McGILL UNIVERSITY, Earth and Planetary Sciences

COVID-19 – The pandemic continues to present challenges for the department. In particular, numerous obstacles for field-based learning and research, with extensive restrictions and administrative challenges. Numerous graduate students with field-based research projects have had to modulate field-based projects or change research topics entirely. Laboratories and offices are open, but with limits on occupancy. Another challenge is a precautionary slowing of faculty and staff hiring. Fortuitously, prior to the pandemic we had started creating a series of virtual field trips called Métro @ Montérégie. These are available in English and French (https://www.mcgill.ca/eps/outreach/virtual-fieldtrips).

Students – We continue to exceed our graduate student recruitment goals, with 30 MSc and 29 PhD students. BSc student numbers remain low. The largest change is in postdocs numbers, which have increased from 11 last year to 19 now (and growing). Like last year, an ongoing challenge is in recruiting undergraduate students to the Department from both CEGEP and first year science (further complicated by COVID).

Faculty – The department currently has 17.5 faculty members (not including emeritus, adjuncts, etc.), of which 2 are untenured. The department has four CRC Tier II Chairs and a James McGill Chair.

Future – The University continues to develop a plan for the now-empty Royal Victoria Hospital, adjacent to our campus. The broad research focus of the new space is sustainability, including earth systems and EPS. Tentatively will be completed in seven years. *Jeff McKenzie*

UNIVERSITÉ DU QUÉBEC À MONTRÉAL – Sciences de la Terre et de l'atmosphère

COVID19 – In the 2021-2022 academic year, UQAM has returned to in-person teaching, though exemptions (i.e., online courses) are permitted on a case-by-case basis, e.g., if a professor has health concerns. Online teaching continued throughout the 2020-2021 academic year, though we were able to run our regular field camps successfully this summer. National travel for fieldwork and conferences is currently allowed, but international travel remains restricted – each researcher must submit an application to the University and only travel deemed essential is permitted.

Students – Overall, student numbers in most of our programs have decreased with respect to the 2020-2021 academic year, with a few exceptions. It is difficult to know the exact cause, but one factor may be the return to in-person teaching for the 2021-2022 academic year at a time when travel remains difficult, with potential impacts for current and prospective international students. Details of student numbers are as follows, with September 2021 numbers shown first and September 2020 numbers in brackets:

Bachelor in Geology: 59 (90)
Bachelor in Meteorology and Climate: 31 (27)
Certificate in Applied Geology: 23 (15)
Certificate in Sustainable Energy Resources: 33 (44)
Certificate in Atmospheric Sciences: 13 (14)
Major in Geology: 0 (3)
Masters in Earth Science – research: 27 (28)
Masters in Earth Science – professional: 15 (14)
Masters in Atmospheric Science: 16 (14)
PhD in Earth and Atmospheric Science: 26 (27)
Postdoctoral fellows: 12

The current Meteorology Bachelor program replaced the former version in 2019, and it has proved successful in attracting a substantial new student cohort.

Faculty and Staff – We have 22 current faculty members, plus one new hire in climate modelling who will start in December 2021. A further new hire in Applied Geophysics will be advertised later this autumn. 2 professors are on semi-retirement, and one is fully retired, as of September 2021.

The department also has 2 emeritus professors, 12 adjunct professors, 12 sessional lecturers, 4 administrative staff, 2 IT technicians, 2 laboratory technicians and 2 research officers.

Research Groups – The department continues to host the Geotop and ESCER research groups. Geotop is a multi-institutional strategic cluster funded by the FRQNT, comprising 47 regular members (of which 17 from our department) and 46 collaborators, along with their research associates, students and postdocs. Research activities are oriented along 3 axes: Studies of past dynamics of the Earth system, Natural resources, Natural hazards and anthropogenic pressures – comprising several disciplines such as geochemistry, geochronology, geophysics, structural geology, hydrogeology, and environmental geology. ESCER is an institutional group within UQAM, comprising 11 regular members (7 from our department) and 10 external associate members. Their research concentrates on weather and climate, including hazards, climate variability and northern climate studies. The multi-institutional research group RIISQ, funded by the FRQNT, and hosted by UQAM's Faculty of Sciences, includes 6 members from our department, combining science, social science and humanities disciplines associated with flood-related hazards.

In addition to these three groups, UQAM researchers are active in several disciplines which involve collaboration with governmental organisations and industry, including economic geology, surface and environmental geology, hydrogeology, isotope geochemistry, geochronology, weather and climate modelling, and satellite missions.

Faculty members continue to be successful in obtaining external research funding via provincial and federal granting agencies (FRQNT, NSERC, CFI) and industry collaborations.

Challenges – (i) Decreases in student enrollment in many of our geology-based programs are an ongoing cause for concern, and we will need to develop a strategy to recruit new students, especially at undergraduate level. (ii) Almost 40% of our current faculty will retire in the next 5-10 years, and new hires are not guaranteed by the university. *Fiona Darbyshire*

UNIVERSITÉ LAVAL, Geology and Geological Engineering

Students & programs

- Current student enrolment for the Fall 2021 is
  - BSc Geology : 28 students
  - BASc Geological Engineering : 94 students
  - MSc Earth Sciences : 25 students
  - MSc Environmental Technologies (course program): 11 students
  - PhD Earth Sciences : 36 students
- Enrolment remains stable for our undergraduate programs but has seen a steady increase in our number of graduate students in the last few years.
- According to ULaval policies and guidelines, academic programs must undergo periodic evaluation every 10 years. This year, our MSc and PhD programs, given jointly with the Institut National de la Recherche Scientifique, and the BSc Geology program are evaluated.

