



UNIVERSITY OF CALGARY

DEPARTMENT OF BIOLOGICAL SCIENCES COURSE OUTLINE

1. Course: ECOLOGY 413 – FIELD COURSE IN ECOLOGY

Lab Section(s) B01 AUGUST 19–September 2, 2017 Fall 2017

This course is at The Barrier Lake Field Station of the Biogeoscience Institute on Highway 40.

Instructor(s):	Dr. M. Reid	BI 339	220-3033	mreid@ucalgary.ca
	Dr. M. Musiani	BI 352	220-6204	mmusiani@ucalgary.ca
	Dr. N. Sinnatamby	BI 583		ramila.sinnatamby@ucalgary.ca

Desire 2 Learn (D2L) course name: ECOL 413 B01 - (Fall 2017) - Field Course In Ecology

Department of Biological Sciences	BI 186	403-220-3140	biosci@ucalgary.ca
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2. Prerequisites: BIOLOGY 313 and 315

3. **Grading:** The University policy on grading and related matters is described sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Module I	33.3%
Module II	33.3%
Module III	33.4%

There will NOT be a Final Examination.

Passing grades in each module are required if the student is to pass the course as a whole.

Each piece of work (oral presentation, written report, participation) submitted by the student will be assigned a percentage score. The student's average percentage score for the various components 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, bearing in mind that an F grade will result if the student does not pass (i.e., obtain 50% or higher) all three individual modules.

Final Grade Scale:

A+: 95 or higher
 A : 90 and under 95
 A- : 85 and under 90
 B+: 80 and under 85
 B : 75 and under 80
 B- : 70 and under 75
 C+: 65 and under 70
 C : 60 and under 65
 C- : 55 and under 60
 D+: 53 and under 55
 D : 50 and under 53
 F : <50

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 with these regulations. See also Section E.3 of the University Calendar
5. **Scheduled out-of-class activities:** N/A
6. **Course Materials:** This is a field course – see last two pages of document for items to pack/bring.
7. **Examination Policy:** N/A
8. **Approved Mandatory and Optional Course Supplemental Fees:** The course tuition and supplementary fee are paid directly to the University of Calgary, Registrar's Office. The supplementary fee (field fee), which includes accommodation, meals, laboratory

fees and transportation to field sites, is \$755.00. You must pay fees prior to the course. **Bring the receipt** to the course meeting on the first day of classes **on Saturday, August 19.**

9. **Writing across the curriculum statement:** In this course, the quality of the student's writing in laboratory reports will be a factor in the evaluation of those reports. See also Section E.2 of the University Calendar.
10. **Human studies statement** (see also Section E.5 of the University Calendar):

ETHICS IN THE BIOLOGICAL SCIENCES

Studies in the Biological Sciences involve the use of living and dead organisms. Students taking laboratory- and field-based courses in these disciplines can expect involvement with and experimentation on such materials. Students perform dissections on dead or preserved organisms in some courses. In particular courses, students experiment on living organisms, their tissues, cells, or molecules. Sometimes field work requires students to collect a variety of living materials by many methods, including humane trapping.

All work on humans and other animals conforms to the Helsinki Declaration and to the regulations of the Canadian Council on Animal Care. The Department strives for the highest ethical standards consistent with stewardship of the environment for organisms whose use is not governed by statutory authority. Individuals contemplating taking courses or majoring in one of the fields of study offered by the Department of Biological Sciences should ensure that they have fully considered these issues before enrolling. Students are advised to discuss any concern they might have with the Undergraduate Program Director of the Department.

11. OTHER IMPORTANT INFORMATION FOR STUDENTS:

- (a) **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
- (b) **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on assembly points.
- (c) **Student Accommodations:** 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 http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.pdf.
Students needing an Accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the Associate Head of Biological Sciences, Dr. H. Addy by email addy@ucalgary.ca or phone 403 220-3140.
- (d) **Safewalk:** Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- (e) **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPPA). As one consequence, 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 also <http://www.ucalgary.ca/secretariat/privacy>.
- (f) **Student Union Information:** VP Academic Phone: 403 220-3911 Email: suvpaca@ucalgary.ca
SU Faculty Rep. Phone: 403 220-3913 Email: science1@su.ucalgary.ca, science2@su.ucalgary.ca and science3@su.ucalgary.ca;
Student Ombuds Office: 403 220-6420 Email: ombuds@ucalgary.ca; <http://ucalgary.ca/provost/students/ombuds>
- (g) **Internet and Electronic Device Information:** You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.
- (h) At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference - please participate in USRI Surveys.

