I am very pleased to bring you news of the Department from 2014 - many exciting developments and new initiatives are underway. Our Sedimentary Geology team of Dr. Bob Dalrymple, Dr. Noel James and Dr. Guy Narbonne have had a stellar year. Collectively, they have received 3 major national and international awards this year, with one more announced for the spring of 2015. Their scientific contributions have been incredible and widely influential, and they continue to bring passion, energy and excellence to their undergraduate classes, inspiring new generations of geoscientists and geoengineers.

Development continues on the proposed new professional Masters program in Earth and Energy Resources Leadership, which is expected to start in 2016, if all approvals are granted as expected. At this time, everyone is encouraged to participate in the market survey designed to judge interest in the program and to solicit input into the curriculum content and degree structure design. The other professional Masters in Natural Resources Intelligence, will be initiated with a series of short courses, starting in 2015.

We have just completed teaching fall term courses, with only final exams left to go. Last week, Dr. Bob Dalrymple and Dr. Sandra McBride taught their last lectures in regular classes at Queen's. They have both had long and very influential careers educating undergraduate students at Queen's – and both referred to the warmth of the departmental “family” in their closing remarks. Massive thanks are due to both of these fine educators for their life long service in the department, and congratulations on entering the next stages of their lives and careers – where Bob is looking forward to only having to set an early morning alarm for travel to warmer climates during the winter months!

Also at the end of term, we solicit nominations from undergraduate students for the Named TA awards. In the fall, these awards are given at the end of term “Grinch Gronch”, where the students, faculty and staff can properly acknowledge all of their amazing TAs. Thank you to all of the TAs for their excellent work, and to the donors for these important awards.

New initiatives for 2015, include: finding a way to rejuvenate the microscopy labs which feature ancient, cobbled together equipment, and to curate and properly store the world class rock collections held in dusty card board boxes in nooks and crannies all over the department; establishing strategic directions for research areas to be sought during expected future faculty hiring; and ensuring that undergraduate and graduate students continue to receive a world class education with substantial field and laboratory education opportunities.

I would like to wish all of you a very happy holiday and a fantastic 2015.

Thank you for your continued interest in and support of the department.

D. Jean Hutchinson
Department Head
gelhead@queensu.ca
The Queen’s GSGE community was very sad to hear that Peter Roeder passed away on June 7, 2014. Dr. Roeder began his career at Queen’s in 1962 after completing a PhD at Pennsylvania State University and a postdoctoral fellowship at the New Mexico Institute of Technology. He was Head of the Department at Queen’s from 1977 to 1981. He became an emeritus professor in 1996.

Peter Roeder was admired as a role model and as a teacher of geochemistry, igneous petrology, and optical mineralogy, as well as a research scientist. He and a colleague wrote a highly influential paper in 1970 that has been cited more than 2000 times, a remarkable achievement in his field. He won the Past President’s Medal for Research Excellence from the Mineralogical Association of Canada in 1987. A special issue of Canadian Mineralogist titled “PHASE EQUILIBRIA IN BASALTIC SYSTEMS: A TRIBUTE TO PETER L. ROEDER” was published in 2001. Peter continued his interest in geochemistry past retirement and was co-authoring papers as recently as 2006.

Peter was predeceased by his loving wife Claire Marie in 2001. He is survived by their three children (David, Katherine and Tina) and four grandchildren, his sister Stephanie and friend Ann Mackenzie.

Many former students and colleagues have sent tributes and stories about Peter Roeder to us. We invite you to share your memories – please send them to jamieson@queensu.ca and we will try to fit some into a future newsletter.

WELCOME IONE TAYLOR

The Department of Geological Sciences and Geological Engineering would like to welcome its newest member, Dr. Ione Taylor.

Dr. Taylor has joined the department as the Executive Director of Earth and Energy Resources Leadership. In this position she will work with the faculty, university administration, alumni and others to develop and seek approval for a new Professional Masters program. Funding for the program development has been generously donated by Michael Rose and Sue Riddell Rose.

The department is delighted to welcome Dr. Taylor and is confident that her experience, knowledge and skills will be a wonderful contribution to the department and the Earth and Energy Resources Leadership program.

The proposed Professional Masters of Earth and Energy Resources Leadership is intended for working professionals and is designed to equip participants with the skills to effectively make sound decisions and manage trade-offs in the face of uncertainty and complexity inherent in natural resource development.

Please help us develop the program by taking 5 minutes of your time to complete our short survey: queensu.fluidsurveys.com/surveys/mar-W8D/test/
THE PLACE OF LABS – KEEPING THE (MICROSCOPE) LIGHTS ON

By Rob Harrap

With all the talk of online courses and the influence of games and mobile technology on just about everything it is no surprise that we are (always) rethinking how we teach geology at Queen’s. The three traditional pillars of undergraduate geology education – lectures, field studies, and lab studies – were all strong before the recent flurry of digital innovation and, as previous newsletters have pointed out, we have been deeply concerned with the fiscal challenges of preserving the field component of our program. Not that keeping labs healthy and vibrant isn’t a challenge too!

