

Department of Biology

Biology Academic Unit Review (AUR): Five-year follow-up to AUR and Provost's comment on the AUR.
Richard Manzon, Biology Department Head, March 30, 2022

Preamble:

Biology very much appreciated the effort of the Academic Unit Review (AUR) committee, Provost and Council Committee on Academic Mission (CCAM) as well as others involved in the process both past and present. The AUR was conducted in April 2017, the Report of the Review Committee was received in June 2017, the Provost's comments were received in July 2017, and the Dept. Head of Biology and Dean of Science met with the CCAM and the Provost in October 2017. The report provided by the AUR committee was comprehensive and lengthy with many diverse and wide-ranging recommendations in various categories throughout the document. Based on the nature of the review, the original response to review, and consultation with the Dean of Science, it was decided that the recommended format for the five-year follow-up report would not be the most effective way to communicate our progress or position with respect to the various recommendations in the AUR document. As such I have opted to follow the format of the original response to the AUR and Provost's comments as prepared by the former Head of Biology, Dr. Harold Weger. For convenience, this five-year follow-up will present the original recommendation, Dr. Weger's response to the recommendation (*in italicized font*) followed by my comments where appropriate (in non-italicized font).

Response to the Academic Unit Review, and to the Provost's Comments on the Academic Unit Review
- Harold Weger; Biology Dept. Head – 4 January, 2018.

The Academic Unit Review was conducted in April 2017, the Report of the Review Committee was received in June 2017, the Provost's comments were received in July 2017, and the Dept. Head of Biology and Dean of Science met with the Council Committee on Academic Mission and the Provost in October 2017.

Individual points raised by the Review Committee, in their report, are addressed in order below. Not every single point is addressed, as that would make for a very long response, but the apparent major points have been addressed, as well as the issues that were identified by the Provost.

In general, the Biology Dept. agrees with many of the points raised in the Review Committee's report, but we also disagree with several points. Some of the points about which the Dept. disagrees likely arose from incomplete or insufficient information provided to the Review Committee in the Self-Study. Many of the responses below also include some additional information for the sake of clarification.

Points from the Academic Unit Review, Responses to AUR, Five-year follow-up

First Nations University of Canada

Page 5 of the Review – “Consider cross-appointment of FNUC faculty to increase graduate student opportunities, help constrain teaching duties (currently seem excessive for), and help tap into the Environmental Biology program (which was not described by the department). This would be in line with the recent MOU that has encouraged stronger linkages between the Federated Colleges and the University of Regina (e.g., for graduate student supervision).”

Response to AUR: *The First Nations University of Canada (FNUniv) has one biologist on staff, and she is a regular member of the Biology Dept. It's not clear what “recent MOU” was signed between the Federated Colleges and the UofR, but all Biology faculty at all Federated Colleges are regular members of*

the Biology Dept. (e.g. the Biology faculty member who has recently retired from Luther College). And the teaching duties for the Biology faculty member at FNUUniv are set by FNUUniv; the Head of Biology is not consulted about her teaching assignments. Should this FNUUniv faculty member supervise graduate students, they would be eligible for Biology Dept. TAships and for any other graduate student funding that is administered by the Biology Dept.

Five-year follow-up: Biology continues to retain close ties with Biology faculty at the Federated Colleges in all areas of the academy including teaching at all levels, research and service activities. For instance, Dr. Nicole Hansmeier is a faculty member at Luther College and Dr. Hansmeier's graduate student is a member of the Department of Biology with full access to Teaching Assistantships and Awards in Biology and routinely works in the Faculty of Science, IECS and IMSS institutes which are housed in Biology. To date we have not had faculty at FNUUniv supervise graduate students in Biology, but we have had undergraduate Indigenous students affiliated with FNUUniv conduct independent research projects with Biology academic staff.

Undergraduate & Graduate Programs Committee Structure

Page 5 of the Review – “Establish more formalized committees to guide the undergraduate and graduate studies programs, for backup and also for sustainability of programs and institutional memory. This also helps distribute the administrative work of the Department.”

