Question 1: These particular courses (Research Methods in Environmental Science and Advanced Research Methods in Environmental Science) were taught from a different perspective, using a First Nations derived “experiential learning method”, followed by a “problem-based approach” to teaching and learning. Basically, students were first asked to walk and experience the sights, sounds, and smells of a new environment first hand, and then work on a problem of your own choosing.

Can you please comment on your reaction and experience to the experiential learning and problem-based approaches in this course? Were they an effective way of approaching research methods compared to a traditional “stand and deliver” lecture-based course?

- I thought this was an extremely effective method of learning. In standard classes with lectures, powerpoints are nice, they provide pictures and descriptions of the concepts surrounding the class; however with this class we were out in the field, we got first hand look at all (or most) of these same concepts but in real life. We were able to get a real feel for what these geographical structures look like and the realistic scale of said structures. I know for example in Geomorphology, we were looking at moraines and there were pictures but I didn’t entirely understand the concept of what a moraine actually was, how they are formed or how massive they are because the pictures in the powerpoints simply can’t capture the beauty and scale of the real thing which is something that we were able to see first hand in the field.

- I thought it was great to be able to learn hands on, things became so much clearer and a lot more interesting being right in the action. Than we were given the opportunity to further explore based on something of our interest. This has by far been my favorite class not because it was done in a week and you go to go out west but because I felt I learned just as much as I would in a semester lecture plus it was more interactive and fun! I learn better hands on myself and visually so this course was great.

- This class is like no other offered in the environmental science department – it blows the others out of the water! I feel like the experiential and problem-based class complements traditional lecture-based courses perfectly. Moreover, I believe this class encourages students to use out-of-the-box solutions to apply the information they have gathered from other classes. The ability to apply our knowledge is key. Classes like Jasper help students pull a string through traditional “stand and deliver” classes and help teach us to use our knowledge to find innovative solutions. It is the most engaging class I have ever taken. A class along these lines should be recommended for all environmental science students.
- It was absolutely effective. Given the inherent outdoors-nature of environmental science as a discipline, the experiential learning experience is by far the most authentic way to teach this course. The traditional lecture-based method, while definitely more familiar to students, cannot impart the same genuine experience and practice and that gained by being outdoors, as the skills require for field-research, such as physical exertion, and the use of tools in and the mental-coping with potentially challenging environments, cannot be adequately simulated in a classroom.

- The experience of being out in Jasper National Park was like nothing else I’ve experienced in the classroom. Seeing things in person (and enjoying it, unlike some other hands-on labs) makes it a much more memorable experience.

- I thought this format was an excellent way to teach a class – especially one designed to teach skills and methodologies. I wouldn’t want to see this course done any other way – some skills can be learned in the lecture hall, but the importance of being in the field to learn field methods can’t be denied. It encouraged independence and forward-thinking, and I know we grew as a class thanks to the responsibilities it put on us. I also believe that as students of geography and the environment, we belong outdoors, and this class got us out there and taught us what we needed to know, but also more about appreciating the complexities of the world around us.

- In my opinion this is the only effective way to approach a research based projects. Being in the environment that you are studying provides great inspiration and allows the students to really connect and immerse themselves in their chosen projects. It is extremely difficult to draw out a hypothesis or a sampling design without being there first hand. I think that this is a very radical and essential way of teaching and learning about research.

**Question 2:** These particular courses were set to be delivered over a different time schedule than the traditional fall session course periods at MTA. I deliberately created an intensive, delivery schedule (Tuesday to Sunday with travel days on either end) requiring your entire day to attend and live within the classes, for the “lecture” portion of the schedule, followed by a long period of time to finish your projects once back at MTA.