Faculty and staff

- The department remains at 13 faculty members, 17 adjunct professors, one emeritus professor, and the following permanent staff: 4 professionals, 2 technicians, 2 secretaries. We have an increased number of research assistants and postdocs funded by external grants. The last count was about 12 research assistants and 10 postdocs.
- Challenges: renewal of a tenure-track faculty position in Geo-hazards and Ground Stability.

Research

- Microanalytical laboratory – CFI Innovation NOI (EPMA, FE-SEM, automated mineralogy SEM, XRD) – second attempt because the previous grant application was unsuccessful.
- Our research activities cover the following four broad domains: Mineral Resources, Water Resources, Geomaterials, Geo-Hazards. Our faculty members are active in several multidisciplinary research centers whose lead is in our department: Mineral resources (*CentreE4M, director is Georges Beaudoin*), Northern studies (*Centre d'Études Nordiques, province-wide research center, director is Richard Fortier; CFREF Sentinelle Nord - Complex northern systems, theme director is René Therrien*); Concrete infrastructures (*CRIB province-wide research center, director is Benoit Fournier*), Water Research Center (*CentrEau, province-wide research center, acting director is René Therrien*). *René Therrien*

UNIVERSITY OF NEW BRUNSWICK, Earth Sciences

The past year has essentially been one of stasis (faculty complement, graduate students and undergraduate numbers) during prolonged lock downs, travel restrictions and enforced public health protocols. Whereas the default state for 2020-21 was teaching remotely with in-person teaching (some labs) requiring approval on a case-by-case basis. In the current year, the default is reversed, whereby all courses are to be in person in the absence of special permission. After January 1, all classes are to return to full-person delivery. Notwithstanding the latter impediments, field schools were delivered without any covid incidents in both spring and fall 2021, albeit with some adaptations with respect to enrollment, locations and accommodation. It was necessary to triage field school applicants to ensure that those students depending on the course to graduate had priority. This has disrupted some of the details of prerequisite courses but has been manageable with the biggest impact being a backlog for coming field schools.

The new cross-disciplinary Environmental Science programs accepted the first students in 2021. The Department is optimistic of its effect on overall enrollment but it will require some time to see how the new programs are viewed by students. There is a cautionary positive blip in the first-year cohort but how this will break down in upper years is unknown.

Joe White Acting Chair

ACADIA UNIVERSITY, Earth and Environmental Science

Geology and Environmental Geoscience enrolments have recovered after a two-year dip, although the 2022 graduating group will be small. All classes are face-to-face and field courses and field trips are running again. Environmental Science enrolment also remains stable.

The new MSc program in Environmental Science has seen its first graduations and the MSc in Applied Geomatics in collaboration with NS Community College (CoGS) is experience a significant increase in enrolment. The MSc program in Geology needs more applications.

Acadia maintained classes throughout most of the COVID-19 pandemic, albeit with occasional short-term lockdowns and hybrid options. Two of these lockdowns happened during spring field school seasons, making for an especially large group completing field school in August instead of May. It was nice to teach field school in warm weather!

Our major challenge is now faculty and staff recruitment – all but one of our Geology faculty and staff will retire in the next 3−5 years, but the first retirement in 2022 has already yielded approval to recruit a replacement, a good sign in the long run. *Rob Raeside*

DALHOUSIE UNIVERSITY, Earth and Environmental Science

Enrollments

Year	2017-18	2018-19	2019-20	2020-21	2021-22
Total UG years 2-4	68 (ERTH)	55 (ERTH)	107 (ENVS) 60 (ERTH)	122 (ENVS) 47 (ERTH)	110 (ENVS) 56 (ERTH)
Total grad	12 PhD 10 MSc	11 PhD 13 MSc	11 PhD 15 MSc	16 PhD 14 MSc	17 PhD 9 MSc
Total enrollment	90	79	193	199	192

Until 2020/21 Earth Science undergraduate student enrollments were declining (-6) but this was offset by an increase (+15) in the Environmental Science program. This year the Earth Sciences program enrolment increased while the Environmental program enrollment decreased. First year enrollments in feeder courses for both programs are at or above capacity, which may be the result of successful on-line teaching in 2020-21. Graduate student enrollments continue growing as an expected result of recruitment by the newer faculty. This year several MSc students graduated leading to a decrease in their numbers.

Faculty and staff

One of the faculty gained as a result of the merger in 2019 with the Environmental Sciences program held the Elizabeth May Chair in Health and the Environment has moved to the Faculty of Health Science in 2020. The endowed chair was successfully replaced, start date January 2022. An additional search commenced early this fall in the area of Environmental Geoscience. By Summer 2022 this will bring the faculty complement to 15 regular faculty, and 8 instructors. The technician that helped to support primarily first and second year teaching has retired. This position will be replaced, but with more focus on supporting the field-based activities for both programs.

Support for Teaching and Research

The construction and delivery of the next generation ocean bottom sensors is underway. These will serve as the core infrastructure for the CFI-funded ($16m) National Seismic Imaging Facility (M. Nedimovic, PI). For this reason Dr. Nedimovic is on teaching and administrative release for NSIF Director.

