: ENSC 401 B01-(Fall 2018)-Environmental Science Field Course I

Environmental Science Program:

Office: EEEL 445
Phone: 403 220-8600
Email: ensc@ucalgary.ca

Note:

Students must use their U of C account for all course correspondence.

2. **Requisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

Prerequisite(s): Geography 339 or Biology 315 or Statistics 327 and admission to the Environmental Science program.

Notes: This course occurs in rugged field conditions and varying weather, for which participants must be prepared and equipped. A supplementary fee will be assessed to cover additional costs associated with this course.

3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Component(s)	Weighting %	Date
Field book	10	Sept 5
Site description	8	Sept 17
Human use	2	Sept 17
Vegetation	8	Sept 26
Wildlife	15	Oct 10
Water quality	16	Oct 26
Air quality	15	Nov 7
Self-directed study	8	Nov 26
Final report	18	Dec 7

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum % Required	95 %	88 %	83 %	78%	74%	70 %	66 %	62%	58%	54 %	50 %

This course has a non-registrar scheduled final component.

A passing grade is required for each of the sum of all individual assignments and the sum of all group assignments. Peer evaluation will be incorporated into a student's group work grade.

4. Missed Components of Term Work:

The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in [Section 3.6](#). It is the student's responsibility to familiarize himself/herself/themselves with these regulations. See also [Section E.3](#) of the University Calendar.

5. Scheduled out-of-class activities:

There are no scheduled out of class activities for this course.

This class is an inquiry-based course that involves traditional lectures as well as group participation. The field school portion of this course takes place Aug 27-31 on the main campus and September 1-5 at the Barrier Lake Field Station. These are full days, and it is important to recognize that for field courses, the hours are not regular from day to day, but vary considerably depending on the activities involved.

6. Course Materials:

7. Examination Policy:

No aids are allowed on tests or examinations.

Students should also read the Calendar, [Section G](#), on Examinations.

8. Approved Mandatory and Optional Course Supplemental Fees:

There is a mandatory supplemental fee of \$385.79 for this course.

9. Writing across the Curriculum Statement:

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also [Section E.2](#) of the University Calendar.

10. Human studies statement:

Students will not participate as subjects or researchers in human studies.

See also [Section E.5](#) of the University Calendar.

11. Reappraisal of Grades:

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

1. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **15 days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall immediately submit the Reappraisal of Graded Term work form to the department in which the course is offered. The department will arrange for a re-assessment of the work if, and only if, the student has sufficient academic grounds. See sections [I.1](#) and [I.2](#) of the University Calendar
2. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

12. OTHER IMPORTANT INFORMATION FOR STUDENTS:

- a. **Mental Health** 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, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **SU Wellness Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see www.ucalgary.ca/wellnesscentre or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The University of Calgary is committed to fostering a safe, productive learning environment. The Sexual Violence Policy (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>) is a fundamental element in creating and sustaining a safer campus environment for all community members. We understand that sexual violence can undermine students' academic success and we encourage students who have experienced some form of sexual misconduct to talk to someone about their experience, so they can get the support they need. The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email (svsa@ucalgary.ca) or phone at [403-220-2208](tel:403-220-2208).

- d. **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/fabrication of experimental values in a report. **These are only examples.**
- e. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- f. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at [procedure-for-accommodations-for-students-with-disabilities.pdf](#).
- Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Interim Program Director of the Environmental Science Program, Dr. Mary Reid by email mreid@ucalgary.ca or phone 403 220-3033. Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See [Section E.4](#) of the University Calendar.
- g. **Safewalk:** Campus Security will escort individuals day or night (See the [Campus Safewalk](#) website). Call [403-220-5333](tel:403-220-5333) for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- h. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPPA). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see [Legal Services](#) website.
- i. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: suvpaca@ucalgary.ca. SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: sciencerep@su.ucalgary.ca. Student Ombudsman, Email: suvpaca@ucalgary.ca.
- j. **Internet and Electronic Device Information:** Unless instructed otherwise, cell phones should be turned off during class. All communication with other individuals via laptop, tablet, smart phone or other device is prohibited during class unless specifically permitted by the instructor. Students that violate this policy may be asked to leave the classroom. Repeated violations may result in a charge of misconduct.
- k. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.

ENSC 401

Environmental Science Field Course I, Fall 2018

Course Outcomes

By the end of this course, students will have foundational ability to conduct environmental assessments (Phase 1 and Phase 2) from initial planning to a completed document.

