

2020 Taylor Teaching Awards: Award for Full-Time Academic Staff – Professor

Nomination dossier of Professor D.R.M. Pattison (Dept. Geoscience)

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1. David Pattison - Teaching philosophy statement

It doesn't seem long ago that I was a university student. My rationale and approach to education is founded on what I valued as a student, and what made my favourite professors so effective as educators. To me, an excellent educator is a fusion of passion, academic authority, imagination, organization, clarity, and respect. That pretty well sums up my teaching philosophy.

Passion, in the form of a communicated love of the subject and of the love of educating, is a human quality that touches and motivates. Passion goes beyond mere exuberance. Passion elevates, enlivens, makes learning fun. It can't be faked. The professors who genuinely loved what they taught were the ones who inspired me to learn. My passion for teaching is based on a love of what I teach, and the opportunity to share this passion with students.

Academic authority means a deep understanding of the material being presented, ideally informed by engagement in research in the discipline or, if not, by extensive self-education. Students come to university to be educated and inspired by experts; society expects the same. Enthusiasm and organization enhance, but can never replace, authoritative content. Cross-disciplinary research and collaboration depend on individuals bringing reliable expertise to bear on larger issues. From an educator's perspective, authority also leads to confidence, not just in knowing that the material being presented is of the highest quality, but in welcoming difficult questions that go beyond the Instructor's knowledge.

Imagination embodies a sense of what is yet to be discovered, the sense that the current state of knowledge is never static, that what we know now allows us to pose new and greater questions. Imagination, while built on deep understanding, looks beyond it, and provides inspiration. My favourite teaching moments are when students pose unexpected questions I had never considered, allowing open discussion and shared exploration in which students feel they are part of the unfolding of new horizons.

Excellent organization seems almost trivial to mention, but beyond its obvious attributes, it embodies a blend of respect, security and freedom: respect, in the sense that students have committed time and money and so deserve a learning experience that is coherent and purposeful; security, in the sense that students know what to expect and how different components of a course or exercise relate to each other; and freedom, in the sense of the instructor being able to enrich, digress and extemporize (e.g., stories, anecdotes) knowing that the essential learning components are securely in place.

Clarity of exposition is one of the highest, most universally prized qualities in education. Effective education is impossible without it. Clarity of exposition depends on deep understanding yet requires much more: articulateness; an ability to see things from a learner's perspective; an ability to explain concepts without jargon; and an ability to convey understanding in different ways.

Respect lies at the root of any effective learning environment. Respect comes in many forms, including: honesty and humility; patience; openness to student ideas and awareness of student concerns; encouraging and following through on questions; simply putting in the time and effort to create an excellent learning experience; and special care and attention paid to the evaluation components of courses that matter so much to students. In the end, we are all just people, educators and students alike, and nothing can proceed without genuine care and respect for each other.

2. Teaching strategies

I have taught courses from first year non-majors courses to graduate courses (see **Table 1**, p. 3). My main responsibility is for “hard rock” courses at the 2nd, 3rd and 4th year levels involving mineralogy, petrology (the study of rocks) and ore deposits. In respect of the award criteria, and based on advice received from the Taylor Institute, in this dossier I do not discuss in any detail my record as a supervisor of graduate and undergraduate students, even though I regard supervision as an essential component of my educational mission – one that aligns with my teaching philosophy. I have supervised 24 graduate theses (14 PhD; 10 MSc) and 29 BSc theses, twenty of which have won national or Departmental awards. I received a 2017 GREAT Supervisor award. I also do not discuss my various service contributions to undergraduate geoscience education, such as being Undergraduate Advisor (1993-1997) or overseeing the successful design, and insertion into the 2016 Calendar, of a completely revised geology curriculum.

Below I give four examples of teaching strategies – really, less strategies than simply teaching practices - that have helped me achieve some of the broader goals of my teaching philosophy. I have included unedited, verbatim quotes from 1) written student course evaluations, and 2) testimonials written by former undergraduate and graduate students in support of my 2014 APEGA award, that pertain to these practices. Unless otherwise indicated, the quotes are from written course evaluations. All of the original documents from which the comments are extracted are available upon request.

2.1 Creating a positive, respectful, enquiring learning environment

This practice is rooted in the more human aspects of teaching, namely creating a positive, academically secure, respectful, learning environment. What I describe below is less a strategy than an approach involving several small practices that in aggregate seem to achieve the broader goal.

