

CCCESD – REVIEW OF DEPARTMENTS – 2017

MOUNT ROYAL UNIVERSITY, Earth and Environmental Sciences

Our relatively new department now houses a BSc - Major in Geology, BSc - Major in Environmental Science, and Geography Minor program.

Enrollment

Our geology program has an intake of 24 students per year. Our environmental science program has a mandate over the next few years to increase first-year intake from 27 to 42 students. For Fall 2017, 47 students were admitted into the first year of the program. It is anticipated that an additional 10 senior undergraduate students will be added to the environmental science program through our collaborative degree with Keyano College in Ft. McMurray. Courses are being distance-delivered through Cisco TelePresence systems. For 2017, 4 students with Keyano diplomas joined the B.Sc. program remotely. General Science and other science majors seeking Geography minors remain low in number. Geology, environmental science and geography service courses continue to be offered to other science majors as well as a large university-wide audience through our General Education offerings. This year is the first enrollment that we proceeded with limited direct entry into our geology and full direct entry into the environmental science programs. Full enrollment statistics are reported in the annual CCCESD survey.

Faculty & Staff

The department currently has 15.5 tenured/tenure-track faculty, 1 emeritus professor, 1 full-time lab instructor and 3.8 instructional assistants. Both geology and environmental science have developed proposals for two new single tenure-track positions that will be established for the Faculty of Science & Technology in 2018/2019. Three of the six geologists are on sabbatical leave during the 2017/2018 academic year; while 2 of our 4 geographers are on sabbatical in the 2016/2017 academic year. All disciplines have a large compliment of sessional contract instructors. Research activity amongst faculty seems to be advancing every year.

Space & Resources

Space constraints continue to challenge the new combined department. There is little room to house sessional instructors, research assistants, and meet other miscellaneous space requirements. Substantial amounts of additional office and classroom space have become available due to the opening of a new university library in June. Planning has commenced to see how this space should be repurposed and the Faculty of Science has requested a portion of this space. Collection storage space continues to be very limited with few prospects for new space.

The budgeting process at MRU has come under intense scrutiny in the past year. New processes are in development. Provincial funding to the

institution remained stable with some modest growth. Each academic unit in the Faculty has been asked to prepare for a 3 per cent budget reduction.

News

Our geology program is in the final stages of Campus Alberta Quality Council (CAQC) review. Two external reviewers visited our campus in March and completed their report in June. Their comments and recommendations were very positive and the report has been submitted to university administration for review. The environmental science program is expect to undergo a similar CAQC review and an ECO Canada accreditation in the next few years.

Thanks to significant funding from external donors, MRU has purchased a Tyrannosaurus exhibit which will be installed in December alongside the existing Cretaceous Seas marine vertebrate exhibit. Additional funding has been secured to add a Triceratops in 2018. In addition, the department recently constructed a new outdoor-learning experience with a plunging syncline outcrop in a flood pond.

Challenges

Lack of resources have restricted a planned expansion to the BSc Geology Major Program, which remains at ~25 students per 2nd/3rd/4th year.

As noted by the external reviewers, our department lacks adequate research space for faculty and/or students.

Juggling research programs with heavy teaching loads (9-12 undergraduate contact hours per week per semester) continues to be challenging.

The BSc Geology Major and Environmental Science Major Programs are considering how to implement more interdisciplinary options for students in the near future.

Brian Sevick and Jeff Pollock

UNIVERSITY OF SASKATCHEWAN, Geological Sciences

There were no new hires or retirements among faculty of Geological Sciences at the University of Saskatchewan this year. Graduate student numbers remain steady around 60 while undergraduate student numbers are down slightly, likely due to the continued weakness in natural resources.

After having had to cancel our sedimentary field school to Montana two years ago, all of our field schools ran smoothly this year including a new field trip to Asturias in Spain.

Funding laboratory facilities and technicians remains challenging. The technician for our microprobe had to be reduced to part time this past year while the operations of the ICPMS lab had to be significantly restructured.

A combination of undergraduate and graduate students entered the Frank Arnott Award contest and were among the two finalists in the student competition and they will present at Exploration 17 in Toronto this month.

Plans started this year to renew the Museum of Natural History, which is housed between the Geology and Biology buildings at U. of S. and features many geological and paleontological specimens.

Sam Butler

LAKEHEAD UNIVERSITY, Department of Geology

In 2017/2018, our enrollment of majors has declined with 67 currently enrolled down from 93 last year. Thirty-seven 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 14 MSc students in our program down one from last year.

We have six faculty and two active emeritus professors and this year will be hiring six sessionals to cover seven courses in order to cover teaching relief provided to offset additional administrative duties. We also have one sessional teaching First Year Geology at our Orillia campus. As in previous years we have two full time lapidary technicians and share an administrative assistant with another department. This year saw the passing of our emeritus professor, Dr. Graham Borradaile. Four of our faculty and one emeritus professor currently hold NSERC Discovery Grants, although we saw a drop in funding in the most recent competition. Faculty are becoming very successful in finding non Tri-council funding. We are seeing an uptick in industry funding for research and increased exploration activities mean the majority of our undergraduate students found work last summer.

The University is continuing to develop a Strategic Enrolment Management process, which so far has had a positive impact on the ability to hire new faculty, but we are not sure what the long-term implications will be. We are seeing a big push to increase enrolment and retention.