The core idea of field education is that it matters that you learn and especially practice some skills in the field rather than in a lab or from a book or paper exercise. To which we could now add a software exercise. While there is certainly a place for multimedia field education, actually touching rocks and having to physically engage with getting to outcrops matters a lot in terms of building balanced skills and especially the mental ability to imagine and build a map and geological history in your head.

Lab skills matter too, whether they are fundamental skills like mineral identification or microscope-based petrology, or more advanced methods involving geochemical labs or x-ray methods. It matters both that the students engage in these approaches to geological model building and it matters that they do it in the setting where these activities actually occur in order to build an understanding of context.

We can build software labs to teach microscopy, but it isn’t clear how much this actually costs in terms of long term skill development and deep understanding. 30 years after my last petrology course I can still close my eyes and see samples that Peter Roeder, Dan Schulze, and Mabel Corlett used in teaching. I have to believe that matters when I see a rock in the field.

With the new, and so far apparently more rational budget model at Queen’s the cost of teaching labs is still a huge challenge. We are rewarded for having more students but there is no direct recognition of the cost of the facilities for those students to learn hands-on skills with world-class samples. Put another way, we would be rewarded the same amount to teach a course that had no labs, no fieldwork, and no tutorials as for a course that had all three. Obviously teaching courses like Field Methods is more expensive, per student, than a theory course with a textbook and a couple of exams.

And yet rather than struggling to just maintain our labs we are pushing forward with new courses that introduce hands-on skills sooner and in ways that will engage existing and new students. We plan to continue to use new technologies where that makes sense, but to focus on the two practical pillars of geological education: lab methods and field methods.

FUR CUP 2014
Geology defeated Mining and took home the Fur Cup for another year! The cup is kept outside the Reading Room in Bruce Wing.

VISITING SPEAKERS
The Department will once again be hosting a number of distinguished speakers from a variety of organizations and backgrounds. The list of upcoming speakers is constantly being updated and can be found at: queensu.ca/geol/visiting-speaker-series

If you are interested in visiting, please contact John Dixon: john.dixon@queensu.ca
Ron Peterson has introduced a new course on gems at the undergraduate level called GEOL 102, Gemstones: Their Art, History and Science. The course was given in the winter of 2014 for the first time – mostly by eager upper year students! – and is now a part of our regular undergraduate offerings. Ron has chosen to emphasize inquiry-based learning in the class and drop-in lab sessions, and the design of the course will accommodate up to 200 students a year as needed.

The course looks at the place of gemstones in our culture and their role in modern commerce and, unlike many traditional science courses, places a significant emphasis on the study of historical accounts and literature and the examination of artwork. The first time the course was offered, during the lecture on the Klondike gold rush, a recording by Johnny Cash reciting the poem of Robert Service entitled “the Cremation of Sam MacGee” was a great success. Marilyn Monroe singing “Diamonds are a Girl’s best Friend” was also a smash hit!

Of course, it also involves the investigation of real gem materials that the student can handle and conduct tests on using materials from the Departmental collection and purchased for the course by the University.

Emma Percy, a recent grad who worked both on the development of the course (as a summer employee of the Department) and then acted as the first TA, had this to say:

“This course is different from other geology courses because it doesn’t only focus on the science, but also includes the societal and cultural aspects of gemmology. I found my parents were no longer falling asleep on the other end of the phone when I talked about these types of facts compared to when I would get excited about my thesis research... After developing this course I find it astonishing that there is an industry entirely dedicated to finding, extracting, faceting and trading gemstones that are used almost exclusively for decorative purposes. This course is a wonderful opportunity to learn about how this demand came to be, and the amount of work that goes into meeting these needs.”

It is hoped that the course will encourage Queen’s undergraduate students to take more geology courses and who knows, some may decide to major in geology!

SUPPORT QUEEN’S GEOLOGY

The Department has several opportunities for alumni to provide their support, including student mentoring, student recruitment and giving options to a number of different funds. Funds are set up for specific initiatives, such as field school, TAships, undergraduate teaching as well as a general trust fund that is used to support high priority initiatives at the department’s discretion.

For further information about how you can support the department visit: queensu.ca/geol/alumni-friends

GEOLOGY TRUST FUND - At the discretion of the Head of Geological Sciences & Geological Engineering, gifts are used to support the greatest departmental needs, such as teaching and equipment purchases/maintenance.

FIELD STUDIES FUND - Students participate in over 240 hours of field education in the Geology programs. This experience is invaluable to our students and is made financially possible by the contributions to the endowed Geological Field Studies Fund.