In particular, successful students will be able to:

1. apply specific lab and field techniques in ecology, hydrology, chemistry, geology and field navigation
 - a. identify and quantify common plants and apply ecosite classifications
 - b. quantify vertebrate habitat use
 - c. measure air quality using physical and biological sampling
 - d. measure and interpret physical, chemical and biological metrics of water quality
 - e. measure water discharge of flowing water
 - f. describe the pertinent geological features of a study area in the eastern slopes of Alberta
 - g. use maps, compass, and GPS to locate specific points
2. apply the concepts of variability and error in gathering and interpreting data
 - a. identify accuracy and precision of measurements
 - b. design studies that account for natural variability when choosing sampling locations and intensity
 - c. apply statistical methods to collected data and draw appropriate conclusions
3. assess data with respect to government environmental standards and the peer-reviewed literature
4. integrate human use of the environment when interpreting data and recommending actions
5. communicate effectively when working in teams, when writing reports, when creating scientific posters and when giving oral presentations

Course components are designed to highlight all components to varying degrees.

A focal issue of this course will be an investigation of the impact of recreation in the Kananaskis Valley. Groups composed of students from different Environmental Science concentrations will summarize the data collected during this field course into a comprehensive report. Each group will also present one component of the study in an oral presentation.

Plagiarism

Note that although group work is encouraged in this course, reports by individuals must be written in each student's own words. Please see the sections on Student Misconduct in the current university calendar (Academic Regulations, Section K).

Course Schedule(subject to adjustments)

Part 1: University of Calgary Campus

Monday 27 Aug: Introduction to ENSC

		Instructor	Room
9:00 am	Introduction to ENSC and ENSC401	Reid	ES443
9:30	Learning goals	Reid	ES443
10:30	Groups, site description, field books	Reid	ES443
Noon	Lunch		
1:00	Professional associations	ASPB	ES443
2:00	Introduction to Kananaskis & ETPRA	Reid	ES443
3:00	Introduction to experimental design	Reid	ES443

Tuesday 28 Aug

9:00 am	Kananaskis field week info	Reid	ES443
9:30 am	Kananaskis Valley human use	Holden	ES443
Noon	Lunch		
1:00 pm	Desktop data; navigation	Reid/TAs	ES920

Wednesday 29 Aug

9:00 am	Water chemistry	Gaas	ES443
10:45	Aquatic inverts bioindicators	Swann	BI234
11:30	Invert lab (1/2 class, A-H)	Swann	BI046
12:15	Invert lab (other half: J-Z)	Swann	BI046
1:30 pm	Lab procedures (Grp 1,3,5,7)	Malekani	ES905/923
	Thinking science (Grp 2,4,6,8)	Reid	ES443
3:00	Lab procedures (Grp 2,4,6,8)	Malekani	ES905/923
	Thinking science (Grp 1,3,5,7)	Reid	ES443
4:00	Self-directed study discussion	Reid	ES443

Thursday 30 Aug

9:00 am	Air quality & experimental design	Reid	ES443
Noon	Lunch		
1:00 pm	Ecosite classification & soils	Robinson	ES920
2:00 pm	Vegetation methods and ID	Reid/Robinson	ES920

Friday 31 Aug

9:00 am	Wildlife	Reid	ES920
10:30 am	Data debrief	Reid	ES920
12:30 pm	end of day		

Part 2: Biogeoscience Institute Field Station at Barrier Lake

Saturday, 1Sept

7 am: DEPART FOR KANANASKIS. Bring lunch! Groups

		a.m.	p.m.
Site reconnaissance (Holden)	K Valley	1,2	3,4
Air quality & traffic (Reid)	K Valley	3,4	1,2
Vegetation (Cartar)	K Valley	5,6	7,8
Water chemistry (Malekani, Gaas,Theoret)	K River	7,8	5,6

Eve: data entry (air, veg, water); moss processing

Sunday, 2 Sept

Site reconnaissance (Holden)	K Valley	5,7	6,8
Air quality & traffic (Reid)	K Valley	6,8	5,7
Vegetation (Robinson)	K Valley	1,3	2,4
Water chemistry (Malekani, Gass,Theoret)	K River	2,4	1,3

Eve: data entry (air, veg, water); moss processing

Monday, 3 Sept

Self-directed studies planning (Reid)	field station	1,3,5,7	2,4,6,8
Field navigation and carbon stocks (TAs)	field station	2,4,6,8	1,3,5,7