I learn students’ names. It’s a small thing, but it signifies respect, and shows students that they are not anonymous. The students appreciate it. *“Dr. Dave always makes a point to learn our names and is like a friend to all of us”. “slightly disconcerting, but cool”.*

My door is open. I stop what I’m doing to answer student questions, or if I can’t, I arrange a time when I will be free. I am acutely aware that for some students, it might be the first time they have taken the initiative, or perhaps overcome their own fears, to come and speak with a professor. I don’t want it to be the last time. *“His office door is nearly always open, and even when he is swamped with work, he finds the time to talk to anyone who has a question, whether they are in his class or not.” “[He] also had an open-door policy which I took advantage of on many occasions to discuss problems or questions I had.” (undergrad testimonial)* Based on my own experiences as a student, meaningful discussions with professors were some of the most inspiring experiences of my undergraduate career.

In class, I encourage and build off questions, even the smallest, most innocuous questions. Students like this, because a dialogue is better than a monologue. Students feel safe in asking questions in class – they know I welcome every question, especially the ones that stretch my ability to clarify and explain from different angles, and for which I may not know the answer. I always come back to address a question I could not answer in class. Indeed, I commonly begin a lecture with a discussion of a question I received in a previous class; it immediately engages the class, provides a bridge to what was covered previously, and enhances continuity. *“Instructor answered questions very well and very nicely which was much appreciated.” “Any time Dr. Dave posed a question to the class [is when I was most engaged in this course].” “There was no question left unanswered.”*

Table 1. University of Calgary courses taught by David Pattison, with USRI results

Course no.	Title	Course type	Times taught	Range of years	Enrollment range	Mean Course Grade	USRI (overall)* Average	USRI (overall)* Range	Stud Union nomination	Stud Union winner [^]	
GLGY 201 (co-Instructor)	Principles of geology	Maj-requ	1	1995	177	B-	n/a**	n/a			
GLGY 209	Introduction to geoscience	Non-Major	3	1991-1995	123 - 185	B	n/a	n/a	1992		
GLGY 311	Minerals and rocks	Maj-requ	8	1997-2006	62 - 99	B-/B	6.45	6.18 - 6.71	97, 98, 99, 00, 02	2000(HM)	
GLGY 313	Mineralogy	Maj-requ	3	1989-1997	20 - 40	B-	n/a	n/a	1997	1997(W)	
GLGY 329 (co-Instructor)	Physical geochemistry	Maj-requ	1	1987-2000	42 - 56	B-	6.19	6.19			
GLGY 331	Minerals and rocks	Non-Major	1	1996	19	B	n/a	n/a			
GLGY 335, 339	Field school I	Maj-requ	2	1996-2001	14 - 15	B	n/a	n/a	n/a	n/a	
GLGY 429	Geochemical thermodynamics	Maj-requ	1	1987	42	B	n/a	n/a			
GLGY 433	Metamorphic petrology	Maj-option	4	2016-2019	48 - 68	B	6.79	6.56 - 6.86	2016		
GLGY 443 (co-Instructor)	Igneous and metamorphic petrology	Maj-requ	7	2008-2015	76 - 147	B	6.41	6.01 - 6.74			
GLGY 435, 437, 439, 537	Advanced field methods	Maj-option	18	1988-2019	8 - 24	B/B+	6.74	6.42 - 6.97	n/a	n/a	
GLGY 527	Ore deposits	Maj-option	23	1988-2018	7 - 48	B	6.60	6.12 - 6.89	2010, 2015	2016(W)	
GLGY 533	Lithosphere evolution	Maj-option	1	2004	4	B+	n/a	n/a			
GLGY 509, 510	BSc thesis	Maj-option	29	1987-2019	1	A-	n/a	n/a			
GLGY 707 (co-Instructor)	Geology and geophysics of W Canada	Grad	31	1988-2018	8 - 25	B+	n/a	n/a			
Miscellaneous	small-enrollment specialty courses	Grad	13	1990-2018	1 - 8	A-	n/a	n/a			
GLGY 701	Independent graduate research	Grad	21	1990-2018	1	A-	n/a	n/a			
Overall (47 courses evaluated from 1997 to 2018)^{^^}							6.59	6.01 - 6.97	St dev = 0.23		
Mean Faculty of Science rating for same level of course							5.71				