Challenges

As a result of the merger, the department is embarking on significant renovations to teaching, office and research space (including new expansion into a wing of the building we occupy). Most of the design planning is complete, but construction has been delayed two times, and the start of constructions in 2022 is still uncertain

Trying to maintain a sense of community in a newly merged department has been a challenge. Most classes are in person (face-to-face), but it is not yet possible to get permission to conduct on-campus gatherings. Normally our students develop strong bonds through field courses and events with their societies.

Because we did not run any field courses in the Spring-Summer-Fall 2020 or Winter 2021, this has produced a big deficient in student progression towards their degrees. During Summer-Fall 2021 we held six field courses (all within Nova Scotia) plus face-to-face Intro to Petrology which was also canceled in Winter 2022. Field courses outside Province in 2022 are still uncertain.

Djordje Grujic, acting chair

CAPE BRETON UNIVERSITY

Our enrolment in courses taught for engineering and public health programs is down about 60% because most of the students we had in those programs were half-way through their degrees when the pandemic hit, so they completed their degrees online in the 2020-21 year. Our intake of new international students was very small because of ongoing travel disruptions and visa difficulties. We still have two full-time faculty members (one on sabbatical) and have two current term positions. The university refuses to consider any longer-term hiring even though this is the third year in a row where term employees outnumber full-time ones and student demand is high despite pandemic-related enrolment declines. Enrolment is up by about 50% in the introductory geology courses but down in the petroleum and environmental engineering technology programs, and drastically down (-at least 75%) in the public health program because of the travel difficulties for new students. All teaching was online in 2020-21, the 2021-22 year has all the geology courses back in person with labs running as normal. Field courses were allowed to run in person as well.

Deanne van Rooyen

YUKON UNIVERSITY, Earth Sciences

The Earth Sciences diploma program was formally launched this fall, delayed by one year due to COVID-19. The incoming cohort has eight students, small by typical university standards but deemed quite successful for a new program at a small institution. First-year introductory geoscience courses (Physical, Historical) have enrolments of 15-20 students, as do elective courses (Physical Geography, Soils) offered by the department for other programs. Core second-year courses (Mineralogy, Structural Geology, etc.) resume next fall after being on hiatus since suspension of the Geological Technology program in 2019. In Fall 2021, all science courses at the University returned to face-to-face classroom delivery with a very positive response from students and faculty alike.

The department has two full-time faculty (J. Cubley, M. Samolczyk), supplemented with sessional instructors from the university's Yukon Research Centre. A third full-time instructor will most likely be added next year to cover increased course demands; an advertisement is forthcoming in early Winter 2022. The department just received multi-year funding to develop a suite of Yukon virtual geology fieldtrips, with an additional hire anticipated to spearhead that project over the next 5-6 years.

The Earth Sciences program remains third-party funded, outside of the core grant provided to Yukon University by the territorial government. This has insulated the program somewhat from the general fiscal pressures facing other areas of the university, a very welcome position given the program's infancy. *Joel Cubley*

UNIVERSITY OF VICTORIA, School of Earth and Ocean Sciences

COVID-19 Effects and Return to Face to Face Instruction

Undergraduate teaching at UVic in 2020/21 is being offered in-person with online accommodation for just a single course in SEOS. We were able to teach our third- and fourth-year Field Schools in modified forms in the summer of 2020 making use of field locations closer to UVic and online instruction. This was only possible given the considerable efforts of our faculty and senior laboratory instructors to rework course materials and handle logistics for COVID safe fieldwork. Undergraduate registration numbers in 2020/21 are up slightly reflecting a significant increase in Faculty of Science enrolments. There is general enthusiasm about the return to the classroom for instructors and students alike. Workloads remain high and general fatigue and anxiety about pandemic still weighs on mental health of faculty, staff and students.

Undergraduate Program/Course Changes

SEOS continues to respond to changes suggested, and advice given, through our Academic Program Review process that was completed in 2020. A new program in Climate Science (joint with the Geography Department) which will have 2 streams: Physical Climate Science, and Impacts, Adaptations and Mitigation has been approved by the Faculties of Science and Social Science, and by the Senate Committee on Planning. It was approved at the October Senate meeting and will be considered by the Board of Governors in November. The three new courses cross-listed between SEOS and Geography for the program are in the calendar and being taught for the first time in the 2021/22 academic year. As part of the revision of our Earth Sciences program we have introduced a new coding and data analysis course (EOS/GEOG 230) that will be taught for the first time in fall 2021. This spring we will offer for the first time our Ocean Sciences Field School (EOS 401), a capstone experiential learning course for our Ocean Sciences programs, and are working on scheduling with Bamfield Marine Sciences Centre.

Faculty/Staff Changes

SEOS currently has 20 faculty members, although accounting for cross-appointments and secondments results in ~14 FTE positions. We also have a limited-term faculty appointment, 3 office staff, 3 senior lab instructors, a geochemical lab manger, and a scientific assistant.

Andrew Fraass joined us in July, 2021, with a research focus in paleobiology/paleoceanography. Anne-Sofie Ahm, a geochemist who uses sedimentary rock records to reconstruct the evolution of seawater composition on long time scales, will join the faculty in June 2022. We have hired 5 new faculty members in the past 5 years, which represents a significant rejuvenation (but not growth) for the School.