*Can you please comment on this course delivery style, in terms of the intensive, one-week period, with the remaining period to complete course assignments?*

- I loved this aspect of the course. It gave us a real understanding of the concepts portrayed in previous courses taken at MTA. My only thing is that I would have loved to stay for 2 weeks, I realize the cost would have likely drastically increased however it was just so incredible to be out in the field absorbing natures beauty and I feel that 1 week was not quite long enough. In terms of the semester work, I thought this worked nicely, perhaps it was due to my awesome group members, but we worked our butts off to get the work done and it was exciting as hell when we started producing results. It really gave meaning to the week long trip that we had done and gave us a sense of accomplishment.
in the sense that we performed real original research that could be used by professionals
to further study and analyze the area.

- I felt it was set at the perfect time frame with just being a week before classes start. It
didn’t interrupt my summer and work and also being able to complete the projects the
remainder of the semester was perfect too. There is nothing that I would change
regarding this set up at all! I’m glad we all go together to for a bit and be able to present
our findings which has just been known amongst my group and the prof.

- This style is suiting for the course. It provides students with an opportunity to connect
with the environment there are studying, and also with their fellow classmates. Once the
intensive fieldwork is finished, there is a long period of time for students to complete their
assignments. Without strict deadlines, the course encourages students to act rationally
(and maturely) ensuring they have enough time to complete said assignments.

- The intensive, one-week course was an incredibly new experience. By ‘living within the
classes’, I gained a much deeper understanding of the physical environments and land
features that we encountered than I had previously, when I had only been able to read
about or view pictures and videos about them. I was also able to practice field-research
techniques, such as taking core-samples from trees and analyzing stratigraphy, as they
would be used by a professional scientist. Moreover, the extensive time-period that
followed allowed us to explore our field-results with lab-research techniques, and gave
us the opportunity to prepare for and participate in ACAG, which was a learning
experience in and of itself.

- The intensive week was amazing. It was a whirlwind of experience and education, filled
with people passionate about learning about the natural world. The week in Jasper was
focused on learning about different landscapes in alpine areas, as well as how to do
specific research field work, while the 3 months after were devoted to learning how to
analyze data, compile your findings and results, and complete a research project.

- This is how field work is traditionally done – gather a lot of data, work hard and have
fun while doing it, then head back to the lab and analyse it, report on it, present your
findings. So in that sense, it was excellent preparatory training for research students. But
the immersion in the subject and the reliance on each other meant it not only taught
skills, but also inspired passion in the work, and encouraged team-building and respect.
Long, hard days, finished with equipment work, discussions, and of course beer, are the
best days there are. The style of this class is how most classes should be.

- I believe that this is an ideal amount of time. The one-week period spent in the field is
just enough time to draw out a research project, collect the required samples and still
have enough time to familiarize ourselves with the beautiful environment in which we are
immersed. The remainder of the semester is left open and leaves plenty of time for
students to work on their analysis and in most cases write a final report, work sometimes
spills beyond the semester but this is one of the main goals, it becomes less about the
credit and more about providing a quality final product.
Question 3: Some might argue that introducing the entire range of research methods in one week (36 hours) is too much to grasp for students. Included in the course were a number of different methods of delivery: pre-reading lists, lectures, field experiences, mentor guidance, meetings with individuals in Jasper who visited or worked with the class, fireside chats, etc.

Can you please comment on the range of methods used in the course? Did it meet the objectives of teaching you research methods? Can you comment on the timing and the subject matter presented in the course?

- As I’ve been saying in the previous questions and it applies to the research methods aspect as well. We have been taught since before we hit puberty what the scientific method of research is and we are forced to memorize and regurgitate it for marks but when we were out in the field we started completely from scratch developing a question to be answered, methods of answering that question, followed by data analysis and drawing conclusions from this all on our own. This provided vital skills and experience for those who wish to continue on with the research aspect of science. It was an invaluable opportunity that simply cannot be taught in a 50-80 minute standard lecture.