Pete Hollings

UNIV. OF WINDSOR, Department of Earth and Environmental Sciences Overview

- 15 faculty and 3 staff members
- Enrolments
 - BSc Environmental Science - 36 majors, ~ stable
 - Bachelor of Environmental Studies (BES) - 79 majors, ~ stable after 4 years of declines (demographics related?)
 - MSc and PhD Earth Science - ~ 20 students, ~ stable
- Several EES faculty also have appointments with the Great Lakes Institute for Environmental Research (GLIER).
- Research includes environmental chemistry/geochemistry and geophysics, hydrothermal mineral deposits, geodynamics, coastal geomorphology, hydrogeology, hydrocarbon reservoirs, trophic ecology, geographic information science.

News

- Hired one permanent tenure track faculty – Dr. Jill Crossman, quantitative watershed hydrologist
 - 1 of 50 strategic priority fund (SPF50) positions
- Hired one 2-year LTA – Dr. Ahmed Nassar, GIS
 - Replaced permanent tenured faculty member
- Lost first year lab demonstrator position due to budget realignment

Challenges/Opportunities

- Enrolments are stable but we are under increased pressure to grow due to new budget model.
- Concern that there is lack of commitment to retirement replacements (e.g., LTA for tenured position) and SPF50 positions will be leveraged against retirements. Particularly concerning that current president has announced he will be leaving his position 1 year earlier than expected. New president may not have same priorities.
- University of Windsor has adopted an ‘enrolment-centered’ budget model and future fortunes (e.g., faculty renewal) are linked directly to enrolment. Integrating old ‘opaque budget practices into new ‘transparent’ model has been problematic and will require years to complete. Weekly ‘gains’ and ‘losses’ as money is ‘found’ and reallocated into/out of faculty budget by ‘central’ - list of budget line items yet to be found/reallocated still considerable.
- Department breaking even but faculty is currently in deficit position (~ 8%). Combination of retirements, increased enrolment and service teaching, and new programming initiatives (GIS certificate and online programs, course-based MSc) will improve budget position.
- New institutional software package coming online replacing 7 different software suites (recruitment, registrar, SIS, finance...). Phased deployment starting Spring 2018 and many ‘teething problems’ are expected. Further complicates budget implementation.
- 30% of EES faculty are or will be eligible for retirement over the next ~ 5 years. Renewal must match institutional strategic priorities, provincial differentiation mandate, **and** increases in enrolment. EES is well positioned to obtain renewals as long as replacements clearly meet strategic goals but enrolments will be a challenge.
- Aging facilities and infrastructure – future of all University of Windsor science buildings currently under review as campus undertakes significant, long term capital works projects. Likely that EES will need to vacate long term home (Memorial Hall) for renovated space in Essex Hall (home to other units in faculty) within 2 to 5 years.
- IQAP review process ongoing – first external review of Environmental Science program in Spring 2018. Implementation of proposed changes to BES program ongoing. Forms created by administration considered unnecessarily complex by all.

Joel Gagnon

WESTERN UNIVERSITY

Current Faculty complement:

- 25 full-time faculty including 5 research/externally funded chairs
- Recent hires: Nigel Blamey (Assistant Professor in Mineral Exploration); Katsu Goda (CRC 2 in Multi-hazard Analysis)

Current staff/student complement:

- 16 support staff
- 135 graduate students
- Approx. 120 undergraduate students enrolled in years 2, 3 and 4
- 10 post-doctoral fellows and/or research associates and/or instructors
- Approximately 3600 students per year in Earth Science classrooms

Programs:

- Undergraduate programs for Professional Registration in Geology, Geophysics and Environmental Science, as well as Specialization, Major and Minor programs in these areas, and Minor in Planetary Sciences
- Graduate MSc and PhD programs in Geology and Geophysics
- Collaborative graduate programs in Planetary Science, Environment & Sustainability and Scientific Computing
- Joint JD/MSc in Geology or Geophysics and Law
- Focus on field education with 5 core field courses in our undergraduate program, and several graduate field courses

Major changes in the past year:

- New Chair, New Administrative Officer, New Program coordinator
- New Acting Dean of Science
- Loss of 1 Staff Member
- 2 CFI Setbacks
- Museum space approved for mineral and rock collections (move in January, 2018)

Major challenges in the future five years:

- Budgetary challenges due to the expiration of external funding for the Hodder Chair
- Decrease in Limited Duties appointments due to expected increase in salaries
- Ongoing difficulties in maintaining operational resources for laboratories
- By 2022 at least 9 of our current 25 professors will be at retirement age

Patricia Corcoran

UNIVERSITY OF WATERLOO

Current Faculty/Staff complement:

- | | |
|---|----------------------------|
| • 19 full-time faculty | • 3 research associates |
| • 1 CERC Chair (Ecohydrology) | • 2 lecturers |
| • 1 CRC Tier 1 Chair (Contaminant Hydrogeology) | • 2 instructors |
| • 2 definite term faculty | • 14 post doctoral fellows |
| • 3 research faculty | • 30 support staff |

Current student enrollment:

- Undergraduate enrollment in EES has been increasing slightly over the last 5 years and has been relatively stable over the last 2 years at approximately 220 undergraduates in all years.
- In Geological Engineering there are about 110 in all years.
- 125 total graduate students (stable over last 5 years)
 - 80 MSc
 - 45 PhD
 - 60% domestic, 40% international

Undergraduate Programs:

- Regular and Coop Programs in: (APGO focussed)
 - Geology
 - Geochemistry
 - Geophysics
 - Hydrogeology
 - Environmental Sciences (Geoscience and Water specialties)
 - Geological Engineering (CEAB accredited)