Eve: moss processing

Tuesday, 4 Sept

Stream inverts & hydrology (Hassell, Robinson)	K River	6,7	5,8
Geology (Morgan)	ET Creek	5,8	6,7
Self-directed investigations (Theoret)	K Valley	2,3	1,4
Wildlife (Reid)	K Valley	1,4	2,3

Eve: data entry (inverts, wildlife)

Wednesday, 5 Sept

Stream inverts & hydrology (Hassell, Robinson)	K River	1,2	3,4
Geology (Morgan)	ET Creek	3,4	1,2
Self-directed investigations (Theoret)	K Valley	7,8	5,6
Wildlife (Reid)	K Valley	5,6	7,8

Submit field books to TA

Return to Calgary by dinnertime.

ENSC 401, Fall 2018: Term Schedule

Unspecified classes may be used for tutorial classes, office hours, or group work as required.

Date	Topic	Instructor	Report Due (e-submit by midnight)
Sept 10	Past & future review	Reid	
Sept 12	Vegetation study	Reid	
Sept 14	Excel tutorial (<i>bring laptops</i>)	Reid, TAs	
Sept 17	Office hours (<i>all in class</i>)	Reid, TAs	Site descr; human use
Sept 19	Intro to R	Robinson	
Sept 21	R tutorial (<i>bring laptops</i>)	Robinson	
Sept 24	Wildlife	Reid	
Sept 26	Intro to Statistics: ANOVA	Robinson	Vegetation
Sept 28			
Oct 1	R tutorial (<i>bring laptops</i>)	Robinson	
Oct 3	Office hours	TAs	
Oct 5	Office hours	TAs	
Oct 8	Thanksgiving		
Oct 10	Water quality	Gaas	Wildlife
Oct 12	Office hours	TAs	
Oct 15	Office hours	TAs	
Oct 17	Office hours	TAs	
Oct 19	Office hours	TAs	
Oct 22	Office hours	TAs	
Oct 24	Traffic Impacts	Reid	
Oct 26	Office hours	TAs	Water quality
Oct 29	Panel on careers (tbc)	Practitioners	
Oct 31	Office hours	TAs	
Nov 2			
Nov 5	Panel on careers (tbc)	Practitioners	
Nov 7	Final report and talks	Reid	Traffic Impacts
Nov 9			
Nov 12	Reading week		
Nov 14	Reading week		
Nov 16	Reading week		
Nov 19			
Nov 21			
Nov 23			
Nov 26	Talks: self-directed studies		
Nov 28	Talks: self-directed studies		
Nov 30	Talks: self-directed studies		Self-directed study
Dec 2			
Dec 5			
Dec 7	(Last class)		Final Report

Assignments

Assign't	%	Due Date	Ind / Grp	Goals	Env sci knowledge/skills						General skills						
					Context		Env'l metrics				Data		Communic-ation			Group work	
					Cultural	Biophysical	Water	Plants	Wildlife	Air	Data	Statistics	Writing	Visuals	Speaking		
Field notebook	10	Sept 5	I	excellence in primary data documentation								x		x			
Site descript'n	8	Sept 17	I	historical, cultural, biophysical context	x									x			
Human use	2	Sept 17	I	Historical and current uses	x												
Veg report*	8	Sept 26	G	natural variation & sampling, Ecosites, Excel, data management		x		x				x	x	x	x		x
Wildlife habitat use*	15	Oct 10	I	VEC metrics, inferential statistics		x			x			x	x	x	x		
Water quality*	16	Oct 26	G	water quality metrics & processes, inferential stats		x	x					x	x	x	x		x
Traffic & air quality	15	Nov 7	I	human use, air quality metrics	x	x		x		x		x	x	x	x		
Self-directed study	8	Nov 26-30	G	experimental design, data, analyses								x	x		x	x	x
Final report (Group)*	18	Dec. 7	G	Integration of data & conclusions; major report preparation	x	x	x	x	x	x		x	x	x	x		x

*formal report: follow Checklist for Scientific Papers carefully

Department Approval:

Electronically Approved

Date: 2018-08-28 15:47

Associate Dean's Approval for out of regular class-time activity:

Electronically Approved

Date: 2018-08-28 16:18

Course Outcomes

- apply lab and field methods in environmental science
- apply concepts of variability and error in data collection
- assess data according to government standards and peer-reviewed literature
- integrate human use into conclusions based on data
- communicate in discussions, in writing, and in oral presentations