* "Overall " means average of 12 evaluation metrics. The mean (range; standard deviation) for the single "overall instruction" metric is 6.56 (5.73-7.00; 0.29)

** n/a means that the courses were either 1) pre-USRI, 2) too-low enrollment to be evaluated, or 3) field schools that up to 2003 were not evaluated

[^] HM = honourable mention W = winner

^{^^}USRI response rate for courses evaluated: 68%

Official USRI documents for every course evaluated are available upon request

Everyone likes stories. I recount anecdotes of my own experiences, and, having a historical bent, I set aside time, and even some complete lectures, to discuss influential historical individuals and famous debates. These stories provide perspective and insight and, at the same time, an intellectual break to the hard content of the courses. *“The extra lectures (e.g., Bailey vs. Tilley debate) were very interesting.”* *“There was not a single lecture where I did not learn or better understand at least three interesting things.”* *“Whenever he started talking about his experiences and perspectives on the subject is when class was most interesting.”*

Much as I personally dislike the grading process, I openly acknowledge (to the class) that grades are very important to students. When I explain that I take exam preparation, and fairness, seriously, they feel more secure. To underscore fairness, I inform them that I check grading between lab sections/different TAs and make adjustments when merited by the evidence. I lay out exam expectations clearly, and I emphasize that I do not “throw curveballs” in exams, in an attempt to “trick” students. I am proud that the most common comment I receive on my exams is that they are “fair”, even if not easy. *“the midterm was very fair and the coverage realistic”*. *“Dr. Pattison is a diligent, conscientious and fair teacher” (undergraduate testimonial)*. I have not succumbed to multiple choice exams. My exams all require written answers; these take longer, and are harder, to mark, but I feel they are more revealing of students’ thinking and clarity of understanding. *“Dr. Pattison had the best Laboratory exercises and exams out of any University class I ever took.” (undergrad testimonial)*. I set aside individual classes for midterm post-mortems because the students have expended serious thought in attempting the exam. An open discussion of the questions, with examples of good answers, provides an excellent interactive learning experience. The students have told me that they appreciate, and benefit, from this practice. *“The midterm post-mortem helped a lot.”*

The end result of these somewhat disparate practices is that the students generally seem to enjoy my courses and feel respected while at the same time challenged. The three consistently highest metrics I receive out of the twelve questions in the USRI evaluations are 5 (Student questions responded to), 6 (Communicated with enthusiasm) and 8 (Students treated respectfully). *“Dr. Pattison is an excellent and engaging teacher who is always patient and kind to his students, and has a deep understanding and passion for his subject.”* *“Instructor is genuinely interested in students and that they learn something”*. *“doesn’t look down on students, almost gives us respect in a way I knew was possible but not probable”*. *“Dr. Dave has proven once again that University Professors still do care about teaching and not just about their research.”*

2.2 Hand-in-glove complementarity of lectures and labs (practicals)

One teaching strategy that has generated many student compliments concerns my “hand-in-glove” design of courses that have labs and lectures. This strategy pertains to most of my second, third and fourth year courses including Ggly 311 (Minerals and Rocks), Ggly 433 (Metamorphic Petrology) and Ggly 527 (Ore Deposits). I design the courses to be completely integrated learning experiences. This approach requires careful planning, organization and pacing, but students have regularly said how effective this approach is in encouraging and enhancing their learning. *“Strong connection between week’s lectures and their corresponding labs that allowed for hands-on learning to supplement material learned in lecture, and vice versa.”* The rationale for this approach is that the deepest learning happens through self-discovery. I design labs in which students observe rocks in hand sample and thin section, learn the minerals and their textures, and then apply and interpret these observations to address processes of formation and larger questions. The interpretational part of this learning is founded on the

conceptual material presented in lectures. The result is a holistic learning experience that is based on self-learning and discovery. *“Lab assignments were very engaging, especially because we had to make connections between what we learn in lecture and apply it, which really helped solidify information.” “Labs were critical, and perfectly designed to accompany the lectures to form a cohesive course.” “He didn’t just tell us the answers; we had to work to understand the course.”*