Research areas:

- Hydrogeology
- Biogeochemistry and Ecohydrology
- Isotope Geochemistry and Hydrology
- Earth Surface Systems
- Solid earth
- Applied and Engineering Geology

Current Challenges:

- Impact of an “activity-based budget model”
 - faculty attrition and challenges to rehire
 - internal competition with other (larger) science units
 - pressure to significantly grow student numbers relative to other science units
- modernization and streamlining of the undergraduate curriculum with respect to program offerings
- management of the influence of large research programs/chairs within the Department overall
 - space requirements
 - teaching duties
 - comparative funding levels
- increased competition for CRC Chairs within faculty
- new emphasis on increasing domestic graduate students
- increasing overlap with Environmental and Geography programs
 - distinction in course offerings, research trends and funding opportunities

Current Opportunities:

- participation in CFREF – Global Water Futures project
- new science building highest priority at UW with space for EES (summer 2018)
- very supportive new Dean

David L. Rudolph

McMASTER UNIVERSITY, School of Geography and Earth Sciences

The McMaster School of Geography and Earth Sciences has a complement of 22 fully appointed faculty, and an additional 3 with joint appointments. The 22 include 3 teaching faculty and 19 research professors. 11 of the 19 research professors would be considered either earth or environmental scientists and of these, 10 hold NSERC awards.

We presently have about 90 graduate students, about 70 are full time, and about 50% are PhD versus MSc and most in earth and/or environmental science. Undergraduate majors are around 450, with over 50% in the BSc versus BA programs. Following a request for hires, SGES has been approved for two positions, and we are recruiting tenure track assistant professors in *Geography and the Environment* (Teaching), and *Remote Sensing/GIScience* (Research and Teaching). We are also submitting requests this year for two more research positions, one in Structural Geology, and the other is still being evaluated, but neither are yet approved. We are still understaffed as a result of the loss of 6 faculty in 2015-2016.

Although we are currently running a yearly surplus, we are servicing a \$2.9 million debt due to TA underfunding in previous years.

This year, the first nations allowed us access to tribal lands for our annual field camp at Whitefish Falls, in return for which we have agreed to provide outreach and tribal support. We have also introduced a new 2nd-year field course in order to attract more students into our program.

Janok P. Bhattacharya

BROCK UNIVERSITY

The Department of Earth Sciences at Brock University has had a year with few surprises and largely a continuation of the status quo. Our two undergraduate programs, Earth Sciences and Environmental Geoscience have been relatively stable over the long term, with total majors ranging from 60 to 80 students in years 1 to 4 of the programs; we are currently in a trough of the cycle. The good news is that the apparent “quality” of the 11 incoming new majors to our two programs is high with a mean admission average from secondary school of 85% and the highest admission average is 97.3%. In addition, our MSc program has 21 students at the time of writing.

The research output of our 9 faculty members continues to be strong with a total of 49 peer reviewed papers over the 2016-17 academic year and a reported total of \$1.8M in external funding.

We have had one change in personnel over the past 12 months. Nigel Blamey, who has been with the department as a contract instructor since 2012, moved to a tenure track position at Western University. Nigel had been a real asset to the department but we were elated that he was moving to a much better position than we could provide. We had the very good fortune to almost immediately hire Dr. Phil McCausland, formerly with Western, to fill position left open by Nigel. Phil has very broad expertise with a focus on paleomagnetism and planetary science. We are in the process of requesting a

three-year contract that, if approved, will most likely be used to bolster the “hard rock” side of our undergraduate teaching requirements. We will not be in a position to request a tenure track position until one or more of our “senior” faculty members choose to retire.

Richard Cheel

UNIVERSITY OF TORONTO, Earth Sciences

Last year we hired a metamorphic petrologist Dr. Xu Chu (Yale, Rice) and he is starting January 2018. We have four new hires in geosciences at UofT this year: two positions in ore deposits and economic geology on the St. George campus, and an applied geophysicist and lecturer on the UTM campus. These positions come about from retirements and a resignation (Mungall to Carlton)--fortunately all positions were renewed and the lecturer is a new addition. All told, this means a very positive time of growth and renewal in the department and the opportunity to plan/build a cohesive young group.

Our undergraduate enrolments seem to have plateaued, with similar numbers over the past two years (~170 students in years 2-4 in our Major/Specialist programs). Among the programs our geology and geophysics specialist offerings are most popular; a new Earth Systems major program has grown quickly; our environmental programs remain with low enrolments. The latter is probably owing to the existence of environmental undergrad programs all over the university that we're competing with (e.g., in Chemistry, Physics, Biology, UTSC, the School of the Environment, Civil engineering). We continue with strong emphasis on field/international education: aside from regular field camps and local class trips to Grenville, Niagara gorge, etc. sites, extra field trips/courses in 2017-18 year include Oman (15 students), New Zealand (12), Montserrat/Antigua (12). These trips are heavily subsidized by our Advancement efforts and support from the Dean's office.

Our graduate numbers are essentially steady, with a total population of 50 funded students this year. Our real challenge in recruiting seems to be in getting domestic PhD students. We continue to have to work hard to achieve our university target here, whereas we get a lot of excellent international applications but can only admit a limited number of these. The cost per supervisor to support either domestic or international grad students remains at \$7500 for all graduate programs.