Department Approval: _____ ORIGINAL SIGNED _____ Date _____

Department Approval
for NO FINAL EXAM: _____ ORIGINAL SIGNED _____ Date _____
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COURSE OBJECTIVE

To examine ecological principles and techniques through field exercises in terrestrial and/or aquatic ecosystems. Understanding of introductory ecology, study design and data analysis is assumed.

COURSE COORDINATOR

Dr. Mary Reid

BI 339

mreid@ucalgary.ca

WHEN TO ARRIVE

Saturday, August 19. Students are encouraged to travel to the field station in the course vans. Those wanting transportation to the field station should inform and coordinate with Dr. Reid prior to August 19th. We have rented two vans and will be leaving from the loading docks behind the Biological Sciences Building at **1:00 pm** sharp on Saturday and return to there at the end of the course (mid-afternoon). Anyone who wants transportation should be there at that time. For those who will be driving to the station by themselves, it is important to note that **the course meeting starts before dinner at 3:00 pm in the forestry building** beside the parking lot. All should be present.

SPECIAL RESTRICTIONS:

If you have any special medical or eating restrictions please bring these to the attention of the course coordinator **prior to the commencement of the course.**

TUITION, TRANSPORTATION AND BIOGEOSCIENCES INSTITUTE FEES

The course tuition and supplementary fee are paid directly to the University of Calgary, Registrar's Office. The supplementary fee (field fee), which includes accommodation, meals, laboratory fees and transportation to field sites, is \$755.00. You must pay fees prior to the course. **Bring the receipt** to the course meeting **on Saturday, August 19.**

FACILITIES

The field station is currently undergoing significant renovations, requiring the use of some temporary spaces. There will be other courses on site, so patience, respect and flexibility will be good traits to practice!

Accommodation will be in several duplex cabins, each with one or two bedrooms, a loft, bathroom and living area.

Breakfast and Dinner are served in the dining hall, cafeteria style, at 7:30 a.m. and 5:30/6:00 p.m. respectively. You will make your own bag lunch after breakfast.

Computers will not be available due to renovations, so it will be helpful to bring your own. UCalgary Wi-Fi is available, but cell coverage is spotty.

SAFETY

A brief overview of normal safety precautions will be presented at the initial meeting on Saturday evening. However, remember that you, not the University, are responsible for your personal safety and, through your actions, those around you. Prevention is the key to safety, and all students will come to the course each day prepared with:

- attitudes and behaviours conducive to safe field practices;
- good footwear (no open-toed shoes);
- appropriate clothing for a normal range of local weather, including sun, rain and snow protection;
- medicines for chronic problems such as diabetes and asthma.

While engaged in field-school activities, the following are forbidden: alcohol, non-medicinal drugs, firearms, rough-housing, antagonizing wildlife, boulder rolling, rock-climbing, and hiking or swimming alone. All field-school participants are equally responsible for safety, but faculty and staff are in charge. If you are ever instructed to take an action, or stop one, do so first and ask questions later.

GENERAL ACTIVITY SCHEDULE

Work starts after breakfast and start time will be at the convenience of the instructors, typically at about 8am. Some field trips might require an early start. Lunches will be packed and usually only breakfast and dinner will be taken at the field station. Work may continue through to 10:00 p.m. (or later for nocturnal work), with a break for lunch and for dinner. Most days are spent in the field, and evenings are used for laboratory work, data analysis, and report writing. Students are required to write up reports based on data/observations from each section; time will be made available during each module for this purpose.

MODULES

Please note that all reports are due by 5:00 PM Friday, 15 September 2017 via email to respective faculty members.