Kathy Gillis, who joined SEOS in 1994, will retire during spring-summer of 2022. Her leadership in the department and contributions to the teaching and research profile of the School will be greatly missed. Our long-time Administrative Officer Terry Russell, who has been with SEOS since the beginning 30 years ago, retired this year as well. Her contributions to the department as well as knowledge of day to day operations will be difficult to replace. Kristi Blyth began as SEOS Administrative Officer on July 1 this year. SEOS is also just finishing the hiring process for a new Department Secretary as Allison Rose, who has been with SEOS for 14 years, is taking a leave of absence for Professional Development. This overturning of key administrative staff represents a challenge for SEOS moving forward.

Jay T. Cullen

SIMON FRASER UNIVERSITY, Earth Sciences

Faculty and Staff

We have 17 faculty members consisting of: 1 Assistant Professor, 1 Associate Professor, 11 Full Professors, 1 Teaching Professor, 2 Senior Lecturers, and 1 Lecturer. We also have 21 adjunct faculty, 4 Associate Members, and 3 Professor Emeriti. Our staff consists of two office staff responsible for all administrative activities, 1 Senior Technician, and a Resource Specialist.

Recent and upcoming Changes

We are facing important challenges with our faculty compliment. This year, 1 Assistant professor (Brendan Dyck) moved to UBC-O in January and 1 Associate professor (Dirk Kirste) retired in September. We have an additional 3 retirements coming within the next two years. We are thus working closely with a new Dean of Science to make the strongest case possible for faculty renewal.

Enrollments

Our undergraduate enrollments have increased slightly, and we now have a total of 72 students consisting of 64 Majors, 4 Minors, 1 Honours and 4 Majors joint with Chemistry. Our undergraduates mainly take one of two streams, Geology or Environmental Geoscience, both of which lead to Professional Registration with the Engineers and Geoscientists of British Columbia. We continue to focus efforts on Recruitment and Engagement along with ongoing outreach in local high schools. We also continue to review our undergraduate program via detailed course mapping based on educational goals and core competencies. The aim is to streamline and ensure course offerings given the reduced faculty complement. In spite of the reduction in faculty, our Graduate program has also seen a slight increase with 52 students representing 23 PhD and 29 MSc.

COVID-19

In Spring 2021, we were fortunate to be able to offer a reduced but healthy number of Face to Face labs in 7 undergrad courses. The summer was challenging due to varying restrictions by the Province and University,

however, we nevertheless successfully ran our 3 field schools. This Fall, the vast majority of our courses (lectures + labs) are back F2F, albeit with mandatory masks.

Notable Awards:

- Professor Dan Marshall: CIMM Julian Boldy Geological Society Service Award
- Professor (emeritus) Doug Stead: Fellow of the International Society for Rock Mechanics and Rock Engineering

Challenges:

- Faculty coming up for retirement. A significant proportion of the faculty will retire in the next 5 years. We remain concerned about faculty renewal.
-Space
-Low Enrollments

Glyn Williams-Jones

UNIVERSITY OF BRITISH COLUMBIA – OKANAGAN CAMPUS

The Department of Earth, Environmental and Geographic Sciences currently has 18 faculty: 7 Professors, 9 Associate Professors and 2 Assistant Professor and 3.6 FTE support staff (four individuals). Two faculty members are cross-appointed with Biology and two currently are seconded to Associate Dean positions in the Faculty of Science.

Faculty updates: Dr. Bernie Bauer will retire in December 2021. Dr. Jeff Curtis and Dr. Ian Walker are retiring in June 2022. Dr. Kyle Larson was promoted to Professor in July 2021. Dr. Craig Nichol is on study leave until August 2022.

The department had two new faculty hires in 2020-21: Assistant Professor Mathieu Bourbonnais (Geographic Information Science) and Assistant Professor Brendan Dyck (Metamorphic Petrology).

A 0.5 FTE coordinator position was created to support the department's new Career and Personal Development (CPD) program. The position is held by Marni Turek who is also the department Watershed Management Research Extension Facilitator (0.5 FTE). The latter role is endowment funded and linked to the department's Forest Renewal BC Chairs.

A new teaching technician (0.6 FTE) was hired in April 2021, but left the role in August 2021 for full-time employment. The teaching technician position is being refilled.

Three new faculty searches have been approved for the current academic year: (i) Assistant Professor in Earth Observation, (ii) Assistant Professor in Geomorphology, and (iii) Associate Professor (with tenure) in Watershed Science. The latter position includes a UBCO Principal's Research Chair that provides a salary honorarium, research allowance ($20k/y) and a one course release for 5-years.

The department also is hiring two new full-time support staff this year: (i) a Senior Administrative Assistant, and (ii) a Department Manager. Searches have begun for both positions, which will increase the department support staff complement to 5.6 FTE (six individuals). Position (i) will provide admin support to our graduate programs. The number of M.Sc. and Ph.D. students in the department has doubled during the last three years. The individual also will support a new Bachelor of Sustainability (B.SUST) degree program that was approved last year by the BC government. The first cohort of students in the direct entry program begin in September 2022.