In Ontario, the first Strategic Mandate Agreement (SMA1) between the provincial government and universities is ending and SMA2 is being negotiated. These agreements were established to differentiate Ontario universities based on strengths and institutional priorities. Notably, the main component of SMA2 is the development of KPI-Key Performance Indicators to define the funding formula for Ontario universities, although the KPI will not become "active" until SMA3. It seems that attention to these KPI will be of prime importance in the future for academic units in the province.

Russ Pysklywec

CARLETON UNIVERSITY, Earth Sciences

Enrolment;

- Our undergraduate enrolment underwent a period of steady growth since 2000. This year (2017-18) we have 115 undergraduate students; 89 Honours, 18 Major, 8 General, and 30 minors in 17 in different programs.
- In winter 2017, spring and Fall 2017 there were 2045 students registered in service and general interest courses.
- In 2016-17 we had 50 (i.e. 30 M.Sc. and 20 Ph.D. students) and in 2017-18 we have 53 (i.e. 32 M.Sc. and 21 Ph.D. students).

Faculty members; we have 11 full time faculty members, one cross-appointed faculty member, and several contract instructors. We have hired a replacement in Geochemistry - Hanika Rizo in 2017. We have hired a replacement in economic geology - James Mungall in 2017. *Staff:* Last year we hired a Laboratory Coordinator, Dr. Geoffrey Pignotta, for the first and second year courses.

Space: We acquired ~ 4600 ft² of new space in 2015-16 and have completed almost all three stages of renovations. The issue of adequate storage for our collections remains unresolved. We are installing a new XRD (Dr. George Dix) and a NEPTUNE multicollector ICP-mass spectrometer (Dr. Cousens).

QA: We have developed course learning outcomes and are in the process of mapping them back to our program learning outcomes to comply with the recommendations from our recent and successful Quality Assurance. We will go through the learning outcomes assessment next year.

CU75: Dr. Claudia Schröder-Adams documentary (Arctic Greenhouse) had its premiere on Jan. 26, 2017 as an opening event to a conference on Arctic biodiversity. The documentary, which is also in collaboration with University of Frankfurt, is an hour long and features her research in the Arctic. Over 200 scientists came to Ottawa for this event. *Dariusz Motazedian*

UNIVERSITY OF OTTAWA, Earth and Environmental Sciences

Department

- 14 faculty members, and currently searching for a CRC II position in Accelerator Mass Spectrometry
- 2 teaching professors, 1 replacement professor, 9 adjunct professors, 4 administrative staff, 19 research staff
- 79 graduate students (60% masters 40% Ph.D.) ; 7 PDFs (healthy and perennially sustained increase in all categories)
- 235 GEO+EVS undergraduate students

	English	French	Total
GEO	53	19	72
GEO-Physics	8	2	10
EVS	105	48	153

- department currently split between three buildings --- instrument users; non-instrument users; teaching
- new 8 floor, two-tower Science and Technology building under construction (to be completed in April 2018; move-in late Summer/Fall 2018). Non-instrument users and administration to move into that space, which is conveniently located between the two other locations

Highlights

Recent arrival (September 2017) of new tenure-track professor Clement Bataille (expertise in stable isotope geochemistry).

Hydrothermal Ore Deposits short course coordinated by Mark Hannington will be offered for the 7th time in late October 2017. Currently 81 people participants (12 industry and 69 students from 24 different universities --- in total 724 participants over its 7 year history!

Jan Veizer ranked the 8th most cited global geoscience researcher by Google (19356 citations).

Andrew Schaeffer (PDF with Pascal Audet) recipient of a prestigious Banting PDF Award.

Jeremy Gosselin (Ph.D. with Pascal Audet) recipient of a prestigious Vanier Canada Graduate Studies Award (from CIHR)

CFI: (1) Jack Cornett (et al.) – CFI microSTARR project (\$9.7M – announcement pending) for new AMS equipment for the Lalonde AMS facility and for the Cosmogenic Isotope Laboratory at Dalhousie U. (2) Pascal Audet – PI on National Facility for Seismic Imaging (NFSI) led by colleagues at Dalhousie. Funding to design, build and operate 120 ocean bottom seismometers. (3) Bill Arnott - collaborator on the successful CFI application for the Multidisciplinary Centre for Computed Tomography at the INRS in Quebec City.

The international AMS 2017 conference was hosted by uOttawa: 340 attendees from ~ 50 countries around the world.

Challenges

- Continued scrutiny and/or cuts to departmental budgets
- Ongoing difficulties in maintaining operational resources for laboratories
- A significant number of faculty members either at or approaching retirement age
- Significant employment challenges in the resource sector
- Teaching a bilingual program (i.e. parallel courses in English and French) with a limited number of professors
- Cuts to library budgets, in particular to journal subscriptions

Bill Arnott

McGILL UNIVERSITY, Earth and Planetary Sciences

Students – Our undergraduate enrollment has decreased for the 5th year in a row, from a high of 53 total undergrads in 2011/12 to less than 30 this academic year. Simultaneously, the number of students in the minor concentrations has increased over the same time period. Starting last year, we changed the name of our primary BSc from a BSc in Earth and Planetary Sciences to a BSc in Geology. The number of graduate students continues to increase, with 16 new graduate students starting this past semester.

Faculty - The department currently has 15.5 faculty members (not including emeritus, adjuncts, etc.), of which 10 are tenured and 6 are female. In the past year two faculty have received tenure and promotion to Associate Professor. The department now has two CRC Tier II Chairs with the addition of Prof. Rowe this past year.

News – The department has filled our Geobiologist position, and the new hire will start in August, 2018.

