

CCCESD – REVIEW OF DEPARTMENTS – 2013

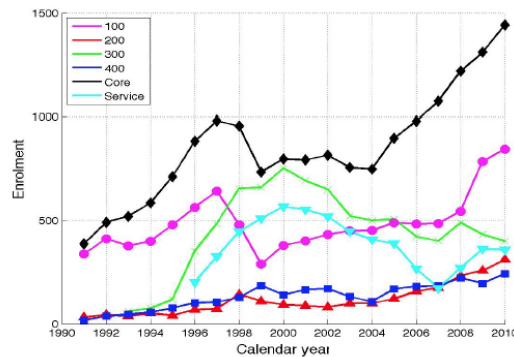
UNIVERSITY OF VICTORIA, School of Earth and Ocean Sciences

This year's university budget has yet to be released, but we are being instructed to prepare for further budget cuts, on top of 4% this past year and a combined 4% the two years prior to that. Part of the problem lies in the lack of retirements. In 2007/08 92% of 65 year old faculty members chose to retire, whereas in 2012/13 only 11% retired. Unfortunately for us, one of our faculty (Dr. George Spence, geophysicist) was one of the few who chose to retire.



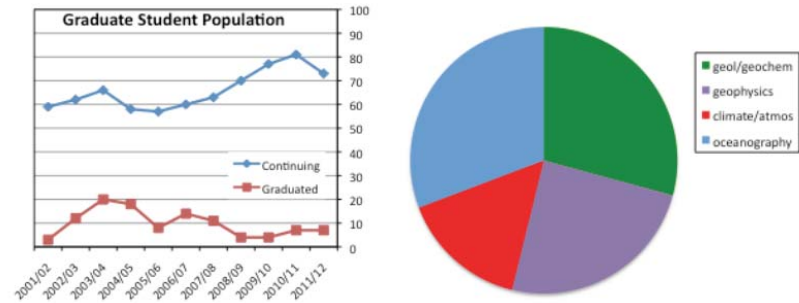
Enrolment

Our undergraduate enrollment continues to climb, and is now up to >1900 students in EOS courses.



The biggest challenge presented by growing undergraduate student enrollment is presented by our Field Schools. In our Introductory Geology Field School, taught at the end of 2nd year, enrollment was up to 60 this past year. Students were split into two sections of 30. In our fourth year Advanced Field School (a transect of the Cordillera), we taught 29 students (the maximum we could accommodate in 3 vans) and were forced to turn away more than 5 students. Registration was limited

to students who required the course for their program. Our graduate enrollment is down from 74 last year to just over 60. The drop reflects in part a higher than average number of defenses over the past year.



Program / Course Changes

Our course offerings remained unchanged over the past year. Last year, in response to budget cuts and an ongoing budgetary over-run in TA positions, we moved to a system for first and second year courses in which no marks were provided for labs; after completion of a lab, students were provided with a marking key, allowing them to determine if they successfully completed the lab. Because marks were not assigned for individual labs, TAs and instructors tasked were no longer tasked with marking labs. Instead, marks were accrued through short quizzes and exams. This change reduced the number of hours required of our TAs and instructors, enabled us to meet our budget targets, and allowed us to continue providing our graduate students with the opportunity to develop their teaching and scientific skills through lab instruction. The fear that students would neglect their labs and that failure rates would skyrocket proved to be unfounded, and undergraduate students largely approved of the new format.

Faculty / Staff

This year saw us lose Prof. George Spence (geophysicist) to retirement leaving us with one geophysicist (Stan Dosso). We were, fortunately, able to hire a replacement geophysicist, Dr. Lucinda Leonard, however her position is a 5-year term position that cannot be converted into a tenure track position. Lucinda's position was advertised nationally and internationally. We received >20 applications, sent out invitations for interviews to 3 of the applications, and ended up interviewing 2 people. We are exceptionally pleased that Lucinda, who had a research position at the Geological Survey of Canada working on earthquake and tsunami hazards, chose to join SEOS. We also received permission to hire a tenure track, Assistant Professor in Geology. We advertised nationally and

internationally for a Geologist who worked with stratigraphy and the sedimentary record of Earth System Evolution. We received >70 applications from qualified earth scientists. We interviewed 3 applicants. One interview had to be conducted via teleconference as the applicant was unable to procure a VISA to travel to Canada due to the strike at Foreign Affairs. We offered the Job to Dr. Kristin Morell and are pleased that she will be joining us in January 2014. Kristin was a research fellow at the University of Melbourne. Her Ph.D., undertaken at Pennsylvania State University, focused on the tectonic evolution of Central America as constrained by topography and basin development. Our staff contingent remains unchanged. 3 office staff are responsible for all administrative activities. We have 3 senior laboratory instructors, and a single technical staff member (0.8 of a position) who fills the dual roles of ICP-MS Manager and Geochemical Lab Manager.

Issues / Challenges

Continued growth of our undergraduate student numbers has stretched our capacity to the limit. Three geology faculty members taught 'above load' this past year in order to accommodate all the students. Even with the addition of Dr. Kristin Morrell we remain incapable of teaching our undergraduate program without calling upon at least 2 professors a year to teach above their required load. Our second most popular undergraduate program is geophysics. In addition, the largest contingent of graduate students is in geophysics. Hence the reduction of our faculty to a single tenured geophysics professor presents us with a significant challenge both in terms of course offerings and graduate student supervision. The addition of Dr. Lucinda Leonard provides us with some short term breathing room, but the addition of a tenure track geophysicist is required. Our student growth has been almost entirely in either geology or geophysics. Attracting students into our Ocean and Atmospheric programs is necessary to balance the department.

Stephen T. Johnston

VANCOUVER ISLAND UNIVERSITY, Earth Science Department

Current faculty: Tim Stokes (Chair), Jerome Lesemann, Sandra Johnstone (½-time), Owen Peer (½-time technician). Steve Earle has recently retired and replaced by Jerome.