August 19 - 23: Dr. Mary Reid

Forests change with stand age due to changes in trees and other forest processes, and these changes are variously viewed as positive ("old-growth") or negative ("over-mature"). We will discuss possible effects of reducing forest age through clear-cutting or other disturbances and use standard forest mensuration methods to quantify differences among trees and stands of different ages. Based on these investigations as a class, students will work in groups to develop an independent study. By the end of this module, students will be able to visually identify the common trees, shrubs and herbaceous plants in Kananaskis, know how to quantify their abundance and characterize a forest, collect excellent field notes, develop a research question and design a sampling protocol, manage data, and present ecological ideas in oral and written form. **Students will be evaluated in part on their fieldbooks, so bring one that can be submitted.**

August 24 – 28: Dr. Nilo Sinnatamby

The aquatic field ecology module will introduce students to common sampling techniques to assess aquatic habitats, sample and identify benthic invertebrates. Students will also learn some common fish sampling methods, proper fish handling techniques and become familiar with Alberta fish identification. Students will be responsible for designing a research question based on the field activities during the module and the available data.

August 29–September 02: Dr. Marco Musiani

The final module will focus on wildlife ecology and conservation biology in practice. Guests from governmental and environmental non-governmental organizations (ENGOS) and the instructor will lead field visits, meetings with conservation partners, and sessions and discussions at the field station. Personnel from the Alberta Habitat Management Society (Cows and Fish), ConocoPhillips (i.e. those involved in Environmental Impact Assessment), Parks Canada, Alberta Parks and Yellowstone to Yukon Conservation Initiative (Y2Y) will explain their programs and organizations' structure, during separate sessions. Students will little by little settle on a research topic of their interest that arose from the module's themes. They will then prepare an assignment including a literature review and annotated bibliography, which will be presented on an explained by the instructor. Students will also be evaluated on their fieldbooks (see above).



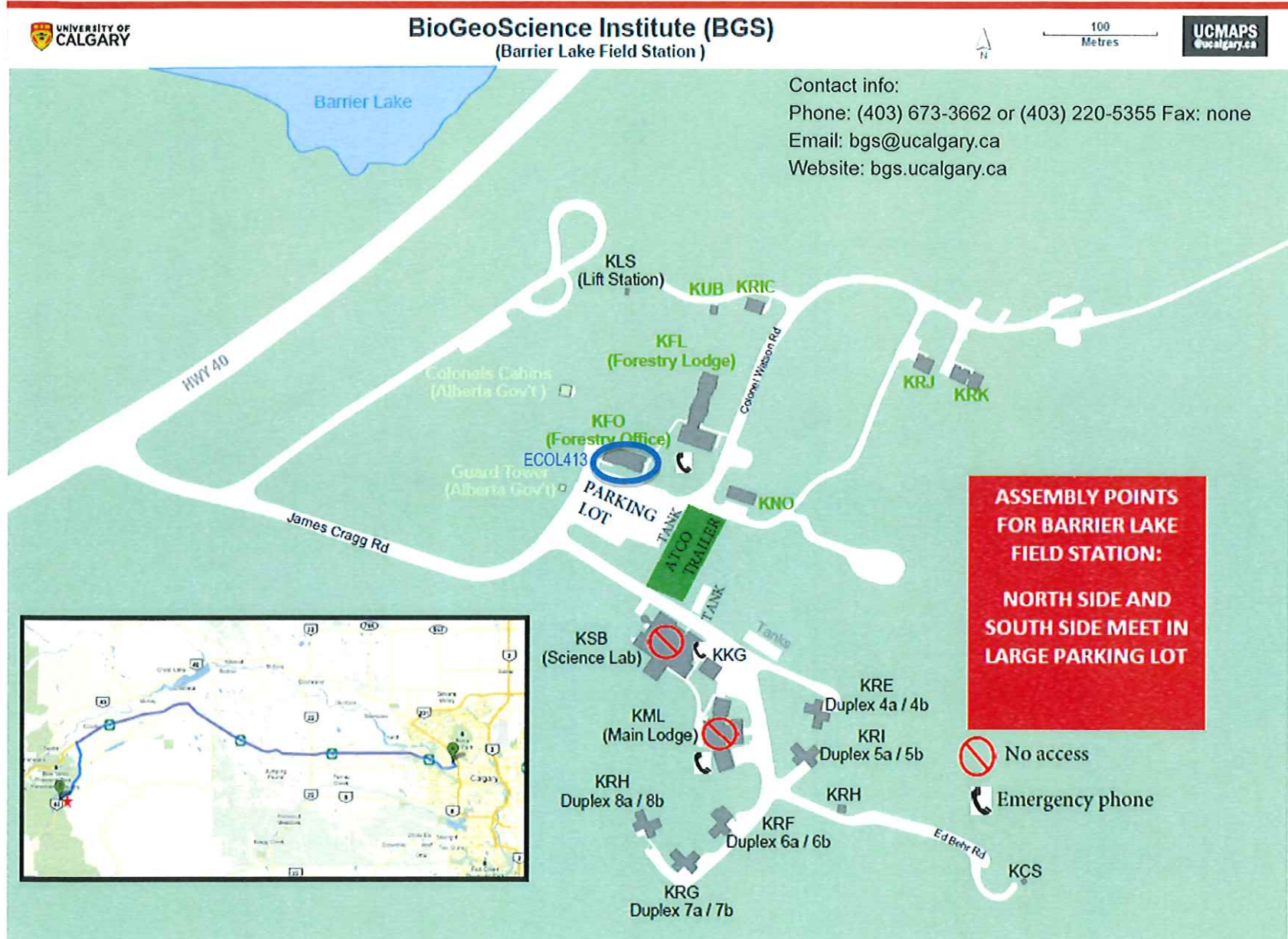
WELCOME TO THE BARRIER LAKE FIELD STATION