NAMED TASHIP FUND - Gifts to this fund help pay student Teaching Assistant salaries for courses offered by the Department. This fund helps to maintain a good ratio of TA’s:students to ensure a high-quality learning environment in our laboratories, field trips and field schools.

DR W A GORMAN LEGACY TEACHING FUND - This fund commemorates Al’s love of teaching and positive influence on so many graduates of the department. The objective of this fund is to enhance teaching of introductory geology, quaternary geology and air photo courses.

queensu.ca/geol/donate
Many of you will remember Dr. Gorman’s course on terrain evaluation through the use of air photos, one of the longest standing and most challenging lab courses in the Department. Well, terrain is evolving right before our eyes!

For many years terrain used printed photographs and mirror stereoscopes with a few lectures added at the end about modern methods like remote sensing and digital images. Culminating, of course, in the dreaded 3 hour lab exam!

Mirror stereoscopes and stereo-pairs are still widely used but with the appearance of GIS, digital imagery, Google Maps, Google Earth… the world of terrain analysis is clearly changing! We’ve updated Terrain Evaluation to match. The course now has three themes: classical air photos and cameras, digital photographs and photographic analysis, and an introduction to GIS methods for terrain analysis.

‘Terrain’ now leads to a pair of 4th year courses on GIS methods for geologists and also supports students using a variety of methods in 4th year theses and engineering design projects. If nothing else, students can find and use map data in combination with imagery by the end of the course!

And of course, we still have a lab exam, though the scope has shifted to include hands-on GIS skills testing.

We’ve been digging in the crypts lately and lots of old, arcane, obscure, … equipment has come to light, the first light it has seen since the days of Bruce MacDonald. What better way to identify equipment than to have you do it, so… here is the first ever ‘name that rock tool’ for you to work on. We’d like: what it is, what it is for, and who probably used it. And if you actually used it we’d love to hear that!

Send your guess to geolalum@queensu.ca.

Congratulations to (Left to Right) Kevin Azocar, Hugh Gillen, Derek Ernst, and Tim Packulak who placed second in the undergraduate team design competition held by the Canadian Geotechnical Society. The team, supervised by Dr. Mark Diederichs, worked on the design of a station for the Ottawa subway tunnel. This is the 10th time in 11 years that a team from the department has won an award in this competition.

Two unmanned airborne vehicles (UAV) have been acquired by the Department to enhance undergraduate teaching in Geological Sciences and Geological Engineering. The UAVs were funded through a successful BED fund proposal submitted by our undergraduate students to FEAS.

QueenEh! will be used as a geophysical mapping system in Field School, Applied Geophysics and Geophysics Field School, and Queen Bee for aerial photography and for geophysical mapping in Advanced Applied Geophysics.

For more information: www.queensu.ca/geology/news

Terrain analysis, ‘old’ and ‘new.’ The Queen’s waterfront in 1977 as an air photo, and a 3D line of sight analysis of Bowen Island, BC, in ArcMap.
FACULTY UPDATES

Three distinguished professors within the Department of Geological Sciences and Geological Engineering have each recently been honored as recipients of prestigious national and international medals and awards. These awards recognize their significant life-time achievements in the profession of geology and major contributions made to the field and the discipline. The expert teaching of these professors over the years has provided Queen's students with an extremely valuable fundamental geologic framework of understanding upon which to build their advancing knowledge as geologists. In addition, professionals working in private sector positions focused on geoscience applications, such as energy and mineral resource exploration and development, have relied on the top quality research results from these professors in the areas of paleontology, stratigraphy, and sedimentology to inform important interpretations and investment decisions. Queen's is indeed fortunate to have professors of such high quality and widely recognized stature in the earth sciences.

Dr. Noel James Sorby Medal - International Association of Sedimentologists

The Sorby Medal is the highest award of the International Association of Sedimentologists and is awarded to scientists of eminent distinction in sedimentology. The medal is awarded once every 4 years, making Dr. James only the 10th person ever to receive it. The medal was presented to Dr. James at the 19th International Sedimentological Congress held in Geneva, August 18-22.

Dr. Bob Dalrymple Middleton Medal - Canadian Sedimentology Research Group of the GAC

The Middleton Medal for Sedimentology is awarded biannually by the Canadian Sedimentology Research Group, a division of the GAC, for “an outstanding long-term contribution or a seminal contribution to any aspect of sedimentology by a Canadian or a sedimentology researcher working in Canada”.

Dr. Dalrymple has also been awarded the Twenhofel Medal from the Society for Sedimentary Geology (SEPM). The award will be presented at the annual meeting of the AAPG next spring (2015).