Current offerings: Three 100-level, four 200-level, and approximately ten upper-level GEOL courses. The Earth Science Minor (BA and BSc) continues to be offered with 27 students registered as of September 1, 2013. A BSc Major in Geoscience was approved by the Ministry in March of 2013 and is now in effect. This program is a joint offering between Earth Science and Geography Departments. The first VIU Geoscience degree was awarded in June 2013. Ten students registered as of September 1, 2013. Graduates will meet all of the

requirements for APEGBC registration as an Environmental Geoscientist, and will be only 1 course short of the requirements for registration as a Geologist.

Highlights:

A special field trip course (GEOL 390) was held in Belize during spring break in February 2013. Steve Earle and nine students examined the carbonate reefs and associated processes in this spectacular region of the Caribbean. A building to house the 2-metre Cranberry Arms palm frond fossil has been completed. Known as the Maggie McColl Fossil Centre, it will be officially opened early next year. A very successful 200-level field school was completed on Quadra Island in May 2013. Along with 8 VIU students we had 6 from U. of S. and 1 from U. of A. The model of accepting non-VIU students is working well for us, as it allows us to run the course when our own numbers might be insufficient. However it also provides a unique experience for the geology students from outside of BC, and it gives our students exposure to their different backgrounds and universities.

Tim Stokes

UNIVERSITY OF BRITISH COLUMBIA VANCOUVER, Earth, Ocean and Atmospheric Sciences

By all measures, the biggest change this past year for EOAS was the move into the new Earth Sciences Building at UBCV. The building houses about half of the department as well as the Office of the Dean, the Dept. of Statistics, and the Pacific Institute of the Mathematical Sciences. EOAS is now housed in a single, interconnected complex of three buildings for the first time in its history. The move facilitated a re-organization of research groups more along shared research themes and tools, and at the expense of disciplinary clustering, a process that is intended to enhance interdisciplinary research and teaching. Renovations to the museum, undergraduate student, and research space in the EOS Main building, largely complete as of this fall, furthers the restructuring. Fund-raising efforts to rebuild our Oliver, BC field school remain stalled. Further deterioration of the facility is a concern and will start to impact the numbers of students we can teach.

Two faculty were hired this year: a Tier 2 CRC in Applied Geochemistry and the ACME Industrial Research Chair in Exploration Geochemistry. This augments the four faculty hired last year and brings some badly needed additions to our teaching capacity after a number of years of no hiring. It is balanced with the phased retirements of three faculty members and expectations of about one retirement per year for the foreseeable future. Our undergraduate enrolment continues to increase by ~ 8% per year and now stands at 500 students in yrs 2-4. The primary areas of growth are Environmental Science and Oceanography, which augments our traditionally strong enrolment in Geological Engineering and Geological Sciences. Undergraduate enrolment is one of the more significant budget drivers in the new UBC budget model and this diversification in our

student body is important for financial stability. Total students taught remains about the same as last year at 10,000 on a course basis and 1,000 on a full time equivalent basis. Graduate student population remains steady at about 200 students, as does the balance of international to domestic students, masters vs PhD, and gender.

A longer term perspective: in the 18 years since the merger that formed the Dept. we have seen a 12% growth in faculty, 148% growth in undergraduate enrolment, and 55% growth in graduate enrolment.

We continue to see small, ongoing budget cuts of about 1% per year that are expected to worsen in the short term. To date we have been able to offset these cuts with extra sources of revenue, but that is unlikely to continue. We are currently forecasting a small operating deficit budget for this coming year and are in the process of reviewing expenditures.

In the NSERC Discovery grant system, all seven of our applications were successful and we were awarded three accelerator supplements, bringing our total to seven active DAS this funding year.

This was the final year in a phased restructuring of faculty administrative structure in the department with the appointment of an Associate Head for Faculty Affairs, joining the Associate Head of Undergraduate Affairs and Associate Head of Graduate Affairs appointed last year. This completes a larger scale restructuring of administration in the Department which also included reorganizing the staff administrative system and the formation of multidisciplinary undergraduate and graduate student councils.

My five year term as Head will end in July. The search for a new Head will begin in earnest after an external program review in March 2014.

Greg Dipple

UBC OKANAGAN, Earth and Environmental Sciences

We are pleased to announce that Dr. Lael Parrott, an expert in environmental/complexity modeling, joined the “department” this year and is contributing to course offerings in our Earth and Environmental Sciences and Freshwater Sciences (Environmental) degree programs (EESC programs). We now have 11 tenured, or tenure-track, EESc faculty, though some have split responsibilities and also teach courses in Biology or Geography. The “effective” number of faculty contributing to EESc degree programs is nearly 10.

Research highlights include a ~\$1.5 M grant to Dr. Craig Nichol (P.I.) in association with Agriculture Canada, and Dr. Kyle Larson received ~\$300 K to build a structural geology and metamorphic petrology project lab. Our \$3.5 M FILTER laboratory (Fipke Laboratory for Trace Element Research = FILTER), launched by donations from Dr. Charles Fipke, suffered a set-back when our LA ICP MS technician retired (Jan.), but David Arkinstall has done a remarkable job

keeping the lab operating and up to spec. The first ~6 publications from the lab went to print this year, and we developed an analytical method for the determination of trace elements in gold (4 papers in preparation). We have demonstrated ability to microscopically (20 microns) analyze a wide variety of materials, from silicate minerals to fine-grained rocks (e.g. shales, paper in print) and several researchers from other institutions are using the instrumentation. We are looking for more projects and/or collaborators to utilize the facility.

Undergraduate enrolment continues to increase and is approximately 100 students in 2nd, 3rd and 4th year, with ~20 students in graduate studies. There were 34 B.Sc. graduates from our degree programs in June 2013 (7 did honors theses); a >40% increase over the historically-high number in 2012. We also had 4 M.Sc. graduates. Arguably, we are growing faster than any “department” in Canada and we have many exceptional undergraduate students looking for graduate-school opportunities. We hope that you will continue to encourage brilliant B.Sc. and M.Sc. students at your institution to apply for admission to our graduate programs.