Course Instructions

Upon arrival, there will be a presentation on Field Station procedures by a BGI staff member.

1. Linens, pillows, blankets and towels are provided unless otherwise stated by group organizer
2. **There is no cell service at the field station.**
3. E-mail access is available via a wireless connection. Wireless can be accessed in most buildings (please see access procedures on page 6). **No downloading or streaming of videos/movies** on wireless as this will reduce wireless availability for everyone.
4. Pets are not allowed at the Field Station.
5. **Outside campfires are not permitted.**
6. Please park your personal vehicle in the main parking lot (see map on page 2)
7. Hiking boots and dirty, wet footwear are not to be worn in the Main Lodge/dormitory, ATCO Trailer or Duplexes.
8. Meals are served in the ATCO Trailer. Please contact your course instructor if you have any food allergies, are a vegetarian or have medical restrictions that we should be aware. The Trailer is **NUT FREE** (including peanuts). The chef will do his best to accommodate the various dietary restrictions however please be mindful that the chef is unable to make individual meals.
9. There is a bear proof bin in front of ATCO trailer as well as recycling bins for your empty beverage containers in front of ATCO trailer. There is zero tolerance for littering.
10. A laundry room is available in the North Shop. Washing machines are \$2.00/load and dryers are \$1.00/load. Please bring your own laundry detergent. The laundry machines accept quarters and loonies (\$1 coins).
11. Please do not store any food in the sleeping accommodations. Appropriate cupboard space is available in the lodges and duplexes.
12. Barrier Lake is a multi-use field station with numerous users groups using the facility. Please respect other groups and staff who live on-site. Quiet time is between 10pm and 7am.
13. There is no access to the Main lodge, library or laboratory spaces due to ongoing renovations. There is **NO** chemical storage available during the construction period.
14. Safe drinking water is available from dorm/duplexes throughout the station
15. If you leave the station at any time, please check in and check out on the sheets provided to you by your group instructor/supervisor. **This is mandatory.**

MAP OF BGS INSTITUTE - DURING CONSTRUCTION PERIOD



THE BARRIER LAKE FIELD STATION IS UNDER CONSTRUCTION FOR 2017-2018. MAIN LODGE (including library) and LABORATORY BUILDINGS ARE CLOSED

SUGGESTED LIST OF PERSONAL EFFECTS TO BRING:

- toiletries (earplugs are suggested)
- walking shoes or boots
- jacket (windproof)
- shoes/sandals for use in classroom and dormitory (leave muddy boots in entrance way)
- shower shoes (optional)
- several pairs of socks
- pants suitable for outdoor use
- shirts/blouses
- sweater (Note: clothing layers are more versatile than one heavy jacket; winter courses should include an appropriate jacket, snow pants, warm gloves, toque, boots)
- mitts/gloves
- sunglasses
- sunhat/(toque if you will be hiking to alpine zone)
- insect repellent/sun block
- waterproof boots
- raingear: jacket, hat, trousers (courses go out in rain, snow or sunshine)
- small packsack to carry extra clothing, lunch, note-taking materials in the field
- re-usable lunch bag
- water bottle (at least 1L)
- clipboard or 3-ring binder, pen, pencil, eraser, calculator, laptop with a wireless access (optional), flash drive
- laundry soap and loonies for washing machine and dryer
- camera
- binoculars
- alarm clock
- bathing suit for the glacier-fed lakes (if you're lucky!)
- medication

Note: It can snow any month of the year so prepare yourself accordingly and there are no nearby stores so bring what you need when you come.

For those courses where NO linen is provided please bring the following:

- Sleeping bag or your own linen (2 sheets)
- Shower towels (1-2)
- Hand towel and face cloth

This list is a suggestion only. If there are other items that you want to bring, please feel free to make additions or make your own list.

MAILING ADDRESS:

Mailing Address: Biogeoscience Institute, BS 186, University of Calgary, 2500 University Dr. NW, Calgary, AB. T2N 1N4
Phone: (403) 673-3662 or (403) 220-5355 Fax: no fax service

Please note: We expect space to be very limited in the vans (owing to up to 24 bodies + sampling gear + personal effects), therefore we strongly encourage efficient packing (roll your clothing [e.g., <https://youtu.be/17smmIESBIs>], use soft/compressible bags, etc.). Definitely bring enough to be warm, safe, comfortable, etc., but limit extra/non-essential items.



BIOGEOSCIENCE INSTITUTE, BARRIER LAKE FIELD STATION SAFETY IN THE ALPINE ENVIRONMENT

Special conditions exist when working and studying in an alpine environment and certain precautions must be taken to ensure your safety. You are responsible for your own safety and for the safety of those around you. You may be working in a remote area where emergency services are not readily available so it is important that everyone acts in a safe and responsible manner.

- Weather conditions are very unpredictable in the mountains. Each time you travel in the mountains, you should take rain/wind gear, hat/toque, extra sweater/fleece, mitts/gloves. Snow can occur any time during the year and sudden afternoon thunderstorms are very common during hot, sunny days. If you are above tree line and a thunderstorm is approaching, immediately head for lower ground and protection.
- Sturdy footwear (e.g. hiking boots) should be worn when traveling in mountainous terrain.
- Sunlight can be very intense at the higher elevations. Take a hat, sunglasses and sun block.
- Stay on the maintained trails as much as possible. Avoid taking short cuts on switchback trails as this contributes to the erosion of the area. Be aware of where you are and how you got there by making mental notes of landmarks. If you get separated from your group, you may have to find your own way out. If you are working on your own, make sure someone in the group knows where you are and how long you will be there.
- It is always easier to scramble up rocks than down, so be aware of your own limitations. Don't choose a study site that puts you in unsafe conditions. Shortcuts generally take twice as long as staying on the trail, as you usually end up bushwacking.
- It is very easy to become dehydrated while working in the alpine environment. Drink fluids often and take at least 1 litre of fluids with you.
- Pack a good lunch in the morning and snack frequently during the day. It is important to keep your energy levels high to prevent twisted ankles or falls on the hike out at the end of the day.
- Kananaskis Country is the home for black and grizzly bears, cougars, wolves, moose, elk and other large mammals. It is important to respect them and not attract them by leaving garbage, foodstuff outside. If you see evidence that bears are in the area that you want to work in, leave the area and choose another site. If you are working in an area, make "human noise" like singing, talking etc. to let any wildlife know that you are there and they will generally avoid you. More information on "wildlife encounters" will be presented to you on your arrival at the Field Station. It is recommended that you carry bear spray with you when outside.