Dr. Guy Narbonne Bancroft Award - Royal Society of Canada

Dr. Guy Narbonne is the recipient of the Bancroft Award for publication, instruction and research in the earth sciences and his contributions to the public understanding and appreciation of the subject of geology.

“I’m thrilled for the recognition this brings to Queen’s since to win this medal, you have to excel in three different areas – research, communication and tangible contributions to science,” says Dr. Narbonne.

RETIRES

Dr. Sandra McBride gave her final undergraduate lecture on Thursday, November 27th, 2014. In over 30 years of teaching at Queen’s, Sandra taught over 4,000 students.

Dr. Bob Dalrymple gave his final undergraduate lecture on Friday, November 28th, 2014. Bob is retiring after 35 years of teaching in the department.

GEOPHYSICS EDUCATION GETS BOOST FROM SOFTWARE DONATION

The department recently received two software donations by Halliburton/Landmark and Schlumberger, valued at $168 million and $3 million, respectively. Halliburton’s software donation includes 50 licenses for SeisSpace/Promax and Decision space. Schlumberger’s software donation includes 40 licenses for VISTA, a leading software system for seismic data processing. Student exposure to industry leading software allows them to develop their technical skills and to promote their future careers in the geosciences and geoengineering sector. To read the full story, check out: www.queensu.ca/geol/news
PROFESSIONAL SHORT COURSES

Starting in 2015, the Department will be offering a number of professional short courses.

The following dates are tentative. If you are interested, please contact us at geolcourses@queensu.ca. Courses from 2015 will be repeated if there is sufficient interest.

<table>
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<tr>
<th>SHORT COURSES 2015</th>
<th>Date</th>
<th>Title</th>
<th>Instructor(s)</th>
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<tr>
<td>January</td>
<td>The Geochemistry of Mine Waste</td>
<td>Heather Jamieson</td>
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<tr>
<td>February</td>
<td>Spatial Data Management for Geoscientists</td>
<td>Rob Harrap</td>
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<tr>
<td>June</td>
<td>Geospatial Intelligence</td>
<td>Georgia Fotopoulos</td>
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<td>August</td>
<td>Geology Boot Camp</td>
<td>Doug Archibald</td>
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<td>November</td>
<td>Five Hazards in Five Days</td>
<td>Dave Gauthier and Jean Hutchinson</td>
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<tr>
<td>December</td>
<td>Economic Guidelines for Mineral Exploration</td>
<td>Michael Doggett</td>
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<td>December</td>
<td>Satellite Geophysics</td>
<td>Alexander Braun</td>
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Dates for 2016 courses are still to be determined.

As information on course dates and fees becomes available, it will be posted at:
www.queensu.ca/geol/short-courses-and-workshops

ALUMNI SPOTLIGHT

Ellen Herron ‘64

Since graduating from Queen’s Geology, Ellen has completed her Master’s and PhD at Columbia University. As a research scientist at Columbia, she was one of the first women sent to sea and the first to serve as a chief scientist on a Columbia research vessel. To read more about Ellen, check out:
www.queensu.ca/geology/alumnispotlight

Spotlights for James Robertson M.Sc. ‘60 and Morland Smith Ph.D. ‘66 can also be found on this page. See what they’ve been up to since their time at Queen’s.

CONNECT WITH THE DEPARTMENT

Geology Alumni Queen’s University

We want to hear from you!
If you have a good news story to share for the departmental website or for an upcoming newsletter, please contact geolalum@queensu.ca
STAYING IN TOUCH
To receive information via email about upcoming departmental alumni events, or to receive the departmental newsletter, please ensure your personal information on file is current. You can update your contact information at: adv.queensu.ca/biographicupdate/

Named TAship awards for Fall 2014 were presented to students at the Gronch on Friday, November 28th. Thank you to the individuals and corporations who sponsor TAs in the department via Named TAships. Your support is greatly appreciated.

The following Named TAship awards will be presented to students for the winter term: Hemmera, Greg Heath, Griff Murphy and Anne Raymond, ARC Resources.

Back row, L to R: Alexis Armstrong - Dr. William Pearson award, Justin Drummond - Roger and Lorna Smith award, Ted Matheson - Wayne Foo and Lynne Marshall award, Megan van Veen - Klohn Crippen Berger award, Andrew Gagnon-Nandram - Beach Meadows Resources award

Front row, L to R: Jordan Rouse - Roger and Lorna Smith award, Nick Joyce - Gord and Katherine Keep award, Neil Fernandes - Endeavour Silver award and the Dr. Al Gorman Teaching Assistant Excellence award

Missing from photo: Kirsten Maitland - Class of 2004 award, Bart Warren - Bruce Geotechnical Consultants award, Ioannis Vazaios - Thurber Engineering award, Kevin Azocar - Class of 2004 award, Matt Ondercin - Marc Prefontaine award