John Greenough

MOUNT ROYAL UNIVERSITY, Earth Sciences

| Enrollment in | | A | B |
|--------------------------------------|-------|----------|----------|
| Service and pre Year 2 course totals | Win. | 294 | 137 |
| | Fall | 346 | 194 |
| | Total | 640 | 331 |
| Year 2 (M/F) | M | 14/10 | |
| Year 3 (M/F) | M | 15/10 | |
| Year 4 (M/F) | M | 15/9 | |
| Bachelors graduated last year (M/F) | M | 15/6 | |

A – Geology

B – Physical Geography

Faculty and staff

The Department of Earth Sciences at Mount Royal has 10 tenure and tenure-track faculty members (6 geology and 4 geography), 1 emeritus professor (geology), and 2 instructional support technicians (1 geology and 1 geography). In addition we have 7 full-time equivalent lecturer positions filled by 11 people.

Our undergraduate applications for enrolment continue to rise with 56 students applying for the 25 spaces in the geology major. We are currently limited to accepting 25 students in the geology program due to physical space and personnel limitations. We are exploring increasing the number of students accepted each year to between 35 and 40, but are limited by budget restrictions. The university had an overall 14% budget cut implemented by the Alberta Government in 2013; most of the budget cuts, however, were in the arts subjects

and Earth Sciences did not face any significant reduction in funding. The department delayed an external review by Campus Alberta Quality Council until 2014 because two faculty members are on leave.

The department has received significant donations from Devon Energy Corp in support of field school and from the Association of Professional Geoscientists of Alberta in aid of student professional advancement. We have also received a large private donation to fund a palaeontology exhibit (marine Cretaceous vertebrate fossil display) in the university. On the research front, our igneous petrologist, Dr. Michelle DeWolfe, is onboard the RV *Sonne* in the Indian Ocean as part of a research group with the German Federal Institute for Geosciences and Natural Resources examining the Central Indian spreading ridge.

Challenges

- Problems with obtaining NSERC and external research funding due to the lack of graduate students
- Attracting quality faculty in geology disciplines
- Program expansion while facing budget cuts
- Acquiring dedicated geology research space and major analytical equipment

Jeff Pollock

UNIVERSITY OF CALGARY, Report from Department of Geoscience

Student Numbers

Enrollment continues to increase. This year we have 759 undergraduate majors in years 1-4. These include 496 Geology-Maj, 211 Geophysics-Maj, 32 GlgY-ENSc, 9 GlgY-NTSc, and 11 GlgY-ESc. Last year 132 Geology and Geophysics undergraduate students convocated (does not include ENSc, NTSc or ESc). We currently have 55 PhD students in program and 146 MSc students in program. Last year 38 thesis-based MSc, 8 MSc course-based, and 15 PhD students convocated. Total equals 960 undergraduate and graduate students.

Professors

During the past few months we have had two professors retire, 1 Assistant Professor resign and 2 instructors resign. We currently have 30 faculty members of which 25 are professors and 5 are instructors. This total does not include emeritus nor adjunct professors. We are just about to place an advertisement for two tenure track instructors.

Challenges

Space, aging facilities and student numbers remain major challenges. For example, our 1st year intro geology course has 487 students, 2nd year intro sed/strat course has 275 students and 3rd year Paleobiology 140. Budget constraints may limit future growth, but donations this year have allowed the renovations of two teaching labs, our main office, and a study commons for undergraduate students.

Charles Henderson

UNIVERSITY OF SASKATCHEWAN, Geological Sciences

We tried to fill two faculty positions last year. Both searches were unsuccessful and have just been re-advertised.

Undergraduate numbers have increased again. There are now just over two hundred declared geology and geophysics majors. This is up from about one hundred and seventy five last year. The College of Engineering is expected to increase its overall enrollment significantly over the next few years. This has major implications for the Department as geological engineering students are required to take the core second year geology classes and these are already at capacity. A new program in environmental engineering is starting to graduate students and a new option in mining engineering will see intake this year.

In May 2013 we convocated twenty-one geologists and four geophysicists. Another eleven geology majors and one geophysicist will receive their degrees at the fall convocation. Despite the increase in enrollment over the last few years, graduation rates are relatively unchanged, but down slightly from the peak in 2009.

Graduate student enrollment has also increased, from fifty-seven last year to sixty-one this year. The University's latest integrated plan calls for overall graduate enrollment to increase further, but we are at the point where we cannot accommodate further increases without changes to how space is allocated.

This year has seen major budget adjustments at the University of Saskatchewan. About 150 administrative, support and technical positions were eliminated. The Department was untouched, and although the majority of lay-offs have occurred, there may be more to come. There will be some faculty losses as well, but the fact that we have been allowed to advertise for two vacancies is a very positive sign.

The University launched a campus-wide assessment of all academic and non-academic programs this spring. Recommendations for termination, decreased resources, or increased resources, will be going to the President in November. Again, we are not expecting any losses as all programs but one received support from the College.

There were some disappointing results in the NSERC Discovery program last year. Some faculty may be able to compensate by looking to other sources for research funds, so it is difficult to estimate the overall impact at this time.

Rob Kerrich, George McLeod Chair and member of the Department since 1987, passed away in April. Rob had an outstanding career and his death is a significant loss for the Department.

Jim Merriam

UNIVERSITY OF REGINA, Geology

Our department continues to maintain a high enrollment, with 136 students declaring as Geology majors (not including combined Geology and Geography majors) in the fall semester of 2013. We have made curriculum changes in the past year so that our Geology graduates will automatically satisfy the requirements of the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS). We will continue to make changes to our program on Environmental Geoscience according to the requirements of APEGS.

In the fall of 2013, we have 23 graduate students, including 18 M.Sc. and 5 Ph.D. students. Our Ph.D. program was established in 2010. In addition, we have 5 visiting graduate students, who are co-supervised by our faculty members and faculty members in the students' home institutions.

The Department maintains the same number of faculty and staff, i.e., 9 faculty members (including a term lecturer) and two lab instructors. In addition we have 11 adjunct professors. Guoxiang Chi replaced Hairuo Qing as the Department Head since July 2013. We will continue our effort to convert the term lecturer position into a permanent one.