Retirements, secondments, study leave, and reduced-time appointments created challenges for covering undergraduate courses this year. The department currently employs seven sessional instructors to teach 17 courses during the 2021-22 academic year. The majority of our courses continue to be taught online. We offered a hybrid option though for large first year courses with laboratories, which appears to have been well-received by students. Enrolment in our first-year courses this year has increased by more than 50%.

The department launched a Career and Professional Development program last year that offers non-degree credentials. In the fall of 2020, a grant was secured from the BC government to create a technical communication skills micro-credential, consisting of eight self-paced modules delivered asynchronously over a period of 16 weeks. The program opened in February 2021 and to date has had an enrolment of >500 modules. A further three micro-credentials are under development and will open during 2021-22.

Conversion of the department cartography room to a 24-station GIS Computer Suite was completed in January 2021. The new lab is administered by the department and provides dedicated computing facilities for our degree programs, including a GIS helpdesk and printing facility in an adjacent room that will be staffed by graduate students. Our GIS courses have been taught online since January; however, students are able to remotely access workstations in the new computer suite.

In the spring of 2021, the department began a review and revamp of curriculum in the B.Sc. Earth and Environmental degree program. The curriculum visioning process is being facilitated by staff from the Dean's Office, the Provost's Office and the UBC Okanagan Centre for Teaching and Learning. All aspects of the undergraduate program curriculum are being evaluated, including teaching space and resources.

Edward Hornibrook

UNIVERSITY OF SASKATCHEWAN

Faculty complement

In the past two years, Profs. Jim Merriam (geophysics) and Jim Basinger (paleontology) have retired. Prof. Jim Lee (geochronology) joined the department from a position in administration. Prof. Joyce McBeth (geomicrobiology)'s term position ended. We now have 16 full time faculty, down slightly from previous years. Faculty includes 2 CRCs (Pickering and George), 1 NSERC IRC (Lindsay), the Murray Pyke Endowed Chair (Eglington) and the McLeod enhancement chair (Mangano).

Undergraduate Affairs

We offer undergraduate programs in Geology (65 students enrolled in the program), Geophysics (5), Paleobiology (11) and Environmental Geosciences (7). The environmental geosciences program graduated its first student in

2021. Classes in the 2020-2021 academic year were almost entirely online (2 labs were in person). During the fall of 2021-2022, classes are a mix of online and in person. All first year lectures are online. All of our labs in person. The university has not announced what the format for the winter term will be.

With the continued weakness in natural resources, undergraduate student numbers are still low and are roughly 50% of their peak values in 2013. It appears that graduating students are readily finding employment in geoscience-related jobs and so we are hopeful that the student numbers will increase in the next few years.

Field schools were run to La Ronge Saskatchewan in May, Flin Flon in August and a geophysics field school on the outskirts of Saskatoon in August. A new course on the Geoscience of Green Energy is being offered for the first time this year. Plans are underway to offer a new field school in environmental geoscience.

Engineering at U. of S. has overhauled their first year offerings and all incoming engineering students will now take a 3 week modular course in geology. This course is being offered for the first time this year.

Graduate affairs

Graduate student numbers remain similar to previous years (60 graduate students, roughly 2/3MSc and 1/3 PhD). *Sam Butler*

UNIVERSITY OF REGINA, Department of Geology

The department finished the designing of a Strategic Plan for 2021-2016, following recommendations from the Academic Unit Review (finished in 2019). We were launching it in April 2021 but we postponed it (due to COVID) to 2022.

We revised the Environmental Geoscience program to make it more flexible, up to date and more interdisciplinary. Elective courses in Biology, Geography and Engineering were included while making sure that the program continues to meet APEGS requirements.

In 2020, a total of 365 students registered in the first year course. There were 77 and 20 declared majors in the Geology and Environmental Geoscience programs, respectively. Our graduate student enrollment maintains steadily with 17 masters and 6 PhD candidates. Throughout 2020, we graduated 4 masters and 2 BSc honors. In 2021 we have 43 and 21 declared manors in Geology and Environmental Geoscience programs, respectively. The department currently counts with 7 tenured faculty, 2 tenure-track, 2 tenured lab instructors, and one technician.

COVID has imposed many challenges for our department, related mainly to the delivery of laboratories and field courses. In 2021 -unlike 2020- we could offer our 2 field schools in the field, while laboratories were taught online in the Winter 2021. To keep teaching the lab component of our courses, more than 200 sample kits, for 100-300 level courses were prepared and distributed, sometimes shipped outside Regina. In the Fall 2021, only the lab for the 100-level course was delivered online, the rest of the labs were in-person. *Maria I. Velez*

BRANDON UNIVERSITY – Department of Geology

Current Faculty:

- 4 Full-Time Faculty (all Full Professors), 1 Half-Time Professional Associate (shared with Northern Manitoba Mining Academy), 1 Full-Time Instructional Associate (Micro Analytical Facility Director), 1 "unfilled" Full-Time Instructional Associate (1st to 4th Year Geology Labs)

Programs:

- Undergraduate Geology Degrees: 3-Year Major, 4-Year Major, and 4-Year Honours
- Undergraduate Program Streams: Geology, Environmental Geoscience, Palaeontology and Stratigraphy
- Masters of Environmental and Life Sciences (MELS)

Current Student Enrolment:

- Geology Majors (24 students)
- Geology Minors (10 students)
- MELS (2 students)
- Service Courses (≈ 200 students)

Major Short-Term Challenges:

- Record low student enrollment (i.e., still going down).
- Unfilled Instructional Associate position.