- The different types of techniques I was able to observe based on everyone’s data collection was neat. Like how mel and brian worked away at cutting tree stubs and also with the rocks the methods followed with looking for lichen and boulders crushing plants was very interesting methods to follow, I would of never thought of those before! I didn’t feel over whelmed at all with the amount of information put forward at all so I felt the time frame was just perfect! The timing for us was perfect with the cavell icefall although it was a terrible event it was perfect for our research and projects which also made for interesting topics. I feel for those that may be going this coming summer it would be great as well to see how cavell has been able to overcome this event and develop.

- There are a wide variety of methods in which I have learned from the class. A few being how to use field equipment, working directly with mentors and National park staff, literature reviews and working with fellow classmates on projects. The amount of knowledge and hands-on experience I gained in that week was incredible! I don’t think I have ever seen and done so many new things in one week.

-Attempting to teach every possible research method within 36 may be too extreme. However, if you allow the student to choose one project relevant to their interests within the discipline, then 36 hours is more than enough time for a student to organically develop proficiency in the research methods relevant to their project. This is especially the case when crash-course lectures, directly specifically at the research-method and/or environment at hand, were provided in the field. The pre-reading lists provided enlightenment as how research had been done in Jasper in the past, but they weren’t followed up on during the course itself. The fireside chat was entirely beneficial, as it facilitated the sharing of experiences and perspectives between the students via social intimacy.
The post-trip lectures and mentor guidance made the biggest difference as to how I learned about the research process and how to piece together my research. I think a bigger emphasis could have been placed on this, for example, maybe one quick group meeting a month to talk about progress made, and ask students about anything they’re struggling with or if they have any questions. Because research is such a big learning curve, the atmosphere could have been a little more supportive. The trip to Halifax to present our findings at ACAG was a huge stepping-stone for me as a student, and showed me what it was like to officially be an undergraduate researcher.

I thought it was absolutely a good way to teach the methods. Obviously due to time constraints I didn’t learn every method there is – but then, not many undergrads get to learn as many techniques and approaches as I did. Because a lot of the theoretical work was a review of what I’d already learned in other classes, it allowed me to catch on to theory very easily, and the practical methods were not rushed or poorly prepared – if something didn’t make sense, we were encouraged to ask for help. However, due to the intensity of the short time period, the requirement for theoretical background knowledge, and the responsibility needed on the students’ part to ask when something wasn’t clear or to push the boundaries of their curiosity by asking questions about phenomena they see and don’t understand, I would recommend that this class be kept at an upper-year level.

I believe that this class goes above and beyond the scope of a traditional course. Not only did this course provide a very complete introduction to research methods, it provides lessons that really stick. The students are responsible for their own success and this amount of freedom commands respect. By the end of the semester, most students will have accomplished more than they have ever accomplished academically.

Question 4: You were provided a range of readings before the class even started, and related course material during the field week.

Can you please comment on the course materials presented? Did this approach work well, given the problem-based approach? When did you actually complete the readings (before the course/during/after/never?) Would there have been a more effective way of transmitting the knowledge contained within these materials?

I hate to say it but I still haven’t finished the readings for the class. I have however done a few of them as they pertained to our groups formal lab report with information on the history of Mt. Edith Cavell and so it works for that. I think that if this event at Edith Cavell hadn’t happened the papers probably would have been more useful as the papers focused on broader concepts and it would have provided more information rather than studying a specific rare event that occurred. I really can’t think of a more effective way to transmit the knowledge contained in the papers other than how it was done.

The previous set up of readings before hand was great it provided great examples of different types of research done in similar areas. This really prepared us for when it came time to do research of our own, with ideas and techniques. I completed them all
before the course with just one or two readings remaining to finish on the flight. Since it is a research class and reading a variety of researches done I felt it was the best way to transmit knowledge especially due to distance and the timing.

- The course materials provided ideas as to what types of research could be performed out in Jasper. This was great information to have, as it allowed us to think of creative ideas for research projects. I read most of the papers before and the remaining few after the trip. The information was well laid out and provided with plenty of time for the students to read.