I set as a high priority providing the highest quality natural rock samples and suites to examine, about two-thirds of which have been collected by me over the years, or have come from my own research collections. When students are starting out and have no experience, the first examples of a mineral or texture have an outsized impact on how they are processed and remembered. Thus, I take great care in selecting excellent examples, and I am very proud of the natural rocks and suites in my labs! I also provide detailed lab keys with many photomicrographs, detailed stepwise solutions, and complete explanations. The students have commented on the excellence of the labs and lab keys. *“The amount of time, effort, and thought put into the creation of the labs was very evident.” (undergrad testimonial) “The content of this course is so useful and the lab samples are from famous locations around the world.” “Provided answer keys to the labs so that you could correct them yourself and understand the material better.” “Working through multi-step problems in the labs when my own observations actually came together and made sense overall to solve the problem. My confidence in a lab setting has increased dramatically thanks to this course.”*

2.3 Field experiences

A third teaching strategy that my students have repeatedly praised has been my approach to geological field education. Geological education in the field is by far the best, most enriching – and most demanding - educational experience there is.

I have conducted numerous field courses, in addition to field trips that supplement classroom courses, so I will focus on just two examples here. The first concerns a two-week field course (Gly 435, Advanced field methods II) that I designed and have run biannually since 1999 to the unlikely locale of Flin Flon, Manitoba. “Flin Flon?” is the usual first reaction, and in the early days it required a suspension of disbelief when, in late April, other field schools were going south to California or Nevada instead of north and east to Manitoba. Flin Flon contains some of the most well-exposed, diverse, challenging yet tractable, geology that lends itself to a superb undergraduate mapping experience. It demands application of virtually every aspect of the students’ undergraduate geology curriculum.

Collaborative work is emphasized, as students work in groups and produce a final group map that is the main component of their assessment. Once the students get over the initial trepidation that they are independently mapping (in small groups) this complex 4 km² area, they come to love it and experience the thrill of realizing that they can actually decipher this complex geology on their own. *“[I learned the most in the course when] mapping and describing our area by ourselves”*. The TA and I roam around the field area, running into the different mapping groups and offering advice. In the evenings after the field days, the students congregate in “the garage” – a garage fitted out as a geological field station complete with microscopes, thin sections and tables for laptops and map layout – where they work on their maps, examine thin sections, and discuss/debate the day’s mapping with myself and the TA. *“The garage and having microscopes was amazing.”*

Watching the growth in confidence and ability of individuals during this field school is one of the most satisfying experiences I have as an educator. *“This course helped me remember why I wanted to do*

geology in the first place". "best field school ever taken". "Dave encourages discipline and hard work in the field, going above and beyond in order to help students formulate ideas on how geologic structures relate to one another, and offering strategies on how to test and verify these ideas with observations." (undergrad testimonial) "Dr. Pattison places great emphasis on reconciling scientific theories with observations and measurements of the natural world. This is particularly evident in his field schools, where he teaches students the power of simple observations and nurtures confidence in their ability to interpret evidence independently." (graduate testimonial).

To complement the mapping exercise, I organize an underground mine tour, an evening lecture and field trip to famous Flin Flon sites with a local geologist, a professional development evening with local geologists, and a mineral-collecting field trip to Snow Lake that the students love. *"Dave gave us countless networking opportunities to meet and get to know professionals in the field through our tour at the mine, our attendance in local prospectors meetings, and through the guest lecturer Dave scheduled.... This was one of the most valuable field courses that I have taken." (undergrad testimonial)*

The second example concerns my Fall term Ggry 527 Ore Deposits course that I have taught since 1988. Until 2013, when class sizes ballooned to the point of logistical impracticality, each autumn I organized a four-day field trip through southeastern British Columbia as a complement to the lecture/lab component of the course. On this field trip we visited a range of mines and prospects in which students were taken on tours underground or into the open pit, and interacted with the geologists who work in the localities. Nothing I teach in class can match the educational value of these experiences. Now that class sizes have gone down, I will be re-starting these field trips. *"Fantastic, just fantastic. Mines are big things, can't get full appreciation of ore petrology and industry from hand samples." "integral part of course". "Seeing the mines first hand, and having the geologists as tour guides, was very educational and a great deal was learned from them." "It's reality, and that is part of what we are here to study".*

2.4 Passion and clarity

Passion isn't a strategy. It just comes naturally from the pleasure of doing research in a field that I find stimulating, and being able to share this passion with students. Research involves exploration, and this sense of discovery enlivens and enriches the presentation of the fundamentals. *"his enthusiasm for the subject is contagious". "Basically the only class that I took this semester that I looked forward to attending & enjoyed". "delivered the course material with an enthusiasm that is unrivalled by other professors I've had at university." "Dr. Pattison's passion for geology and the teaching of geology is truly an inspiration."*