Jeff McKenzie

UNIVERSITÉ LAVAL, Geology and Geological Engineering

Program	1 st year 2016	1 st year 2017	Total registered this fall
U Geology	11	15	41
U Geological engineering	23	30	116
M.Sc. Earth Sci. (research)	7	2	20
M.Sc. Env. Tech.	1	2	4
Ph.D. Earth Sci.	1	1	16

Students

- Overall student enrolment at our department has remained steady.

Faculty and staff

- The department has 11 faculty members (of which 1 CRC tier II, 1 NSERC IRC, 2 endowed positions), 21 adjunct professors, and the following permanent staff: 4 professionals, 3 technicians, 2 secretaries.
- The department is recruiting/advertising for two faculty positions: 1) Geohazards and ground stability; 2) Mineral deposit geology.
- A new rector and team of vice-rectors were appointed last summer. A new dean of the faculty of Science and Engineering will be appointed by the end of October.

Research

- Our research activities cover the following broad domains: Mineral Resources, Ground water, Geomaterials, Geo-Hazards. This is reflected in the activities of faculty members in various multidisciplinary research

centers: Water Research Center (*CentrEau*); Mineral resources (*CentreE4M*), Northern studies (*Centre d'Études Nordiques, Institut Nordique du Québec, Sentinelle Nord*); Concrete infrastructures (*CRIB*).

- New MicroXRF instruments for petrographic mapping and new equipment for borehole geophysical logging are operational. For other research equipment (electron microprobe, SEM) aging is a major challenge.
- Meetings in Québec city, past and future: *SGA 2017 Minerals Resources*, August 2017; *International Sedimentological Congress*, August 2018; *GAC-MAC*, May 2019.

Marc Constantin

ACADIA UNIVERSITY, Earth and Environmental Science

At Acadia University enrollment continues to increase modestly but we are now at our perceived limit of around 3500 full-time students. The E&ES department has experience a 30% increase in student enrolment in the past 10 years, though this year our first-year class is significantly reduced in size. That said we still have 123 majors with 68 in environmental science and 55 in geoscience. Our faculty numbers are holding steady as we have not had retirements recently, we presently have 8 faculty with 2 support staff and one semi-permanent part-time instructor. We currently hold 4 NSERC grants, 1 SSHRC grant and also have faculty funded through NSERC Engage. One of our researchers was awarded a \$500,000 JELF CFI grant last year which is being used to build a lab specializing in XRD and XRF analysis and will significantly add to our research capacity. Our building is also undergoing a major exterior and minor interior renovation (Courtesy of Justin Trudeau) which will spruce things up a little bit, at least until Rob and I retire!

Though the past 4 years saw classes that were too large, especially in geoscience, we see a little respite in our geology courses in the future although our environmental science program continues to grow. Our graduate program remains robust at 8 graduate students in Geology and 4 in Applied Geomatics; accessing both internal and external funding for graduate students continues to be difficult. Increasingly, we find ourselves partnering with industry or government agencies to provide graduate student opportunities.

Ian Spooner

DALHOUSIE UNIVERSITY, Earth Sciences

Enrollments

Year	2015-16	2016-17
Total UG years 2-4	111	94
Total grad	17 MSc, 9 PhD	21 MSc, 12 PhD
Total program enrollment	137	127

Current second year undergraduate student enrolments are up 40% from 2016-17, although the overall enrollments in the Faculty of Science have decreased. To counteract the latter, the FoS is embarking on a significant

outreach and recruitment program, termed “Science for...” to encourage interest in Science as a career path (besides trying to get into medical school).

Faculty and staff

Faculty members Nick Culshaw (Prof, tectonics) and Charlie Walls (Instructor, GIS) retired at the end of June 2017, ending a cohort of retirements in the past 5 years. The department underwent two searches, one for a Tier II Canada Research Chair in Coastal Zone Processes (linked to the Ocean Frontiers Institute), and the other for an instructor in Geospatial Analysis. The CRC search is ongoing, Dr. Chris Greene hired to fill the instructor position. Faculty search begun for an assistant professor position in the field of Geophysics in support of Dalhousie’s Diversity hiring program. Dr. Owen Sherwood (stable isotope geochemistry) started as a faculty member on July 1, 2017. With the completion of these hires, the full-time faculty cohort will be 15 (3 Instructors, 12 Professors). The department has 4 FTE of technical staff in support of teaching (mostly) and research. The department continues to be acknowledged for teaching excellence, with FoS teaching awards to Instructor Mike Young, University-wide alumni teaching award and AAU Education Teaching awards to University Teaching Fellow Anne-Marie Ryan. Recent faculty awards include a Cecil and Ida Green Fellowship at Scripps to Mladen Nedimovic, University Killam Professorship to John Gosse, Gesner Medal and Howard Street Robinson Lectureship to Becky Jamieson.

Support for Teaching and Research

Recent CFI Innovation fund round, Mladen Nedimovic funded to establish the National Seismic Imaging Facility (~\$16M) at Dalhousie to build and deploy the next generation ocean bottom sensors.

The department is now embarking on an effort to upgrade its undergraduate teaching facilities by prioritizing its own equipment/space improvement allocation to that area, which has also gotten some buy-in from the FoS. A recent success in that effort is the completion of a teaching laboratory and storage facility for drill core, funded by Shell Canada and Dalhousie.

The Shell Canada Campus Ambassador Program agreement is up for renewal (department receives ~\$100k per year, 3 yr cycles). This supports student field trips, international field schools, undergraduate and graduate research projects.