- As a student who doesn’t learn well from reading, I didn’t find them very informative or helpful, although I’m sure others did. I looked over them all, reading conclusions or methods, but definitely couldn’t read them all. The maps, on the other hand, were fun to look at and made it so much easier to visualize where we were going to study, and I absorbed a lot of information from them.

- The readings were a little dense, but peer-reviewed papers never make for light reading. Having said that, I wouldn’t have research students reading anything else to give them methodological background – these authors have already done the work, pioneered the techniques, and commented on difficulties encountered. While a discussion of these materials over the summer would have been great, this is obviously a logistical impossibility. Several of the readings were completed before the class with intention to finish more during the class. Unfortunately, the long days and late nights meant that that didn’t happen. So the rest were finished after returning to Sackville.

- The readings provided prior to the course cover a wide range of possible fields of research. These are in the form of scientific research papers which in most cases is what the students will be producing by the end of the semester, I don’t see any better way of introducing this material.

**Question 5:** Can you please comment on the course instructor.

Were classes and related materials well organized? Was the teaching style and various formats (discussion, field based instruction, powerpoint, individual attention and assistance, aggressive e-mails the day before the final presentation day, etc.) effective for your needs? Feel free to make any comments you would like on the style and delivery of the course materials and the teaching and learning environment created in the class. Make sure to think through the entire course, from March consultations, to April applications, through summer briefings, to the end of the course in December.

- Colin, Graham, Tim, and Geoff, all of these people were vital flesh based containers of irreplaceable knowledge. Without the knowledge, positive, up-beat attitude of these people, the trip simply couldn’t have happened as smoothly or with the amount of good times in combination with crucial learning experiences. Any time there was a question about anything whether it be how do I analyze this data, what’s the weather supposed to
be today or when’s the last time Colin has showered he’s starting to smell kinda funky, they were always there via office hours or email and as I said, it really was a crucial part of the class to have such an awesome group of profs/lab instructors/TA’s along to help us.

- I felt that the instructor was awesome how he let us choose what we wanted to learn. His background and knowledge was perfect for this class and the amount of information he was able to pass onto us was great and the places he was able to show us too was cool. The teaching style of being able to be right in the action and learn hands on was great! Not only was this an awesome learning experience it was also fun at the same time. Anytime you can make learning fun, than you can get a lot out of it! The way the course was done through a selection process was smart and necessary. The questions asked were also great. Im glad we all had a mini presentation near the end because it was very necessary and should be always done with this class I feel. The professor was very helpful and readily accessible for help.

- Colin is extremely passionate and knowledgeable about the environment, and is always happy to share what he knows. He always stressed that this class is 100% for the students’ benefit, and that you get out what you put in. These snippets from one of Colin’s emails to the class speak for themselves: “I cannot tell you what you want to learn, only you can do that. Yes I submit a mark for you, but you do the learning. There is a huge difference between the two.” “I will only quit your team, when the last person on your team says the project is over.” The true benefit of the classes we study is the knowledge we gain from participating in them, not the mark we receive at the end of the term. Colin makes sure that we understand this. He always encourages us to be the best we can be, and is willing to help out as much as possible. I couldn’t ask for a better instructor than Colin.

- The long time-period following the field course, September to December, requires students to stay motivated and self-disciplined in order to continually pursue their assignment work. Some individuals may find this more challenging than others.

- Everything was great, especially the enthusiasm and mentorship up to and during the week in Jasper. Teaching style is very effective. Post-Jasper I definitely felt over my head sometimes (which any great university class should do) and I know others felt the same, so my only critique would be to try and spend more time on individual attention and assistance, like checking up on people with how their research projects are coming along.

- The instructor was easily the most dedicated and effective teacher I have had at Mt. Allison. The level of commitment to the class, from the early group emails, through the massive amount of organizational and logistical work to get us into the park and connected to the right people, jumping on the Cavell Icefall, the significance of which was unclear to many of us at the time... Colin showed passion for his work and for our learning from day one up until now, and I can say with confidence that few individuals could even come close to delivering a learning experience of this caliber. In particular,
his encouragement to tackle real problems (the Icefall event) and to share our research at a conference even though many of us were terrified made this course by far above and beyond others experienced at this institution. Being a part of this class has made me truly proud to be a G&E student at this university.