Yet, passion without clarity of exposition falls short of the mark. I work hard on presenting material with as much clarity as possible, because I recall how strongly it affected my learning as a student. *"very clear, methodical in his presentation." "As a teacher, Dr. Pattison encourages the highest scientific standards, but is adept at communicating complex material in a jargon-free manner. He exhibits exceptional clarity of thought and expression, thereby facilitating a meaningful understanding of concepts and processes by his students, both undergraduate and graduate alike." (graduate testimonial) "Provided a collection of data from many sources to clarify concepts." "Dr. Dave is an exceptional teacher." "communicated with utmost enthusiasm and focus."*

3. Summary of student feedback

3.1 USRI results

D. Pattison - USRI results 1997-2019 (Metric: Average of 12 indicators)

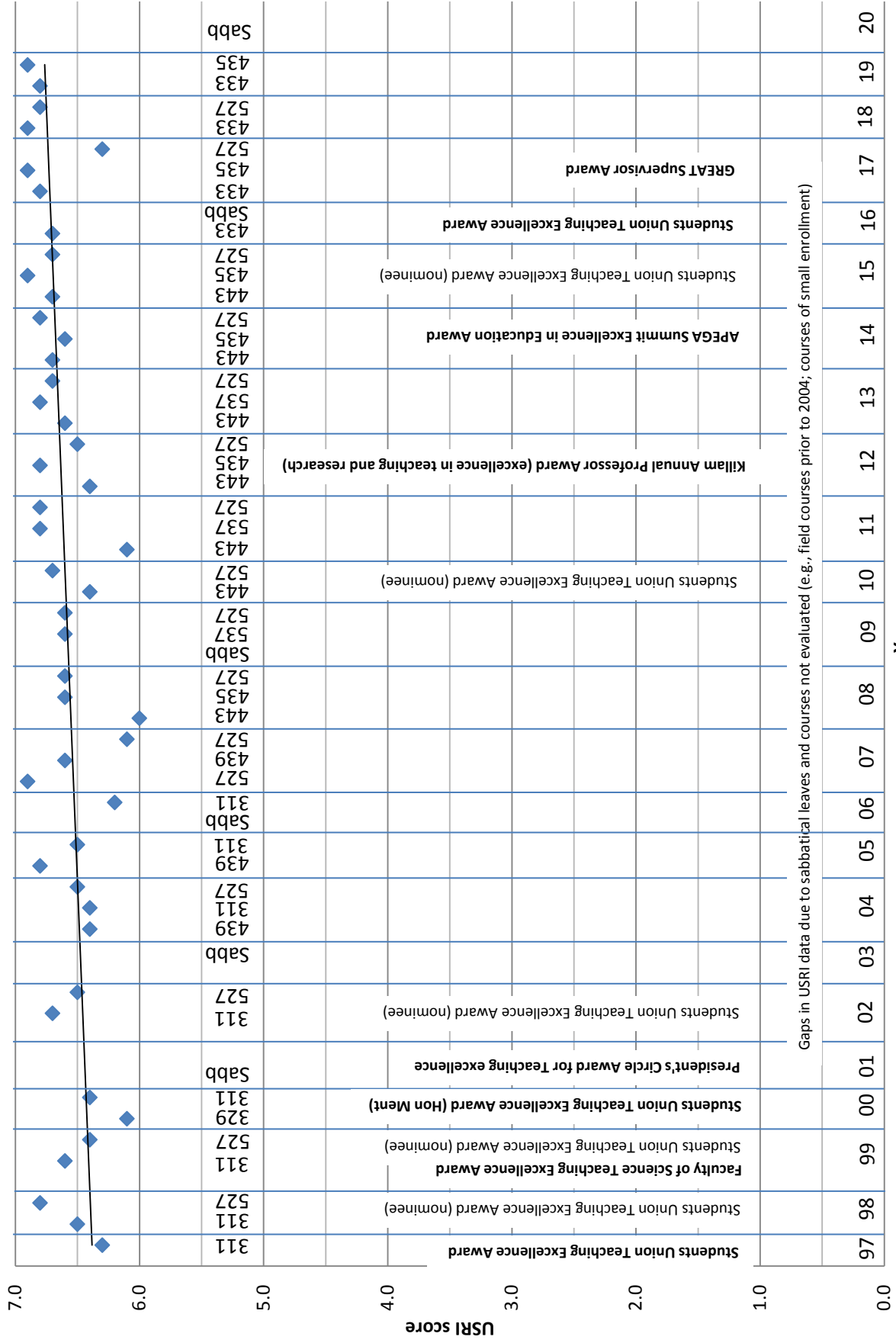


Table 1 (p. 3) provides a summary of the courses I have taught at University of Calgary, including USRI results (out of 7.00), and years when the courses have been nominated for, or won, Students Union teaching awards. **Figure 1** (p. 7) shows my course-by-course USRI results through time.