Simon Pattison

LAKEHEAD UNIVERSITY, Department of Geology

The department consists of 6 full time faculty members (3 full professors and 3 associate professors), 3 emeritus professors, 1 administrative assistant, 2 technicians (lapidary services), 1 limited term appointment contract lecturer at the Orillia and Georgian College campuses. In addition to core faculty, our undergraduate program at the Thunder Bay campus is supported by several (3-4 per year) contract lecturers. The department also has 11 adjunct professors and 2 professional associates.

Pete Hollings completed his third and final three-year term as department Chair and has become the newly appointed NOHFC IRC Chair in Mineral Exploration In addition. Andrew Conly has taken on the role as department chair. Mary Louise Hill commenced a 3-year phase out retirement in June. Noah Philips will be joining the department in January 2022 as an assistant professor in structural geology.

Our enrolment numbers have held steady through the pandemic. We currently have 50 students in our undergraduate programs: 29 geology, 7 environmental Earth science and 14 in water resource science. In addition, we have seen growth in our MSc geology program, where we now have 16 enrolled.

The department has managed to maintain in person teaching to varying degrees throughout the pandemic. For 2020-2021 academic year, all lectures were delivered online, but labs for core geology courses were taught in person. Only large enrolment courses (first-year geology and engineering service courses) were delivered solely online. In fact, geology was one of the few academic units ensured in person offerings during the height of the

pandemic. For the current academic year, both lectures and labs are being delivered in person for all second and above years courses. Our first-year courses and engineering services course are being delivered in a hybrid manner, where students can enrol for either in person or online lectures and labs.

Our current (2 year) collective bargaining agreement expires August 2022. The main issues (continuing from our last negotiations) that we will be facing are reforms to the pension plan, improvements in collegial governance and dealing with limits in monetary issues imposed by the provincial government. *Andrew Conly*

UNIVERSITY OF WESTERN ONTARIO (Patricia Corcoran)

Current Faculty complement: 20 full-time faculty including 2 CRCs, 1 externally funded chair

Current staff/student complement:

- 4 Administrative Staff
- 15 support staff
- 90 graduate students
- 181 undergraduate students enrolled in years 2, 3 and 4 (does not include 1st year students). This number doubled since the Department has taken on the offering of the Environmental Science Program
- Approximately 2000 students in service courses per year

Programs:

- BSc Honors Specialization for Professional Registration in Geology, Geophysics and Environmental Geoscience
- BSc Honors program in Environmental Science
- Majors in Geology, Geophysics and Environmental Science
- Minors in Geology, Geophysics, Planetary Science and Space Exploration, and Environmental Science
- Graduate MSc and PhD programs in Geology and Geophysics
- Collaborative graduate programs in Planetary Science and Hazards, Risks & Resilience
- Joint JD/MSc in Geology or Geophysics and Law
- Focus on field education with 6 field courses offered each year

Major changes in the past year:

- Moved Western Environmental Science modules into our department
- Underwent an external Department review (associated with current Chair's end of term)
- Major preparations for GAC-MAC 2021 hybrid meeting (hosted next week)
- Another retirement (down 4 in past 2 years)
- 3 new faculty positions in progress (1. CRC in Multihazard Risk and Resilience; 2. Sedimentary Geology; 3. TBD)
- Heightened anxiety and impatience due to Covid restrictions

Major challenges in the future five years:

- Restructuring of current Environmental Science program
- Finding a new internal chair (external if necessary) and new Associate Chair team
- Raising funds for continued support of Robert Hodder Chair in Economic Geology *Patricia Corcoran*

UNIVERSITY OF WATERLOO, Earth and Environmental Sciences

Faculty/Staff

We have benefitted substantially in our teaching and research activities over the past year as a result of the new hires made in the preceding few years – 3 new assistant professors in Geomicrobiology, Integrated Hydrosystem Modeling and Biogeochemical Modeling, a spousal hire (associate professor) in Environmental Geochemistry and a research assistant professor in Critical Zone Hydrology. Also included are a continuing lecturer in Stratigraphy and Sedimentology and 3 definite term lecturers in Geophysics, International Programs and Early Year/On-line education. Four of the seven hires mentioned above are women, which significantly improved the gender balance in our department, but there is still work do in that area.

Current Student Enrollment

Currently we have 271 students in all years combined within our undergraduate Earth and Environmental Sciences programs (this includes 84 students in the China 2+1+1 program) and 63 in Geological Engineering. For our Fall 2021 first-year enrollment, we have 19 incoming students: 8 in Geoscience, 4 in Water Science, 6 in Geology and 1 in Geophysics. This number is the lowest enrollment since 2016.

The Geological Engineering program enrolled 10 students, the lowest number in a steady decline since 2012. The new director of the Geological Engineering Program has developed a comprehensive strategy that includes reaching high school students, to maintaining engagement with alumni. The Geological Engineering recruits are very qualified, but there is not a sufficient number of applicants to our program.