- Dr. Laroque is the best teacher I have ever had, he provides students with the perfect mix of support and freedom. He entrusts students with their own education, they can chose to learn as little or as much as we would like but most of the time this results in students achieving more than they ever have. In traditional courses, students are always told what to do. There are deadlines around every corner. Human nature usually causes us to try and resist this because no one likes being told what to do. When students are given this much freedom, it usually has the opposite effect; we tend to extend a great deal of respect to those who trust us with so much responsibility. In the field, Dr. Laroque’s passion for nature and the outdoors really surfaces and I believe that this also makes a lasting impression on the students. All in all throughout the semester, Colin is always there when you need him, and in his own way he subtly pushes you to achieve your best.

**Question 6:** Can you please reflect on the course evaluation structure (problem-based cases, user defined course outline, conference work, targeted efforts to eliminate the worry about marks, and final written assignment and presentation).

*In particular, did you find the in-depth study of an individual problem to be a useful, informative, and reasonable amount of work to achieve your learning goals? Did you find that the instructor was available to answer any questions or issues you encountered after the one-week field period had finished?*

- I was a little skeptical about having to design the course and marking scheme on my own, I felt this was a little intimidating but at the same time it gave us a lot of freedom to learn as much or as little as we wanted which may have been too much freedom for some. Overall though, I felt in the end it was, again, a great opportunity as this is a very unconventional method of teaching however it was student run and I think everyone took a lot of valuable information from the class and how to properly conduct a real scientific study along with helping our time management skills.

- Yes because it was one that we were able to choose and which was of interest to us. Although a lot more work was put into this class than others it was ok because it was something that interested us and so it was informative and fun at the same time. Yes the professor was great with answering questions and helping us.

- The in-depth study was a perfect opportunity for me to apply the knowledge I have gained from other traditional classes at Mount Allison. My problem-solving skills have certainly increased since taking this class. Setbacks were commonplace on the road to gathering research and completing results. This class was a perfect blend of fieldwork and applied research. After returning from the trip, we chose to prepare a research paper and deliver an oral presentation. The oral presentation was with the Atlantic Canadian Association of Geographers (ACAG). I can
speak for the vast majority of the class when I say this was an amazing new experience for us.

- The in-depth study of an individual problem, as well as the conference work, provided a valuable precursor experience to what professional research work would be like by producing our own, genuine original research. I found this to be amazing. I only had one consultation with the instructor afterwards, but that by itself proved to be insightful.

- It was definitely useful and informative, and very rewarding as well. Creating your own syllabus was a great way to have students push themselves for the love of learning. Colin was always around if you had questions or concerns.

- Yes! The focus on problems instead of solutions encouraged students to come up with large portions of the methods on their own, before having these assessed for feasibility and effectiveness. The focus on an early-term conference meant that a considerable amount of work had to be done early in the term to prepare materials, which meant that although the workload was heavy, it was mostly over by mid-semester. But certainly, the fact that each group had their own area of expertise was both gratifying and meaningful for me – I feel like we each learned a little about a lot (while in the field) as well as learning a lot about a little (while at home, working on our projects). And as far as availability, Colin is possibly the single most available professor at Mt. A. I’ve sent panicked emails at two in the morning and gotten replies before going to sleep. I have never felt that he is unavailable or inaccessible in any way.

- Yes I truly believe that this is the best way to learn about research methods, to fully immerse yourself and encounter all of the trials that a seasoned researcher would encounter. This class embodies the true hands on experience that every student craves but that most university classes usually lack. Colin was always there when you needed him and I believe that the time frame is reasonable.