***Response to AUR:** The Biology Dept. has a Curriculum Committee, which, while it largely focusses on the undergraduate curriculum, is also active in considering evolution of the graduate program. This three- member committee is very effective, and played a central role in the recent revamp of the Biology BSc programs. The Biology Dept. also has a Graduate Coordinator, responsible for all matters graduate student-related. In general, institutional memory is well-preserved in the Dept. committees as people who step off a committee tend to be very generous in helping train their successors.*

Five-Year follow-up: The Biology Curriculum Committee continues to be actively involved in undergraduate and graduate programming. Over the course of the past five years the membership has not changed; however, the committee now has a new chair and we are anticipating a potential change in membership to further contribute to maintaining institutional memory. Effective July 1 2022, Biology will have a new Graduate Coordinator who will also serve as the Biology representative to the Faculty of Graduate Studies and Research; this will further serve to maintain institutional memory as it relates to our graduate programming in Biology.

Departmental Planning

Page 6 of the Review – “The Department would do well to regularly review their vision of programming priorities. A five-year plan could help to identify how well the department's teaching programs integrate with their research activities and priorities. This would be particularly useful in developing different scenarios related to ‘no new recruitment’ and ‘no new money’. Such contingency planning should at least involve every member of the department in considering priorities and help build lines of communication that would carry the department's institutional memory into the next decade and beyond. Sustaining administrative support will also be important in achieving the planned activities.”

Response to AUR: (NB this point was discussed in the meeting with CCAM.) Biology is constantly tinkering with the undergraduate program, and two years ago instituted a fairly major revamp of the BSc program.

The revamp was the result of a lot of work on the part of the Biology Curriculum Committee (with a LOT of consultations), and was discussed and dissected at several department meetings. We admittedly had some missteps along the way, e.g. not sufficiently engaging stakeholders from other units, but we eventually rectified that (and we learnt about the difficulties associated with redesigning a program).

The Departmental consensus is that Biology should now stop making any substantive changes in the BSc program until we see how the new program is working (it seems to be working well as far as we can tell). While we are not currently pondering any substantive changes, tinkering is still happening (e.g. altering course descriptions and prerequisites).

The Department is also well aware of the financial circumstances of the UofR, and most other Canadian universities. We have had a lot of discussions, especially at department meetings, related to planning; we certainly do not anticipate any Departmental budget increases in the foreseeable future, and also do not anticipate any new hiring of faculty members in the short-term (although we appreciate the permission to hire a replacement Lab Instructor). And the Dept. Head has fruitful and enlightening discussions with the Dean of Science about long-term planning; these discussions have also been much appreciated.

Overall, the Biology Dept. disagrees with the suggestion of generating a five-year plan for the Department. We feel that we know where we wish to go (e.g. there is general agreement about the two undergraduate degree foci, and the similar that inform the research directions of the Dept.), and we look to take advantage of opportunities that come our way (e.g. the Canada 150 Research Chairs program).

Five-year follow-up: Although Biology has not officially embarked on a five-year plan, the current Head did begin consultations with Biology academic staff and the Dean of Science to discuss priorities for future hires with respect to traditional faculty members, CRC chairs, and Laboratory Instructors. With the global pandemic and the current fiscal constraints, these consultations became much lower priority as we all worked and focused on tending to immediate and pressing challenges associated with the pandemic to ensure we maintained excellence in teaching and research. It is noteworthy that over the course of the past five years Biology has continued to make small changes in our curriculum in response to student needs and opportunities. For instance, we have introduced two new medical microbiology courses (Biol 224 and Biol 303) to address the need for more accessible medical microbiology classes for health and medical science pre-professional students; these courses are delivered by of Dr. Nicole Hansmeier and assistant professor at Luther college and adjunct in Biology.

Indigenization

Page 6 of the Review – “The Department’s vision of promoting indigenous knowledge in Biology/Science is not identified, and could be much more overt (or more developed) at the department level.”

Response to AUR: (NB this point was discussed in the meeting with CCAM.) It’s admittedly true that the Biology Dept. does not have a formal plan for Indigenization. Our Indigenization efforts have been led by two Biology Dept. Laboratory Instructors and the FNUniv Biology faculty member. These three Biology Dept. members have secured funding for Indigenization work and research, and the results have been incorporated into a number of undergraduate Biology courses. This work is ongoing, and more funding has recently been secured. Furthermore, all three members presented a joint Biology Dept. seminar in Fall 2017 about their work in Indigenization (Biology Dept. seminars are attended by academic staff, graduate students and senior undergraduates). While this ongoing work by three academic staff members does not constitute a formal plan, it has pushed forward the Indigenization efforts of the Biology Dept.