One of our faculty members was successful in NSERC-DG in 2012 and the number of NSERC-DG grants in the department remains 3. Other faculty members continued to obtain funding from the industry, provincial and federal governments and through international organizations. Our 4 research labs including the "Geofluids Characterization and Modeling Laboratory", the "Geomodelling and GIS Laboratory", the "Organic Petrology Laboratory", and the "Scanning Electron Microscope Laboratory" continue to provide some service to our research projects, but a major part of the analytical work still rely on external service providers. Currently all our labs are run by faculty members without technicians. We are making an effort to get a technician position to support the research labs.

Guoxiang Chi

UNIVERSITY OF MANITOBA, Geological Sciences

1. Department personnel

- a) One faculty member is departing in January 2014.
- b) University funding has enabled the Department to appoint full-time SIMS technician, R. Sharpe. The Department has also appointed a part-time technician, L. Bergen, for the ^{40}Ar - ^{39}Ar Geochronology Laboratory.
- c) I. Ferguson's term as Head ends in June 2014.

2. Department direction

- a) The Nellie Cournoyea Arctic Research Facility opened in March. This facility houses the CERC in Arctic Geomicrobiology and Climate Change, S. Rysgaard, and additional researchers involved with this program.

- b) The Department's ^{40}Ar - ^{39}Ar Geochronology Laboratory, managed by A. Camacho and M. Fayek, is now semi-operational. We are awaiting completion of renovations to establish a radioactive sample preparation room in order to allow the laboratory to be fully operational.
- c) The Department continues collaboration with the Northern Manitoba Mining Academy in Flin Flon. It will again provide a face-to-face offering of the first-year lab-based Dynamic Earth course as well as distance education courses.
- d) The late snow melt in Spring 2013 (along with hosting of the GAC-MAC meeting) caused us to postpone one of our two Geology field schools and a Geophysics field school.

3. University administration

- a) The University President is driving a decrease in the number of faculties. This process is ongoing but the outcome is uncertain. The Department of Geological Sciences is located in a small and dynamic Faculty of Environment, Earth, and Resources and options include amalgamation with the Faculty of Agricultural and Food Sciences. Clustering is one issue being considered in mediation between the Administration and Faculty Association ahead of a possible strike.
- b) Implications for the Department are not fully defined, but there will likely be an increase in Department size through amalgamation, in the case of the Department of Geological Sciences with Physical Geography and possibly Environmental Science. There has been discussion of creation of a separate graduate department in the earth sciences.

4. Student numbers

- a) Undergraduate numbers remain high with 104 students in our Honours and Major program and 43 waiting to enter. We remain at a cap of two lab sessions per course, for courses involving microscopes, field trips, and geophysical equipment.
- b) NSERC - The 2012-2013 Discovery Grant competition resulted in only one successful reapplication and one successful new application, and four unsuccessful applications (either first time application or reapplications). We had only two applications this year. Four eligible faculty members, all with graduate students and active research programs, all with a field emphasis, have chosen to not reapply.

Ian Ferguson

LAKEHEAD UNIVERSITY, Department of Geology

In 2013/2014, our enrollment of majors has leveled off with 132 currently enrolled. 116 are enrolled in the HBSc Geology with the others in Environmental Earth Studies, Water Resource Science and the BSc degree. In addition we currently have 19 MSc students in our program. These high enrolments are straining our resources both in terms of equipment, especially microscopes, and

graduate assistants.

We have six faculty, including one new hire, with sessional help in only two courses. We were unable to fill the Tier II CRC in Mineral Deposit Research that was advertised last year and that position has now been given to another department. In addition we have two full time lapidary technicians and share an administrative assistant with another department. The department is currently the hub for the new Centre of Excellence in for Sustainable Mining and Exploration (CESME), an initiative that is receiving strong support from senior administration. Two faculty, and one emeritus professor, currently hold NSERC Discovery Grants and our new faculty are applying this year.

Pete Hollings

UNIVERSITY OF WESTERN ONTARIO, Earth Science

Expansion of the Planetary Science program. We co-host the Centre for Planetary Science and Exploration (CSPX) with the Department of Physics and Astronomy at Western. In the last two years, we recruited one CRC-II Chair in Planetary Materials (Audrey Bouvier) and two limited-term appointments at the assistant professor level (Tony Withers and Phil McCausland). Currently, we are in the process of recruiting a Planetary Geoscientist at the associate/full professor level, as a complement to the NSERC IRC position recently awarded to Gordon Osinski, Associate Director of CSPX.

Our graduate student enrollment has been quite healthy, currently at 110. This equates to about four graduate students per faculty member. This has been possible thanks to the graduate expansion and funding policy of the Ontario government in recent years.

Undergraduate enrollment continues to be a sore point. We are under strong pressure from the university administration to improve our undergraduate enrollment, especially in university budget considerations.

NSERC funding is slumping in our department. Last year five out of 11 NSERC DG applications from our department did not get funded. This created major problems for funding the graduate students under the supervision of these faculty. Emergency funding was provided by various sources in the university to alleviate the problem but obviously there are currently no long-term solutions if this trend of reduced NSERC funding success continues.

Jisuo Jin, Acting Department Chair

McMASTER UNIVERSITY, School of Geography & Earth Sciences

Faculty/staffing:

Dr. Bruce Newbold was appointed Director, School of Geography and Earth Sciences at July 1, 2012. He completed both his undergraduate and doctoral degrees from the School. Dr. Newbold's research focus is on migration, immigration, and ageing issues.

Dr. Janok Bhattacharya joined the School on September 1, 2013 as the Susan Cunningham Research Chair in Geology. He has expertise in structural and petroleum geology. This position was supported by a donation of \$1 Million to the School from Dr. Susan Cunningham, Senior Vice President, Exploration, Noble Energy Inc.

On July 1, 2013, Dr. John Maclachlan joined the School for a three-year contractually limited appointment at the rank of Assistant Professor/Educational Consultant. This CLA/EC appointee will contribute teaching to the School of Geography & Earth Sciences (SGES) and the Arts & Science Program, and will work as an Educational Consultant in McMaster's Centre for Leadership in Learning (CLL).