Fall 1st year enrolment	2016	2017	2018	2019	2020	2021
Earth Sciences*	28	31	20	24	25	19
Geological Engineering	21	20	17	12	13	10
*For Earth Sciences:						
2016 includes geology, hydrogeology, geophysics, geoscience						
2017 includes geology, hydrogeology, geophysics, geoscience, geochemistry						
2018 and 2019 include geology, hydrogeology, geophysics, geoscience, geochemistry, water science						
2020 includes geology, hydrogeology, geoscience, geochemistry, water science						
2021 includes geology, geoscience, geophysics, water science						

Our Graduate program enrolment is currently 97 students (40 PhD/57 MSc), including 6 Research Paper Option students. This Fall we admitted 15 MSc students, and 3 PhD students will be starting in the Winter.

Teaching

Despite most of our courses in the year being primarily online, we were still able to provide field experience in a number of courses. We continue to expand our on-line course offerings, building on the material and effort put into the overall pivoting to a virtual instructing environment as a result of the pandemic. We currently have 2 first year courses being developed through our Centre for Extended Learning and another 8 undergraduate courses in which blended learning components will be developed in 2021-2022.

Other Challenges

We are continuing our efforts to enhance outreach to local high schools in concert with institutional and faculty-level initiatives. We continue to focus on clarifying the distinction between all environmental options on campus and what we offer in the Geosciences. The Geological Engineering program has similar challenges in differentiating from Environmental Engineering.

The academic impacts of the pandemic have been most noticeable in our ability to get students into the field, whether that be for a lab assignment, a weekend or a couple of weeks. Our instructors, despite the obstacles, have in many cases, devised creative ways to deliver this key piece of our students' education.

Mario Coniglio

McMASTER UNIVERSITY, School of Earth, Environment & Society

SEES has a complement of 24 fully appointed faculty, and an additional 4 faculty members with joint appointments with other units at McMaster. The 24 faculty include 4 teaching faculty and 20 research professors. 12 of the research (full appointment) professors would be considered either earth or environmental scientists and of these, 11 hold NSERC awards. Among this faculty group, 2 members hold CRC chairs: Mike Waddington is a Tier 1 Chair in Ecohydrology and Alemu Gonsamo is a Tier 2 Chair in Remote Sensing of Terrestrial Ecosystems. Janok Bhattacharya is the Susan Cunningham Research Chair in Geology, a privately funded Chair. Finally, Dr. Elli Papangelakis will join us effective January 2022, and she will step into the new privately endowed Fairley-Gadsby Chair in Fluvial Geomorphology, focusing on stream restoration.

SEES faculty secured approximately $8 million in funding in 2020, and we average about 100 publications/year. A significant component of our undergraduate experience includes experiential opportunities, which start in our first-year courses and carry through 4th year. We offer a 2nd year field course to help recruit students to our program, as well as a 3rd year field course. COVID-19, of course, meant that all field camps, including our 3rd year Whitefish Falls trip, were cancelled in 2020. Given the importance of these courses to our curriculum, we were successfully able to run two of our three field camps in the late summer of 2021. With funding to create virtual field trips and online learning environments that enhance the virtual classroom experience, both camps were fully re-visioned. Students participated in hybrid field camps that included some virtual work (with the content of the virtual course material supported through several grants) as well as hands-on work in small cohorts. Conducting the camps in the local area meant that students came and went each day and we did not need to worry about accommodation issues. We hope to be able to run all field camps, including our second-year introductory field camp, next summer. COVID-19 has also meant that some faculty researchers have not been able to access their field research locations (i.e., US, Atlantic Canada) in the past two summers.

Our graduate student numbers have grown slightly over the past two years, and now stands at 95 students. Of these, the majority are full time (approximately 90) and 'in time' (73). Approximately 50% are PhD versus MSc, with a slight majority of graduate students in earth and/or environmental science. At the undergraduate level and following a full review and revision of our undergraduate program offerings in 2020, we have 228 undergraduate majors in our BSc programs, with enrollment remaining consistent over the past 2 years. Of these, 74 students are in our Earth and Environmental Science programs, with the balance in our Environmental Sciences and Biodiversity and Environment Science programs. We continue to emphasize APGO certification, and we will be adding new courses in geomorphology over the next 2 years. Undergraduate teaching has remained largely virtual through the fall of 2021, although some of our hands-on classes were allowed to proceed both last year and during the fall of 2021. McMaster expects to be near full capacity during the winter term of 2022 (COVID-19 co-operating!).

Bruce Newbold

BROCK UNIVERSITY

After teaching a year entirely online, we are back this year in a variety of formats, ranging from fully in-class to blended, to fully online. Most of our labs are now back to in-class offerings.

Our new program proposal for a degree in Earth and Planetary Science Communication has been revised and that revision has now been accepted by our academic review committee. As part of that revision, the degree has been changed from a BA to a BASc. Senior admin appears to be very supportive of this new program.

For the first time in over a decade our departmental faculty complement will change next year as two of our faculty opted for different versions of phased-in retirement. We have submitted replacement requests and will find out later this term how successful they were. Hopefully we'll be able to circulate an ad or two through this group later this year.

Despite the lack of physical open houses in the fall or spring, our first-year enrollment is the highest it has been in 5 years. This is most likely the result of us changing our entrance requirements last year to be more in line with other Ontario Universities.

Enrolment in the MSc program has continued to decline, in part because several faculty members are contemplating retirement in the next few years

(in addition to the two colleagues who have already opted for phased-in retirement). If we are successful in our application for replacements for these two individuals, we hope to see this trend reverse.