As well, the Biology Dept. is now the official academic home of the Environmental Health & Science (ENHS) program of FNUniv. And the Dept. Head sits on the Board that governs the program (a Board is needed as the ENHS program must meet the accreditation requirements of the Canadian Institute of Public Health Inspectors). Two academic staff member from FNUniv made a presentation at the December 2017 Biology Dept. meeting about ENHS, and noted that enrollments had greatly increased since the transition to Biology as the academic home.

Page 2 of the Provost's Comments – “Part of that vision needs to be the Indigenization of curricula as appropriate. Another part needs to be a concerted effort by all of us to increase the admission and retention of Indigenous students into STEM disciplines, including Biology. Fourteen per cent of our campus student population is Indigenous. This number will grow in coming years. To serve the communities that surround and support our University, we need to ensure that Indigenous students are retained and supported to graduation in the full range of disciplines, including STEM disciplines. They are a key part of this province's future - and of the future of science in the province.”

Response to AUR: *The first year of the Biology program (BIOL 100, 101) for students at FNUniv is taken at FNUniv. This is also true of the other First Year Science programs and courses. Above the first year level, FNUniv students who major in Science take courses via the UofR, and to a certain extent, from Luther and Campion Colleges.*

At FNUniv, BIOL 100-SO1 is the lecture section for FNUniv students, while -SO2 is for other students. There are typically 10-15 students in section –SO1, compared with approximately 370 students that enter the weekday UofR BIOL 100 every Fall semester (plus another 50 students in the Saturday CCE version of BIOL 100). CHEM 100-SO1 had 12 students in 201730, and MATH 101-SO1 had 21 students in 201730.

5-year follow-up: Biology members continue to be actively engaged in the Indigenization of Biology curriculum and the retention and recruitment of Indigenous students into the STEM fields. Some initiatives and activities associated with Biology and Science over the past few years are detailed below.

- Braiding Sweetgrass, a book by Indigenous scientist Robin Kimmerer, has been woven into the curriculum of BIOL 266, bringing an Indigenous perspective of plants and the natural world into a typically Eurocentric-focused class.
- Our labs include local plant species, including tobacco and sweetgrass, so students can see and smell the plants that are spoken about in the recordings our Lab Instructors have done with Elders. The tobacco is also harvested and dried so students can use it in tobacco ties when respecting protocol with Elders.
- Many faculty members include a land acknowledgment in their course syllabus and give a land acknowledgment at the beginning of the semester.
- Through a President's Teaching & Learning Scholars award, a member of the department has been collaborating with instructors from geology and chemistry to create an interdisciplinary lab course to be used as a capstone course for the newly created minor in Indigenous Science.
- Members of Biology are integral to the running of the NSERC funded Science Camps for SK Indigenous Youth (SCISY). These camps are run in the community to bring STEM to Indigenous students, and encourage them to continue their studies in STEM through an undergraduate program.
- Biology faculty and staff participate in Science's yearly Professional Development Day on Truth and Reconciliation.
- Many Biology faculty and staff contribute to the Treaty Four Gathering Education Activities (which show students the excitement of STEM research at university), and in Science's activities for September 30th.

Professional Development of the Department Head

Page 6 of the Review – “The reviewers encourage the Faculty of Science to foster professional development opportunities for department heads, such as attending the meeting of CCUBC (Canadian Council of University Biology Chairs) for leadership in the Department of Biology.”

Response to AUR: *(NB this point was discussed in the meeting with CCAM.) The current Biology Dept. Head has never attended a CCUBC conference. My rationalization has been that I typically teach two large- enrolment courses in the Fall semester (360 and 76 students in Fall 2017), making it difficult to arrange to attend an October conference. I will look into the possibility of attending the 2018 CCUBC conference.*

On the other hand, I have not been entirely absent from professional development. For example, I attended the Faculty of Arts-organized day-long event on “How to be a Department Head” in 2014. In addition, I am a regular reader of the Chronicles of Higher Education and the HESA blog, among other resources.