Alex Poulin joined the School of Geography and Earth Sciences on January 2, 2013 as our new Computer Technician.

Undergraduate matters:

The total number of students taught in SGES courses during the 2012-13 academic session was 10183, registering a 1.2% reduction from the previous year. Approximately 27.8% of the students were enrolled in service courses offered to the university community by SGES. 7353 of the students were registered in core, program courses and of these, 1195 students were registered in the three Level I Environmental/Earth Science courses (1A03, 1B03, 1G03). In total we have 245 students registered in B.Sc. programs (Level II and above), an increase of 39 (~16%) students from the previous year.

Graduate matters:

As of October 2013, School has total 68 full time (23 Canadian PhD, 8 International PhD, 31 Canadian MSc/MA and 6 International MSc/MA graduate students) and 10 part-time (7 Ph.D, 3 MSc/MA students) graduate students. Students focusing on Earth Science include 12 Canadian PhD, 4 International PhD, 23 Canadian Masters and 6 International Masters (total 45).

Approximately 36% of our graduate students are supported by external (NSERC, SSHRC, OGS, Vanier, International Excellence Awards) scholarships.

Other Activities:

Currently School is working on the Institutional Quality Assurance Process (IQAP) review to be conducted in Winter 2014. IQAP review will be conducted for both graduate and under-graduate programs.

Altaf Arain

UNIVERSITY OF TORONTO: Earth Sciences

We are still increasing in size owing to the transition from Geology to the new Earth Sciences department. From 13 tenure stream faculty members in 2010 (on the downtown St. George campus), we're up to 19. In addition, we hired Dr. Zoltan Zajacz from ETH Zurich who will begin at UofT in January 2014. His research is on the geochemistry of ore deposits systems which will bolster our group in petrology and ore deposits (Brenan, Mungall, Schulze, Henderson, Spooner). There are currently four faculty members at UTM and three at UTScarborough within the broader graduate Department of Earth Sciences at U. of T.

With a growing department, space is a significant issue (and very expensive/limited on the downtown Toronto campus). We've had to find most of the space within the current inventory of our wing of the Earth Sciences building--e.g., by downsizing Emeriti faculty space, sharing lab space, and in one case, converting a classroom to a research lab (at a sizeable cost covered by the Dean's office). These efforts/concessions give us a case for expanding our real estate footprint in the ongoing territorial turf war at UofT.

We underwent an external review of the department last year. This was overall very positive (e.g., top-end research, high enrolments, quality programs, improved morale, etc.), but some of the issues raised include: monitoring time to completion of doctoral degrees, "unevenness" of faculty productivity, "lack of transparency" in some aspects of departmental governance, enhancing collaboration with certain other units at UofT. A major point of consideration raised in the review is the future of the Jack Satterly Geochronology lab--in essence finding a way to more firmly support personnel within that group (mainly on soft money).

Our undergraduate enrolments continue to rise. With similar increases in engineering enrolments (students in a separate faculty, but taking a number of our core geology courses), we're facing appreciable pressures on teaching resources. TA time, especially is stretched. We have boosted field trips/training in the programs (e.g., this year trips to New Zealand, SW US, Hawaii, Abitibi, Laurentians, etc.) in addition to a new geophysics field camp (Deep River, ON); students are enthusiastic about these opportunities.

Graduate enrolments are much increased this year, with an intake of about 28 new grad students (for a total population of about 50 this year). The RA component of support for grad students--the only component of student funding that supervisors are required to pay from these funding packages--was increased to \$9500 for all graduate programs (domestic and international) in the department. While we have a significant international population of grad students (~35-40%), including a set of endowed scholarships that provide full support of \$35k per year for four students, international graduate admissions are an issue for us. Faculty

are finding it more difficult to recruit good domestic doctoral students and want more opportunity to recruit internationally. This is limited by the costs involved in supporting international students, especially when the provincial funding formula puts the emphasis/funding on domestic.

Russ Pysklywec

CARLETON UNIVERSITY, Department of Earth Sciences

In 2013-14, the department is celebrating its 60th anniversary. Our undergraduate population continues to grow steadily, as it has since 2003. We presently have 159 undergraduate and 33 graduate students registered. We will soon be reaching a space and staffing threshold for delivery of our undergraduate program. Discussions have been initiated with the Dean of Science about capping enrolment or securing more resources to accommodate further growth. In two years we will be increasing our faculty by one when Dr. Hillary Madden, a vertebrate palaeontologist, who recently joined us as a Banting Fellow, will join our faculty. This will bolster our popular concentration in Vertebrate Palaeontology. Dr. Nadine Wittig, an isotope geochemist, was hired this year to replace Dr. John Blenkinsop who retired in 2011. Dr. Fred Michel will retire at the end of December 2013, and we are in the final stages of getting permission to advertise for his replacement in Environmental Hydrogeology. This will be a cross-appointed position with the Institute of Environmental Sciences. Sadly, Ildi Munro (cross appointment with the Institute of Environmental Science), who retired in 2012, passed away this past summer.

We have finally managed to increase administrative support in our department office from one to two full-time administrators (i.e. we have upgraded our part-time Receptionist/Administrative Assistant position with a full-time position). There are encouraging developments with respect to space. One wing in Herzberg, adjacent to our existing department, will become available to us in the summer of 2014 due to construction of a new wing on the building and reallocation of space in the Faculty of Science. This will allow us to expand our department office, provide common meeting space within our department, house faculty in private offices opening onto a central corridor, and reallocate research and student office space. The issue of adequate storage for our collections remains unresolved, and we are hard pressed to find appropriate laboratory research space for our new faculty members, Drs. Wittig and Madden.

The Department is currently in the final stages of a periodic review, following a new Quality Assurance process defined at the university level. For the graduate review, we will be undergoing a site visit later this fall, carried out in collaboration with the University of Ottawa. The undergraduate report has been completed and the review is in progress.