Challenges

The department conducted a recent review of safety and liability rules, which helped to clarify what vehicle coverage to take, university role as a “self insured”, definition of graduate students as “students” and “employees”. This has produced some challenges, such as no student drivers on university-sanctioned (means funded) field trips, and graduate students are not

employees when they go on their own field trips (so technically, we can’t fund those activities).

The department continues to rely on part-time academics and limited term appointments to cover some courses. Results in ongoing work for hiring cycles every year, lack of job security for the appointees.

High cost of graduate student support, especially international students. Combined result of Dalhousie failure to deal with it, and low level of support from province. We have a new VP Research but she has not mentioned this as a priority (yet).

Constraints on JELF allocation to start up funds imposed by the number of CRCs hired through the OFI, combined with the allocation the University is putting towards its CERC proposal in renewable energy.

James Brennan

SAINT MARY’S UNIVERSITY, Geology

After over 35 years of dedicated teaching at SMU, Dr. Georgia Pe-Piper recently announced that she will be retiring from teaching in 2018. However, she has secured her lab space until 2022 and intends to continue with her research and mentoring activities until at least then. We were casually informed by the administration that a replacement will be scheduled for the date of her retirement. Applications are also currently being reviewed for a Geology Lecturer position, which will represent a net increase of our current complement of six full-time faculty members (including one CRC).

Dr. Todd Ventura is in the process of building an organic geochemistry laboratory (SMU-OGL) with funding from the Canadian Research Chair, the Canada Foundation for Innovation - John R. Evans Leaders Fund (CFI-JELF), and the Offshore Energy Research Association (OERA). From this support, he has recently acquired an Agilent 7200B comprehensive two-dimensional gas chromatograph – quadrupole time of flight mass spectrometer, and a CEM MARS microwave for solvent extraction and acid digestion. He was recently joined by a Mitacs Postdoctoral Fellow, Dr. Carl Peters (PhD, Macquarie University), who will be working on intact polar lipids from shallow piston cores collected along the Scotian Shelf of Nova Scotia.

Based on our current enrolment in first and second year courses, it seems that the inflated class sizes of the last few years are coming to an end, although we still have about double our normal enrolment in third and fourth year courses. The enrolment boost was mainly coming from a large influx of international students with English as their second or third language, many of which have been struggling with the “narrative” aspect of geology.

Pierre Jutras

MEMORIAL UNIVERSITY, Earth Sciences

Students

Total Enrollment	2015-2016*
TOTAL UG (2 nd -4 th year)	181
TOTAL GRAD	87** (25% PhD, 75% MSc)
TOTAL STUDENTS	268

*No data available for 2016-17 due to unforeseen circumstances of Manager of Academic Programs recently going on extended sick leave.

So far in 2016-17 we have seen an increase in graduate student enrollment likely linked to recent faculty hires, and a decline in 1st year enrollments, and in 2nd year required major courses.

**Breakdown by degree:

MSc (Geology): 43	MSc (Geophysics): 22
PhD (Geology): 13	PhD (Geophysics): 9

• FACULTY INTERESTS AND RESEARCH

- 26 current faculty members including two University Research Professors
- Five emeritus professors (including two University Research Professors)
- One Honorary Research professor
- One CRC Tier II in Seabed Imaging
- One NSERC-Chevron A-IRC
- Two recent faculty appointments: Applied Seismology (Kim Welford); and High-T Geochemistry (Michael Babechuk)
- HMDC Chair in Basins Analysis will soon be advertised and will hopefully be matched by RDC and hopefully will become an NSERC A-IRC (this has been on hold for a while till it could be linked to a retirement and then provincial budget constraints)
- Trying to achieve a steady-state of 30 full time regular faculty members but may be difficult to achieve with the reductions in the provincial budget and declining enrollment.

• EXTERNAL SUPPORT FOR TEACHING & INFRASTRUCTURE

- Looking for renewal of industry or government funds for field school support for next five years.

• CHALLENGES

- Problems with start up funds for new faculty given the recent mandate established by the now defunct RDC (the main source of start-up funds for all MUN faculty)
- Replacement of aging equipment and laboratory renovations given CFI and NSERC RTI-1 funding constraints; must rely on industry R&D and E&T from offshore revenue and not a good time for that
- Attracting high quality applicants for faculty positions and especially chairs
- 5-6 retirements looming in next five or so years; not be easy to replace all of them 1:1

- Looking for ways to increase total student numbers in 1st year introductory and 2nd year service courses

John Hanchar

UNIVERSITY OF VICTORIA, School of Earth and Ocean Sciences

Undergraduate Program/Course Changes

Two years ago we moved three courses required for our Ocean Sciences Minor (OSM) program from the summer term to the fall or spring terms to make them more accessible to students outside of the OSM. These courses include EOS 312 Introductory Chemical Oceanography, EOS 313 Introductory Geological Oceanography, and EOS 314 Descriptive Physical Oceanography. This has resulted in a doubling of enrollment in both EOS 312 and 313, to about 36 per course.

We are currently proposing the addition of a full undergraduate program in Ocean and Atmospheric Sciences, implemented as a series of combined programs with other Science Departments (Biology, Physics, Chemistry). These programs are largely re-organizations of existing courses, but a new Oceans Field School course, common to all of these programs will be developed as a capstone course.

Graduate Enrollment Changes

Currently, 50 graduate students are enrolled in SEOS. This is down from 54 last year, and from a high of just over 80 in 2011. The trend to lower numbers is thought to reflect the drop in the number of faculty members (particularly senior faculty members) in the School in recent years, but is a concern to SEOS and to the Dean of Science. We hope to reverse this trend in the near future.