Question 7: Finally, can you please think about this course, in terms of scheduling and style of instruction, and comment on your overall evaluation, in comparison to your other course experiences here at Mount Allison. In particular, I am interested in knowing if this is an effective method for instruction and learning, rather than the traditional 3 hour-per-week lecture-based courses, where students take five courses at a time. There are some people considering blocks as alternative styles of teaching in the future, including such things as block schedules, where students take a full week course in September or January or the March break or the Spring. Other methods may include a series of 3 week-ends, 2-week field courses to other locations, etc.

- Based on my previous answers, I think it goes without saying that applying for this class was hands down the best decision I’ve made yet at MTA. If I were to come back for another year I would, in a heartbeat, apply to go on this trip again, it was above and beyond anything I could have imagined when initially applying for it. Anyone I’ve talked to in regards to this class I’ve strongly encouraged to apply and take part in it. While it does cost a bit extra, you can’t put a monetary value on the experience taken away from
these 3 credits. I know that when I graduate from MTA and am off doing other things, I will always have great memories from this trip and will cherish all of the friends that I made on the trip.

So all of this being said, I want to thank Dr. Colin Laroque, Graham Clark, Dr. Tim Reiffenstein, and Geoff Kershaw for the amazing trip that you guys made possible. I’m tempted to purposely fail a couple classes just so I can go on the trip again. Thanks so much!

- If it were possible I feel there should be more courses like this! Because doing tests and exams doesn’t show that you really know the information good, some people are better at memorizing than others, but with hands on stuff some people are better than others. I feel that this method followed should continue as I thought the set up was perfect. We were fortunate to be able to do all the stuff we did in comparison to the other class which didn’t have so much luck. Not many people fully listen the whole 3 hours of a lecture because listening to someone speak for that time frame is just boring. The hands on stuff and being right there made a much more interesting and fun way to learn

- This class is a must! Not only has it been my most interesting and engaging class I’ve taken at Mount Allison, but it also complements traditional style courses perfectly.

- As promised, this course has been my favourite at Mount Allison so far. The complete experience of this course – including lodging overnight, bonding together as a group, immersing ourselves in our exploration of the wilderness, scaling mountains and rock glaciers, standing on the Athabasca glacier, wading through a liquid knife pro-glacial stream, and acquiring firsthand experience with field research – has been transformational, and has provided irreplaceable education. I wholeheartedly recommend that this style of course be further explored, and I equally recommend this course to anyone passionate about Earth science.

- First of all this course was probably one of the most challenging courses I’ve taken at Mt. A. I learned so much and experienced new skill sets that I will definitely use once I leave school and begin my career. This is also the course that is most likely to help me get my dream job without having to go to grad school. I put in a lot of work after our week ended in Jasper, so in the end it didn’t really feel like a weeklong intensive course at all, although I see the appeal to it. While we were in Jasper it was great being able to focus on the task at hand and nothing else. I immersed myself in the surroundings and because of this was able to take the most away from it.

- I don’t know that a block structure would work for every course, but for one like this, it would be crazy to do it any other way. There has been resistance to block plans for a number of reasons but I think that in the end, if the teacher and students want to do it, who has a right to stand in their way? This is our education, and if we think it’s best served by a diversity of learning styles and approaches, such as a block course during or outside the school year, then that’s what we should have. For intensive courses, particularly those with a methodological focus, block plans are far and away the best way to do them – total immersion in the subject matter promotes learning in so many
ways when compared to standard lecture formats, and I think that as long as educators
are willing to provide such a format, it should be made available.

- Once again I will reiterate my belief that this is the best way of learning. This is by far
the best university class that I have ever taken and I would definitely suggest that a
reputable institution like Mount Allison would begin to adapt more revolutionary
experiential based courses of this nature.

If you have no further comments on this, please feel free to make any comments,
suggestions or improvements that you care to add about the course in this section…

- I just wanted to thank Colin and everyone else involved in the preparation, execution,
and support of this course. As stated above, this has been by far one of my best learning
experiences to date.