Department spirit, student societies (e.g. undergrad “GeoSoc”, graduate “GradSoc”, joint CU–U of O SEG chapter), joint Ottawa–Carleton Geoscience Centre (OCGC) events (e.g. annual weekend field trip organized by graduate students, fall OCGC lunch, graduate research seminar, lecture series, Advances in Earth Sciences Research Conference or ASERC conference), informal discipline specific seminars (e.g. Ottawa Isotope Group) and alumni relations are strong and vibrant. Thanks to Beth Halfkenny, our department Curator–Outreach Co-ordinator, and student volunteers we are particularly active in outreach activities such as GeoHeritage Day, Teacher Workshops and Seminars, contributions to outreach symposia, visits to schools and visits to our department by school classes. With the University of Ottawa, we will be co-hosting an Alumni and Ottawa-Carleton Geoscience Centre reception at PDAC on March 3, 2014.

Sharon Carr

UNIVERSITY OF OTTAWA, Earth Sciences

The Department of Earth Sciences at uOttawa has 15 faculty (including the hiring of an assistant professor in mineralogy or related fields in the coming months), 4 PDFs and research associates, 15 PhD students, 34 MSc students, and 98 majors and honours undergraduate students (+ another 137 students in the environmental science program). The enrolment in our undergraduate and graduate programs and service courses remain stable when compared to the last academic year. There is no change in our support staff (administration: 3; teaching: 2; research: 9). We have almost completed the external review of our undergraduate programs, while our graduate program is in progress and done in collaboration with our sister department at Carleton University.

Major renovations are planned to our existing building; teaching, research, and administrative functions of the department will be relocated elsewhere on campus by September 2014. Our Geoscience Laboratories will move by April 2014 into new space in the Advanced Research Centre (ARC). This building is state-of-the-art with respect to the services, vibration, ventilation and layout for advanced research laboratories. Our labs will occupy more than 1500 m² in ARC (+ offices, meeting and seminar rooms, etc.) and include:

- The André E. Lalonde Accelerator Mass Spectrometry Laboratory (AEL-AMS) with control room, source preparation lab, and target loading room.
- The Electron Microprobe and Scanning Electron Microscope
- The Hatch Stable Isotope Laboratory
- The MAPL Noble Gas Laboratory
- The Geochemistry Laboratory with clean lab and freezer room
- The Radiochemistry Lab in support of the AMS
- The Radiohalide sample preparation lab

André Desrochers

McGILL UNIVERSITY, Department of Earth and Planetary Sciences (EPS)

Students registered in the Earth and Planetary Sciences Program:

| Students | Total Enrollment 2013-2014 | Total Enrollment 2012-2013 | Total Enrollment 2011-2012 | Notes |
|-------------|----------------------------|----------------------------|----------------------------|--|
| U1 | 15 (+6)* | 11 (+5)* | 14 (+6)* | |
| U2 | 11 (+6)* | 18 (+3)* | 13 (+2)* | |
| U3 | 19 (+4)* | 12 (+6)* | 16 (+6)* | |
| Honours | 8 | 11 | 10 | |
| Total UG | 53 (+16)* | 52 (+14)* | 53 (+14)* | Not including Physics/Geophysics program, ~ 2/year |
| M.Sc. | 18 | 25 | 30 | |
| Ph.D. | 31 | 23 | 25 | |
| Total Grads | 49 | 48 | 55 | |
| Total | 102 (16)* | 100 (16)* | 105 (14)* | |

* Numbers in parentheses are students registered in a declared minor concentration in EPS/Geology/Geochemistry

As you can see from the above table, the student population has been stable for a number of years. We expect the number of graduate students to grow slightly given the number of newly established and incoming young faculty members.

The Department is also involved in the tri-partite Earth System Science (ESS) Program, with the Departments of Geography and Atmospheric & Oceanic Sciences. Slightly more than 20 students are registered in the program. Prof. John Stix from EPS is the ESS program director and Prof. William Minarik from EPS is the ESS student advisor.

After losing a new hire, Sarah Hall, in the summer of 2012, we hired Natalya Gomez, a very promising young scientist who works on the geodynamics of climate change. She will join the Department in January 2015 after she completes her Ph.D. at Harvard and post-doctoral studies at the Courant Institute at NYU. In addition, we have taken advantage of the University’s spousal-hire system to secure tenure-track faculty positions for Rebecca Harrington, an observational seismologist studying low-amplitude earthquakes, and Kim Berlo, a volcanologist studying metal transport in volcanic gases. Rebecca joined the Department in August 2013 and Kim is expected in by the end of the 2013. We have recently interviewed another potential spousal hire, but the Department has not yet made a formal recommendation to the Dean. As of the beginning of 2014, our faculty will number 18, plus 1 in-house emeritus professor and three in-house adjunct professors. Don Francis and Andrew Hynes will be retiring in 2014.

Two members of our technical staff were laid-off in the last 7 months, our petrographic technician and the ICP-MS facility manager. The latter's salary was picked up on soft funds and user fees for at least one year. The loss of the petrographic technician comes at a high cost to the department, particularly to faculty who have had to pick up most of his tasks, most notably the preparation of hand and thin section specimens for teaching laboratories and the maintenance and distribution of undergraduate student petrographic microscopes.

The Department underwent a cyclical review in the last year and as best stated by the external reviewer: "The building that houses EPS is inadequate for a modern earth sciences, research-based department. The faculty, post-docs, graduate students, undergraduate students and staff are competitive with their peers at the top-ranked earth science departments of the world. The building that houses these dedicated, highly motivated individuals is poorly maintained, dilapidated, architecturally out of date, and impossible to renovate for the needs of the majority of new modern earth and planetary scientists." Hence, our greatest challenge is to provide our new faculty and graduate students with proper laboratories and research facilities.

Alfonso Mucci

UNIVERSITÉ LAVAL, Geology and Geological Engineering

In June 2012, Marc Constantin became head of the Department of Geology and Geological Engineering. Former department head, René Therrien, moved as vice-dean of research of the Faculty of Science and Engineering.