Inform your instructor prior to your field trip of any condition which may require emergency medical attention such as diabetes, asthma, insect sting allergies. You are responsible for determining whether you should participate in any activity and/or bringing any appropriate medication with you.

EMERGENCIES

EMERGENCY PHONE LOCATIONS: Yellow phone located outside on Science Lab Building, South Dormitory (on field side), and on pole in front of Forestry Dormitory (as indicated on map)

For Emergencies: 9-1-1 on either line 1 or 2 or outdoor emergency phone. Identify location as Barrier Lake Field Station in Kananaskis Country, #1 James Cragg Road

Fire Alarms: DO NOT IGNORE OR SILENCE ALARM. Evacuate building, ensure all occupants are out, including adjacent duplex. Close doors. If staff on-site notify them immediately

- If fire occurs after hours and there are no staff on site, please inform security of alarm who will be located in Forestry Office (west door) and remain mustered in large parking lot until fire chief arrives
- If you are in the Forestry dormitory, please pull the fire station lever and which are direct dialed to EMS. Please inform security of this (if after hours) by heading to Forestry Office and remain mustered in the large parking lot until the fire chief arrives.
- If you are in the duplexes, please check duplex is evacuated, check adjacent duplex is evacuated and head down to Forestry Office to inform security of fire. Remain mustered in the large parking lot until the fire chief arrives.
- Ensure to check location of fire exits/ fire extinguishers of the buildings you are staying in
- Staff emergency contact list located near phones in all buildings including duplexes.
- Overnight security is located in the Forestry Office (entry by west door)

EMERGENCY NUMBERS (Medical, Fire, Police, Lost Person): 9-1-1

Other Contacts:

Kananaskis EMS (non-emergency and wildlife sightings/encounters): 403-591-7755

Kananaskis R.C.M.P (non-emergency or follow-up): 403-591-7708

Canmore Hospital: 403-678-5519

Poison Center (Calgary): 1-800-332-1414

Road Report: <http://511.alberta.ca>

Maintenance Staff (leaks, locked-out, etc):

Check Forestry Office building (by large parking lot) for security or call (refer to call instructions in security binder by phone in Forestry Office):

Trevor Woods (Maintenance Issues): 403-991-3235

Farah Lodhawalla (all other issues): 587-583-7315

WIFI/INTERNET ACCESS

AirUC – Secure

AirUC-Secure is available to University of Calgary staff and students. Access is the same connection as on campus.

EDUROAM (Access prior to arrival at station)

Eduroam (EDUcation ROAMing) is a wireless network service that allows students, faculty and staff from participating educational institutions to securely access the Internet while visiting other member universities. Users simply use the credentials from their home institution to access the Eduroam network. List of institutions with access to eduroam: <http://www.canarie.ca/identity/eduroam/>
<https://www.eduroam.org/>

AirUC – Guest (Access at station)

AirUC-Guest will **replace** AirUC Wi-Fi networks for visitors to the university. AirUC-Guest features a new and simple to use portal with which visitors can create guest accounts/are sponsored by the coordinator for wireless internet access. To register, connect to the AirUC-Guest Wireless Network on your device. Upon opening up a new browser window, you will be re-directed to a registration page. You need to have a **valid email address and telephone number** (SMS enabled) in order to register. You will be sent a passcode via both email message and SMS text message upon successful registration on the AirUC-Guest portal. Access to AirUC-Guest will last for **72 hours** and you will need to re-register after this period.

<https://cppm.ucalgary.ca/guest/airuc-guest-register.php?cmd=login&switchip=136.159.236.253&mac=10:3b:59:83:d7:8e&ip=10.11.210.106&ssid=airuc-guest&apname=KFS-FO-101&apgroup=KFS ENET1-UCZ&url=http%3A%2F%2Fwww%2Egoogle%2Ecom%2F?cmd=login&switchip=136.159.236.253&mac=10:3b:59:83:d7:8e&ip=10.11.210.106&ssid=airuc-guest&apname=KFS-FO-101&apgroup=KFS ENET1-UCZ&url=http%3A%2F%2Fwww%2Egoogle%2Ecom%2F& browser=1>