Faculty/Staff Changes

SEOS currently has 18 tenured/tenure-track faculty members, although accounting for cross-appointments and secondments results in ~13 FTE faculty positions. In addition, we have 1 limited-term faculty appointment, 3 office staff, 3 senior lab instructors, a Geochemical Lab Manager, and a limited-term Scientific Assistant.

There have been a number of faculty and staff changes in 2017. Edwin Nissen joined SEOS in January, 2017, as an Associate Professor and Tier 2 Canada Research Chair in Earthquake Geophysics, with research interests in active tectonics via remote sensing, seismology, field observations and geochronology. Jon Husson joined us in April, 2017, as an Assistant Professor in Geology, with research interests in Earth history, stratigraphy, sedimentary carbonates and stable isotope geochemistry. Both Nissen and Husson were successful in NSERC, CFI and BC Knowledge Development Fund applications and are off to an excellent start.

We currently have searches underway for two new (replacement) faculty positions, one in Tectonics (replacing Kristin Morell who is moving to University of California Santa Barbara), and one in Physical Climate Sciences

(replacing Andrew Weaver who is on long-term political leave as BC MLA and Leader of the Green Party). Despite this relatively high rate of hiring in the past few years our faculty contingent has not grown, and covering our broad undergraduate program in earth, ocean and atmospheric science and keeping graduate student numbers up remain significant challenges.

We hired a 3-year limited-term Scientific Assistant, Edward Wiebe, in 2016 to handle a combination of technical and academic responsibilities including computer-systems administration, teaching lab coordination, marine technology support, and maintenance of the Victoria School-based Weather Network. This position hybrid position is proving extremely useful, and getting this limited-term position converted to a permanent (base-budget) position is a high priority.

Our Department Secretary over the past 14 years, Kimberly Smith-Jones, retired in September. Our Graduate Secretary, Allison Rose, successfully competed for the position, and we are now in the process of hiring a new Graduate Secretary.

Stan Dosso

UNIV. BRITISH COLUMBIA, Earth, Ocean and Atmospheric Sciences

EOAS is at an inflection point. After a series of retirements, leaves and secondments of faculty, we are poised to begin hiring 4 or more faculty in the next two years. Research programs are doing well and enrolments and program-student numbers have grown. Total enrolments are steady or growing.

Budgets

We are doing well for the wrong reasons. We lost two more faculty members to secondments: one to the Dean's office and another to a research initiative. Another faculty member is taking a leave of absence as a prelude to resignation. We were also awarded a CRC II retention chair. The university continues to see modest revenue growth, fueled almost entirely by international students – both an increase in their enrolment and an increase in their tuition. This secular increase in funding will stop in 3 years – 5 years, when we will have hit our admission targets (~25% - 30% international) and ultimate tuition price points (our international tuition is apparently less than most other Canadian universities).

Undergraduate Education

EOAS program enrollment is growing, with 555, 550, 566 and 586 undergraduates enrolled in 2014, 2015, 2016 and 2017. Our largest programs, Environmental Sciences and Geological Engineering are at quota. Total students taught is up slightly after several years of very strong and broad growth across disciplines. We pride ourselves to be pedagogic innovators with widespread adoption of science-based methods in most courses. We have recently launched an initiative for the University of Central Asia to prepare materials for 26 courses, and essentially design an environmental earth sciences curriculum from scratch. Led by Francis Jones, a science education

expert, the materials will be prepared by lecturers and sessional colleagues, supported by subject-expert faculty. EOAS will be able to utilize course materials and innovations developed in the context of this initiative. The project is funded by the Agha-Khan Development Network.

Research

Graduate enrolment is down slightly from 207 to approximately 200, roughly evenly split between masters and PhD. Our total research funding is strong across all groups. A large industry donation seeded the creation of the Bradshaw Research Initiative for Minerals and Mining to focus on the minerals life cycle, particularly waste management and closure. The inaugural director of the institute is former department head, Greg Dipple.

Faculty

We are searching for a position in Sedimentology, expecting to interview in January. Another search committee is developing a job ad in the general area of applied water, which includes but is not limited to traditional hydrogeology, hydrogeomechanics, etc – Stay tuned. We will have a new Dean in July, and are therefore trying to secure a commitment to hire several new positions now. A new collective agreement brings one significant change to the non-tenured lecturer positions. These positions will now no longer require annual reappointments. Lecturers, once past a probationary year, will have permanent jobs, subject to availability of sufficient courses.

Staff

Our staff complement is stable, although we have had turnover in several positions – there were three different people in the role of Head's assistant (what did I say/do?). We fortunate to have a high-functioning administrative staff and dedicated technicians.

Infrastructure

For the most part, we have good infrastructure except, as reported the last several years, our 3rd year geology camp in Oliver, BC, which is in critical need of renewal. Recently it was ravaged by copper-pipe thefts. We are actively fundraising and planning for a new facility, although management and security concerns with new infrastructure. We suffered through a very difficult transition to a new email system in the fall of 2016. We continue to explore options to replace our 30-year old microprobe.

Roger Beckie

SIMON FRASER UNIVERSITY

We have 17 faculty members consisting of 12 associate and full Professors, 1 assistant Professor, 1 teaching Professor, 2 senior lecturers, and 1 lecturer. We also have 1 emeritus Professor and 18 adjunct faculty. Our faculty expertise is diverse, representing all the major fields in the Earth sciences. Our staff remains unchanged with three office staff responsible for all administrative activities and two technical staff.