Referring to **Table 1**, the mean USRI rating (range, standard deviation) for 47 courses since 1997 is 6.59 (6.01-6.97; 0.23), using the mean of the 12 USRI metrics for each course. Using the single “overall instruction” metric, the mean (range, standard deviation) is 6.56 (5.73-7.00; 0.29). These results compare favourably with the scores for the comparator courses in the Faculty of Science (mean value of 5.71 for 47 comparator courses). The overall response rate for my 47 courses is 68%. My highest USRI results come from courses for which I am sole instructor.

Referring to **Figure 1**, my USRI scores have increased steadily with time. My USRI results in the 2010s (most in the range 6.6-6.9) are higher than in the late 1990s and early 2000s when I received many of my teaching awards and nominations (6.3-6.6). I am proud of this trend.

One point I wish to make is that these high USRI scores don’t derive from my giving out inflated grades. Based on annual assessments of course grades since 2016 conducted by R. Meyer (Undergraduate Advisor in Geoscience until F 2019), my mean course grades are consistently at the low end of my peer courses in the Department of Geoscience. I have no desire to assign low grades, of course, but I feel it is important to maintain standards. *“His courses demand a thorough understanding and appreciation of the geologic concepts at work, and while his expectations are high, the level of instruction and diversity of teaching methods ensure that the content is well presented, and with enthusiasm and a genuine interest in them.” (undergrad testimonial)*

3.2 Student comments - positive

I have received many positive student comments about my teaching over the years. These extend from the first course I taught in 1987 (*“Dr. Dave could teach a worm to walk”*) to the most recent course I taught in 2019 (*“Fantastic professor. The best quality teaching I have experienced thus far at U of C.”*) Several are interspersed in the above sections of this portfolio in support of some of my teaching approaches and practices, so I’ll restrict myself here to a few more general positive comments.

“Dr. Pattison is beyond excellent. I have never seen anyone so genuinely enamored with this field. His advice is expert and every geology student should strive to be passionate like that.” “A rare combination of an incredibly nice and knowledgeable person.” “down-to-earth sort of guy who still understands the uncertainties of undergrads.” “by far the best lectures and instruction I’ve received thus far.”

These are extremely gratifying comments to receive. Of course, not all comments I receive are as glowing as these – most tend to be more moderate and terser. But I think it is accurate to say that the overall tenor of the written comments I receive about my teaching is positive. I feel that the comments are consistent with, and provide depth and a personalized dimension to, the strong USRI assessments.

3.3 Student comments - negative

Much as I like the positive comments and high USRI scores, it’s the negative comments that are in fact most useful and lead to improvements. I list below some examples that cover the most common complaints:

“there was too much material covered in the course”. “the lectures were disorganized, trying to flip back and forth through the handout package”. “the diagrams in the handout were barely legible”. “change the lectures to Powerpoint; it’s 2017”. “not enough credit given for lab work”. “the labs take too long!” “I felt the grading of the labs was unfair”. “more introductory group stops [in field school] would have helped”.

Most of these are legitimate criticisms. I take them seriously and I change my courses to respond to these criticisms. Sometimes the required changes are small, such as reducing the number of minerals or sample suites to be examined in labs, or cutting out lecture topics. I was more zealous in my younger years, not necessarily for the better.

Other criticisms are bigger, such as the lecture delivery criticisms above. There was a time when students liked my “old-fashioned” overhead projector delivery, which they found a nice break from powerpoints, but latterly they wanted better notes and diagrams posted on D2L, and I think I was slow to make the change. The 6.3 data point in 2017 for Glgy 527 (see Fig. 1), and associated comments, is when it came to a head. When I did decide to make the change (for Glgy 527 in 2018), I completely overhauled the course material. The course is much the better for it, and it was greeted much more positively in 2018 than in 2017.