The past financial situation at the Faculty and University levels forced us to rely on research chairs (industrial or others) in order to increase our number of faculty members. Because of these efforts, significant developments in faculty members and staff have concretized in the last year: *NSERC industrial chair* awarded (Georges Beaudoin – mineral exploration) which made possible the arrival of a new faculty in mineral deposits (François Huot), two new faculty (Christian J. Dupuis – *Osisko Chair in Exploration Geophysics*; spring 2014 – *Virginia Mines Chair in Structural Geology*), and a *Canada Research Chair tier 2* was renewed (John W. Molson – Quantitative Hydrogeology). Although a faculty member resigned in September 2012, in the spring of 2014 we will have a total of 14 professors, the highest number in 20 years.

After a 16 month hiatus, Olivier Rabeau took over as curator of the Museum of Geology and laboratory instructor. We were also able to replace a full time technician (Edmond Rousseau).

Student enrolment in our programs has increased in the last two years, with about 160 undergraduate students currently enrolled (125 in Geological Engineering and 35 in Geology), and 62 graduate students (24 PhD, 31 MSc and 7 MA). We have maintained efforts to increase our number of students by

redesigning in March 2013, our departmental web page. A periodical review of the undergraduate program in geology was completed and an action plan was implemented in the spring of 2012. Our Geological Engineering program was accredited by the CEA Board in 2013.

Major financial support by several Mineral Exploration Companies and generous donors (Goldcorp, Midland, Stornoway Diamond, Virginia Mines, Mr. André Gaumont, Mr. Jacques Bonneau) allowed the creation of an "*Interactive Petrography Laboratory*" mainly dedicated to undergraduate and graduate teaching. This facility equipped with 21 polarizing microscopes (transmitted & reflected lights) and the latest visualization technologies (cameras, screens, computers) will be ready in early 2014.

Concerns loom about replacement of aging equipment and of future development of expertise because of NSERC funding cuts and uncertainties related to future CFI constraints.

Marc Constantin

UNIVERSITÉ DU QUÉBEC À CHICOUTIMI (UQAC) – Département de Sciences Appliquées (engineering department) – secteur sciences de la terre.

On March 16th 2013 we celebrated our 40th anniversary with the 'Retrouvailles de SCT'. More than 260 people participated, including representatives from all graduating classes.

People: We are unchanged with 10 professors, 3 sessional lecturers and 3 PDFs, as well as two researchers. This fall we had 14 students starting in our geology and engineering geology. We are seeing more French exchange students. We have 27 MSc and 13 PhD students. About half are foreign students, mostly from France. The most popular field of study is economic geology, followed by hydrogeology and petrology.

Teaching: We have restarted a program of international field schools that had been in abeyance since the death of Wulf Mueller in 2010. We did a tour around the edges of Nevada – over 6000 km in 16 days, finishing at Las Vegas. We plan to visit Spain next year and return to Nevada every two years.

Research activities: Wulf Mueller was honoured with a special issue of Precambrian Research, of which he was Co-editor-in-chief at the time of his death. Sarah Barnes' CRC Chair in Magmatic metalogeny has been renewed for a further 7 years. Her team now has two research professors, 3 post-docs, 5 PhD and 3 MSc students. Our hydrogeology group has founded a number of local and regional research groups and continues to go from strength to strength. Our mineral exploration consortium (with UQAM) 'Consortium de recherche en exploration minérale' (CONSOREM)' continues to be very active in industry-focused research.

Michael D Higgins

ACADIA UNIVERSITY, Earth and Environmental Science

The university continues to experience growth but is now near its perceived limit of around 3500 full-time students. The E&ES department has experienced a 30% increase in student enrolment in the past 4 years, with 140 majors split equally between environmental science and geoscience. Though no replacements of retiring/departing faculty have been authorized in the past 5 years our department recently received a 9.5 month split CLT position that will provide some relief from overload teaching. Still, the effects of this growth are now becoming extreme, with severe pressure to enlarge classes, reduce sections and limit elective options. Our President has stated emphatically that resources follow results and based on our continued growth we hope to be granted another CLT position to the geology side of our program in the near future. Supervision of honours and masters students is being impacted. The success of large service courses sees well over half of all students at Acadia taking a course in Geoscience, a situation that has enhanced our visibility and profile on campus. Our graduate program continues to be vital though accessing both internal and external funding continues to be difficult. Increasingly, we find ourselves partnering with industry to provide graduate student opportunities.

Ian Spooner

DALHOUSIE UNIVERSITY, Department of Earth Sciences

In 2013 the Dalhousie Earth Sciences department completed the curriculum mapping and programme review process that was started in 2011. A major outcome has been to clarify and reconcile the requirements of our various programme streams with respect to the requirements for professional registration (PGeo) in Geology and Environmental Geoscience. The revised programme streams have recently been approved by the Faculty of Science and will soon be posted on our new website (updated in July 2013).

In 2011 the department embarked on an ambitious plan to revamp its field schools. Changes to the 2nd- and 3rd-year field schools (2011 and 2012 respectively) were followed in May 2013 by the launch of our 4th-year Advanced Field School. This is a four-week mapping course held in western Nevada–eastern California. Building on field skills acquired previously, students work on problems ranging from Quaternary geomorphology to Mesozoic tectonics. This year's class included 21 Dalhousie students as well as 2 students from Arctic College (Iqaluit) who are part of pilot programme designed to improve the training and employment outcomes for promising students from Canada's north. The field school will run again next year in the same area.

Enrolment in our upper-year classes is increasing in response to the higher numbers in our second-year classes. We have ca. 20 students in 4th year (15 doing honours), with 30-35 in 3rd year, and 55-60 in 2nd year - the highest numbers in

our core classes since the 1980s. While welcome, the increased numbers put severe pressure on our limited space and resources, especially in lab classes.

Graduate enrolment is stable at 37 students (18 PhD, 19 MSc). Inadequate graduate funding remains a critical problem at Dalhousie, with no viable solutions proposed by the University beyond finding externally funded international students. Nevertheless, the department will increase graduate stipend levels in fall 2013, the first increase in many years. Our new graduate co-ordinator is also considering other changes to our graduate programme and procedures.