On the research side, we were happy to see the Mars Perseverance rover successfully land on Feb. 18, 2021 as Dr. Mariek Schmidt is a participating scientist on that mission. Closer to home, Dr. Francine McCarthy is working with researchers from several other universities, museums, and Conservation Halton to promote the varved sequence of Crawford Lake as a potential GSSP to define the Anthropocene Epoch/ Series.

In summary, we are happy to leave 2020/21 behind and are hopeful for the future. *Frank Fueten*

UNIVERSITY OF TORONTO, Earth Sciences

In July 2021, our Chair Russ Pysklywec stepped down after completing a very successful second 5-year term. Russ left the Department in great shape for the next Chair, and I am in the midst of getting up to speed on all Departmental matters. In terms of faculty complement, we marked the retirement of Prof Andrew Miall in 2021, welcomed three new faculty members in July 2021 (Profs Bennett, Sio and Swidinsky) and are initiating a search this fall in the area of "Mineral Systems" to replace a faculty resignation that took place in 2020.

Our campus returned to mostly in person teaching this Fall with lectures for our larger first and second year courses taking place online. It has been gratifying to see students back in the Department and back to labs as the COVID situation has improved in Ontario. We have been able to get small groups out for in-person field courses, and offered one of our field courses with online or in person options (taught by separate instructors). Our enrollments appear to be holding steady or increasing somewhat. Our student associations (both grad and undergrad) have been active organizing events such as online discussions and seminars, and in person including hikes or park meet-ups to help support a sense of community in the Department. Our seminar series is online this term and Department meetings have been held "hybrid" style using in-room video conferencing tools.

Research operations are returning somewhat back to normal with labs open and COVID safety protocols in place. Research travel within Canada has been taking place on a limited scale but international travel very restricted which is impacting some research groups more than others. We have stepped up our efforts to support graduate students, many of whom are experiencing delays in completion of PhD or MSc theses.

We are establishing a "Reconciliation, Equity, Diversity and Inclusion" committee to build on efforts already underway in those areas. We underwent an external review in Spring 2021 and are awaiting those results to develop a strategic plan for the next several years.

Sarah Finkelstein

UNIVERSITY OF OTTAWA, Earth and Environmental Sciences

Human Resources

Overall enrolment in our undergraduate and graduate programs remains relatively stable but is projected to increase with three more new faculty hires.

- 238 BSc students (Honours, majors): 163 in the environmental science program and 75 in geology, environmental geology, and geology-physics programs
- 2 PDFs, 25 PhD students, and 27 MSc students
- Faculty of Science enrolment up 7% in 2021; FoS is the second largest Faculty behind Social Science
- The GEO programs meet different requirements of Association of Professional Geologists of Ontario (PGO), and the EVS program is certified under EcoCanada
- 15 faculty members, including:
  1 CRC II Professor (in AMS technology, applications and development)
  1 Newmont Chair in Economic Geology
  1 University Research Professor
  (*3 of the 15 positions are currently active searches*)
- 1 replacement professor
- 2 teaching support staff
- 3 administrative support staff
- 1 research associate
- 24 research staff

<u>HR updates</u>

- Two professors on partial/full sabbatical / parental leave
- In advanced negotiations with AMS-related professor (oceanography); interviewing three candidates for Newmont Chair in Economic Geology; advertising for Environmental Geoscientist (interview winter 2022). The hope is that all positions start in Aug. 2022.
- Previous report (2020) stated that EES 1) hired tectonic geomorphologist (start Aug. 2021) and 2) was in advanced negotiations with candidate for Chair in Economic Geology. **Update**: 1) After clear negotiations were agreed upon, and design and construction plans were approved by VP Research Office, it was determined the renovation costs could not be solely be covered by CFI nor was the university going to cover the cost differential. The Tectonic Geomorphologist 'resigned' before arriving in Ottawa. 2) The negotiations with the candidate broke down after it was determined that the university does not have the space or funds to recruit a senior researcher.

Note: It has become clear with these protracted searches and physical resource delays (see below) that it is difficult to recruit established researchers to uOttawa who require substantial lab space and/or start-up funds. EES strategy for current Newmont Chair and Environmental Geoscientist searches is to focus on *potential* of younger researchers instead of hiring candidates with proven track record, despite one of the positions is a Chair.

Physical Resources

Building new lab facilities for Walker (AMS, oceanography) and Bataille (environmental geochemistry) [**updated from 2020**: despite securing CFI awards, these projects have yet to materialize. Walker is a CRC in his 4th year, and Bataille has submitted his dossier for tenure – both of these ECS will not have labs before Spring 2022.]

Noteworthy

Within the university, the Faculty of Science continued to take a leadership role during the covid-19 pandemic. uOttawa was the ~first university in Ontario to require vaccination from professors, staff, and students to be present on campus. The Faculty was the first in the university to submit health protocols for continuing research activities on campus. Currently (Nov 2021) the Faculty is operating at >90% capacity in research labs. For 2021-2022, courses <100 students are in-person. All field courses and field trips since April 2021 were conducted in-person. International travel for research is permitted.

Challenges

- Being mindful of mental health during the pandemic, and as society re-opens
- Need to grow to stay alive. Ideal rate is +2% / yr, but at the Faculty-scale, this is unsustainable
- Teaching capacity is still down 20%; very difficult for bilingual program (Francophone students are ~30% of university student population)
- Examining options to increase total student enrolment, including a 2 week summer camp for high school students