Some criticisms are harder to correct, such as grading-related complaints, so in my weekly meetings with my TAs, my first question to them is always: “Is there student grumbling about anything?” If there are problems, they surface pretty quickly, so my TAs and I can deal with them. Overall, I have fewer grading-related complaints now than in earlier years, but they never disappear.

4. Education awards and course legacies

4.1 Awards

I have received several teaching/education awards, listed below. The criteria for most of these are in fact very similar to the criteria for this award, so I won’t repeat them here.

Faculty

Faculty of Science “Award for Excellence in Teaching” 1999

University

Students Union “Teaching Excellence Award” (3) 1997, 2000 (Hon. Mention), 2016
Nominations* (10) 1992, 1997(x2), 1998, 1999, 2000, 2002, 2010, 2015, 2016

* “nomination” means in-class visit by SU representatives

President’s Circle “Award for Teaching Excellence” (4/yr across university) 2000

Killam Annual Professor* (3/yr across university in 2011) 2011

* for excellence in education and research

External

APEGA* Summit “Excellence in Education” Award (1/yr across Alberta) 2014

* Association of Professional Engineers and Geoscientists of Alberta

Concerning the APEGA award, I was the first, and so far only, geoscientist to win this award from one of the largest professional organizations in western Canada. Perhaps the awards I value the most are the Students Union awards, because they are wholly student-driven.

4.2 Quality and legacy of course design

The courses I have designed have a long shelf life. In 1997 I took over and designed from scratch Glgy 311 (Minerals and Rocks), which to that point was a somewhat feared course. The course was well received and led to my first Students Union teaching award in 1997. In 2006 I stopped teaching it when I was needed for other courses. Even in 2019, most of the lab exercises, and >80% of the rocks, thin sections and sample suites, including those used in midterms and lab exams, are the ones I collected and prepared over 20 years ago. I am also proud of the quality and “legacy potential” of my Glgy 527 course (Ore Deposits), and even moreso of my Glgy 433 course (Metamorphic Petrology). The latter is my research specialty and my intent then, and now, is that it should be the best metamorphic petrology course on the planet, with the best labs and sample suites! USRI results and verbal and written comments from students, several of which I quoted in previous sections, suggest that the effort has paid off. Whoever takes over these courses will have an excellent foundation of exercises and sample suites.

5. Reflective summary statement

I have reflected a lot on my teaching over the years. What I have come to appreciate more than anything else - increasingly so with each passing year - is what a privilege it is to be able to engage with students, and to be able to share my twin passions of geoscience and teaching. With this privilege comes opportunity and responsibility. The opportunity is the potential to make a truly positive impact on individuals at a formative time in their lives. The base requirement is that students come away with an excellent, current understanding of the subjects being taught, along with augmented skills in science and self-discovery that are transferable to any domain of their future careers and lives. However, the evidence from student comments is that as impactful a component relates to the more human aspects of attitude, outlook, way of thinking, and comporment. Teaching, like science, is a human endeavour. The responsibility is to not squander this opportunity! Being consciously aware of this privilege fuels my teaching and underscores my teaching philosophy.

A second reflection is that “less” is indeed “more”. In my early years of teaching, I was filled with zeal about my areas of expertise. I assumed that students in my classes on these subjects would match my levels of interest and ability. Some certainly did, but others had broader academic goals that demanded a familiarity with these subjects, but not an obsessive drive to master them to the nth degree. Every time I have reduced lecture or lab material, the pressure has gone down and the courses have been able to “breathe”, allowing more time to focus on the essentials, clarify concepts, extemporize, reduce student stress, and generally have a more meaningful shared educational experience with the students.

What of the future? While I feel that I am currently at the height of my powers as an educator, I remain highly motivated to improve my teaching and my courses. I enjoy discussing with colleagues about what works and doesn’t work in their courses. I got a positive jolt revamping my Glgy 527 (Ore deposits) course in 2018. In October, 2019, while on a field trip to the Franco-Italian Alps as part of my sabbatical, I collected a superb suite of ultra-high pressure metamorphic rocks that will go into my Glgy 433 course. In response to my last set of Glgy 527 comments, I plan to do more in-class annotation and sketching on powerpoint slides. All the changes I make will be in the context of the more fundamental principles that have guided, and will continue to guide, my teaching philosophy: passion, academic authority, imagination, organization, clarity, and respect.