The department will be updating its Strategic Plan in 2014. Department renewal of both people and facilities is our highest priority. Current faculty strength is stable at 12 professors (2 untenured) and 5 instructors (equivalent to lecturers). However, a decline is imminent as we are expecting 3 retirements (2 professors, 1 instructor) in the next 3 years. With the Faculty of Science facing a budget deficit, the chances of replacing retirees are slim unless we can find externally funded positions. Our effort to find an Industrial Research Chair in Salt and Continental Margin Tectonics was suspended earlier this year, and we are currently working on reviving this process.

Eight of our faculty hold NSERC Discovery Grants, with the department average close to the discipline average (ca \$32000/y); 4 people are applying for renewal this year. We have also been successful in recent CFI applications (although delays in awarding matching funds continue to be a problem) and have received industry funding from a variety of sources. Given recent changes to NSERC programs and the medium-term need to replace aging equipment, we are very concerned about the prospects for stable research funding from NSERC and other sources.

SAINT MARY'S UNIVERSITY, Geology Department

The Department is undergoing an undergraduate program review currently, following the submission of a Strategic Plan in the summer of 2013. This Strategic Plan highlights the need for additional teaching and research resources, which stems from a continued increase in enrollment in our majors program. Student enrollment has doubled in second year and higher level geology courses since 2011, and we are now offering several of our core geology courses yearly, placing additional strain on our teaching staff. Additionally, enrollment in introductory geology courses has increased by ~30-40% due to an increasing number of Engineering students who must take them before heading into Civil and Mineral Resource Engineering programs. A departmental priority is to secure a lecturer and a cross-appointed full-time faculty member with Environmental Science in 2014 to address areas of research and teaching that are lacking in both the Environmental Science and Geology programs (stable isotope geochemistry, low temperature geochemistry, environmental mineralogy, hydrogeology).

The recent hiring of a part-time technician for teaching support has allowed our full-time technician to focus on research support. A renewal of teaching collections for mineralogy and petrology courses is underway. A major renewal of teaching collections for mineral resources was completed in early 2013. Significant renewal of our microscopy teaching facilities is also in progress, partly to accommodate the large numbers of students requiring that resource. We have also recently created an outdoor geology laboratory on Saint Mary's campus.

In terms of curriculum changes, we are introducing a geology-focused GIS course and we are reintroducing a third year hydrogeology course, which will be offered in January 2013 by a part-timer and which has full enrollment already. We are also introducing a B.Sc. P.Geo. stream that directs students without ambiguity towards meeting all academic requirements of professional registration.

Currently, there are nine M.Sc. students and two Ph.D. Students (through Dalhousie) supervised by our faculty members. Three out of six faculty members hold ongoing NSERC Discovery Grant funding. Combined with other major research funding from the mineral exploration industry (Vale, Encana, KGHM) and federal and provincial government programs (e.g., TGI-4), current external funding held by faculty in Geology is one of the highest within the Faculty of Science and University as a whole.

Jacob Hanley

CAPE BRETON UNIVERSITY, Geology

The Department of Mathematics, Physics and Geology has recently doubled its geology complement to two. We now have a full-time laboratory instructor as well as a tenure track faculty member. This makes it possible for us to offer a secondary teachable area (in NS) for the CBU Department of Education and over the next few years, a minor within the B.Sc. program.

Currently we have about 45 students enrolled in geology classes for this term, and about 30 next term. Many students from other departments take courses in our areas, including Bachelor of Engineering Technology students fulfilling their Math, Physics and Geology requirements and students in the B.A. using geology as their 6 credits of a laboratory based science. Currently we have about 50 students enrolled in geology classes. Courses taught right now include two first year physical geology courses, engineering geology, and hydrogeology, with a new geochemistry course starting next year. All courses currently have labs. The engineering geology and hydrogeology are primarily targeted at the engineering students who transfer to Dalhousie for years 3 and 4 of their programmes. As such, these two courses follow the general template of engineering geology requirements as established by Dalhousie University in order for students to be able to complete their transfers.

Deanne van Rooyen

MEMORIAL UNIVERSITY OF NEWFOUNDLAND, Earth Sciences

| <i>Students</i> | Total Enrollment* 2012-2013 | Total Enrollment** 2011-2012 |
|--|--|---|
| TOTAL UG (2 nd -4 th year) | 169 | 154 |
| TOTAL GRAD | 90 | 82 |
| TOTAL STUDENTS | 259 | 236 |

Faculty interests and research

- 27 current faculty members including three University Research professors and four emeritus professors
- 2 CRC Tier II Chairs; and one CRC Tier II search underway (replacement for faculty member who left MUN)
- Two faculty searches recently completed; One regular tenure track position in Petroleum Geology was filled by Dr. Luke Beranek from the University of Stockholm who started in September 2013, and Chevron Chair in Reservoir Characterization was filled by Dr. Alison Malcolm of MIT who will start in June 2014 and will apply for an NSERC IRC
- Request under way to replace Dr. Jeremy Hall who will retire from MUN on 12/31/13; HMDC Chair in Petroleum Geosciences on hold till Hall replacement is approved

External support for teaching and infrastructure

- \$1.98M from HMDC support for geophysics program at Memorial University
- JMH leading initiative for industry support for interdisciplinary (Earth Sciences, Chemistry, Physics and Physical Oceanography, and Engineering) Centre for Materials Science and Engineering

Challenges

- Problems with start-up funds for new faculty given the mandate established by the Research and Development Corporation of Newfoundland & Labrador (the main source of start-up funds for all MUN faculty) – not as bad for ESD as other departments
- Replacement of aging equipment given CFI and NSERC RTI-1 funding constraints; must rely on industry R&D and E&T from offshore revenue
- Retaining faculty
- Attracting high quality applicants for faculty positions and especially chairs

Other news

- Our department celebrated 50 year of Geophysics with a reunion of alumni, current and former faculty, and current and former students in October 2013

John Hanchar