Our new Assistant Professor in Metamorphic Petrology, Brendan Dyck just arrived in the Department. He is a recent graduate of Oxford and completed a 1 year post-doc at Cambridge. We are all excited about his arrival. He is presently working on his NSERC and will start teaching next term.

We are in the process of searching for a CRC Tier II chair in Natural Hazards, a replacement for John Clague. We are very happy that the position was approved. Applications close on November 1.

Our undergraduate enrollments have dropped a bit from last year to approximately 90 declared majors, as we had a large cohort graduate last spring. Our undergraduates mainly take one of two streams, Geology or Environmental Geoscience. Both of these lead to Professional Registration with the Association of Professional Engineers and Geoscientists of British Columbia, now known as Engineers and Geoscientists of BC (EGBC). We also have 5 majors in our joint Chemistry-Earth science stream. Our Graduate program also dropped slightly with 47 students representing 19 PhD and 28 MSc. This likely reflects the retirement of John Clague and the fact that another senior faculty member is nearing retirement and cutting back on graduate students. This high number of graduate students allowed us to offer 9 NSERC USRA's and VP Academic research awards to undergraduates last summer. A continuing concern for graduate student numbers is the high cost of living in Greater Vancouver vs static funding levels. In ~2 years the SFU cost-of-living calculator has shown basic needs for a single person have risen from \$21k to \$24k. We still levy tuition/fees on grad students to the tune of up to \$8.0 k per year. Unlike Ontario and Alberta, we don't have significant provincial graduate scholarships. Overall our funding from the university has been strong (Graduate Fellowships) in the last 2 years, but cost of living factors could undermine our competitiveness in the near future.

There is a significant change occurring in the upper administration at SFU. As I mentioned last year, a new VP academic started in September 2016, Peter Keller. There is a new Associate Vice President Academic, Wade Parkhouse. There is an on-going search for a new Dean of Graduate Studies. And our present Dean of Science, Claire Cupples, is resigning and a search to replace her is about to get underway. The Dean has been supportive of the Earth Science Department and we hope this continues with the new Dean.

This will be a busy year as we are due for a Department Review. This has also been combined with a curriculum review with educational goals (aka learning outcomes). We will have to determine how to evaluate these educational goals at the program level and start collecting data. This was initiated as part of the entrance into NCAA for our sports teams but there is also interest in this from the provincial government. It will be a lot of work.

The Department recently received a hyperspectral camera in a RTI grant that adds to our remote sensing capabilities. We also have a forward looking infrared (FLIR) camera, 2 long distance laser scanners and 3 UAV systems optimized for digital photogrammetry. These are mainly utilized for research but are also incorporated into our upper division classes.

We have been lucky in receiving endowments to set up several undergraduate scholarships and a new proposal for a graduate one. These are significant awards ranging from a few hundred dollars to reimburse extra fees for our field schools, to up to \$3000 for undergrads. The new endowed graduate scholarship is presently collecting more donations to achieve enough funds to start disbursements.

Notable Awards and Appointments:

-Diana Allen – NSERC Group Chair for Geosciences

-Doug Stead – Legget Medal from The Canadian Geotechnical Society

Brent Ward

UBC OKANAGAN, Earth and Environmental Sciences

During the past year, UBC Okanagan Senate granted approval for the Department of Earth & Environmental Sciences and the Department of Physical Geography to form a single department named 'Earth, Environmental and Geographic Sciences'. The new department consists of 19 faculty: 6 Professors, 11 Associate Professors and 2 Senior Instructors, and 2.9 FTE support staff (four individuals). There are currently no pre-tenure faculty in the department. Three faculty members are cross-appointed with Biology, one with Human Geography and one with Chemistry. Dr. Craig Nichol began a three-year term as Associate Head of Department in the fall of 2017.

Three faculty are on study leave during the 2016-17 academic year: Dr. Bernard Bauer, Dr Jeff Curtis and Dr. Rob Young.

The department continues to make progress in securing new support staff. Marni Turek joined the department in late 2016 as a 0.4 FTE Watershed Management Research Extension Facilitator, supporting the department's two Forestry Renewal BC Research Chairs.

The Department currently offers two undergraduate degree programmes: Earth & Environmental Sciences (EESC) and Freshwater Sciences (FWSC), and co-offers the Geography (GEOG) degree program with the Human Geography caucus, which is based in the Department of Community, Culture and Global Studies. Enrolment for 2017-18 remains strong with 40 newly declared EESC Majors and 7 FSWC Majors. Seven new graduate students (6 M.Sc. and 1 Ph.D.) joined the EESC Graduate Program in September, bringing the total complement of graduate students to 24.

Efforts are ongoing to create a new Minor degree in Geospatial Information Systems. Dr. Jessica Fitterer will begin a three-year fixed term appointment in the EEGS Department in July 2018 as Assistant Professor in GIS.

Dr. Mark Button joined UBC Okanagan in September 2017 as a new full-time technician in the Fipke Laboratory for Trace Element Research (FiLTER). In early 2017, Dr. Kyle Larson began a 3-year term as the new Director of the FiLTER facility, which houses two ICP mass spectrometers, an Excimer laser

system, a Tescan Scanning Electron Microscope, and a Cameca Electron Microprobe equipped with a field emission electron source.

External review of our department and all degree programs is scheduled for the 2017-18 academic year. We anticipate hosting External Examiners on campus in April 2018.

Ed Hornibrook