Five-year follow-up: The current Department Head has attended CCUBC (Canadian Council of University Biology Chairs) each year for the past three years with financial support from the Faculty of Science. In addition, with the support of the Dean of Science, I completed the URLeading program during my first year as Department Head and have since attended several additional workshops offered through URManaging and other agencies.

Research Scientists at IECS

Page 8 of the Review – With respect to the Research Scientists at IECS, it was suggested that we “Consider redefining their appointment roles/expectations, to recognize their skills and potential as a resource to teaching, and include them more in the regular discussions of the unit.”

Response to AUR: *All three of the IECS Research Scientists are Adjunct members of the Biology Dept., regularly attend department meetings (although they do not have voting rights) and seminars, supervise graduate students, and serve on graduate supervisory committees. They are very much integrated into the life of the Biology Dept., and we appreciate their numerous contributions. Two of the three also teach courses, although teaching is made complicated by the fact that sessional lecturer funding must be found when they teach a course.*

Lastly, there are ongoing discussions about possible re-alignments of the three Research Scientist positions in IECS (these discussions are occurring above the department level).

Five-year follow-up: Two of the three Research Scientists at IECS have recently obtained faculty positions at other institutions; one of which was hired at the rank of Full Professor. IECS will be looking to hire replacement Research Scientists and it is expected that they will be fully integrated into Biology as were the previous members of IECS.

Post-Doctoral Fellows

Page 8 of the Review – “PDFs are insecure about their positions, benefits, employment status (under the Canada Revenue Agency), funding, and scope, and are trying to unionize. The institution is working on understanding and resolving this uncertainty, but it may be jeopardizing the effectiveness of work that should be focusing on career development toward industry/employment or academic positions. There is little funding from the institution or department to support PDF travel to conferences, and PIs have not fully covered conference-travel costs, which means PDFs are using their own funds for research-related networking opportunities. This is a general issue nationally, but certainly important for every individual PDF.”

Response to AUR: *Post-doc insecurity about positions is indeed a problem, here and elsewhere. These are generally term positions, and are run via a contract between a researcher/PI and the post-doctoral fellow. The contracts are a matter of negotiation, and each one is different; that may be an issue, in that uniformity is lacking. However, the Faculty of Science does have published protocols (available on the Science website) for appointing post-docs. These regulations include the fact that funding (at whatever level is specified in the contract) is guaranteed and the researcher must be able to demonstrate that the funding is in place, and that funding is then ear-marked (set aside) for the post-doctoral fellow. Furthermore, for post-doctoral fellowships that are administered through Human Resources at the UofR (as opposed to external agencies such as NSERC), the applicable federal taxes are deducted, as are EI premiums etc.*

My understanding is that vacation time and funding for conference attendance are also both part of the negotiation. Furthermore, it should be pointed out that graduate students also do not have a guarantee for funding for conference attendance; this also depends on arrangements made between the student and the supervisor. And no departmental funds are ever used to support conference attendance for anyone, with the exception that the Dept. does support undergraduate and graduate student travel to the annual Prairie Universities Biological Symposium.

It might be worthwhile to consider a University-wide policy about what should be the contract for a post-doctoral fellow. For example, whether the contract should require the inclusion of benefits. My understanding is that current University policy states that benefits are not to be part of a contract with post-docs.

Five-year Follow-up: Since the AUR, many of the concerns raised have been addressed with the unionization (CUPE 5791) of Post-doctoral fellows (PDFs), and Research Associates/Assistants (RAs). Biology and Science have also continued work to ensure these members of our Department and Faculty are recognized for their important contributions to the success of the institution. In Biology we invite and encourage PDFs and RAs to deliver departmental seminars and offer opportunities for them to teach courses as Sessional Instructors whenever possible. At the Faculty level, Science introduced a PDF/RA recognition day, and more recently an award for PDFs.

Collaborations with External Institutions

Page 8 of the Review – “The Department/University should establish or update Memoranda of Understanding (MOUs, or whatever it takes) to further develop the strong advantages of collaborating with scientists at the Royal Saskatchewan Museum and the Saskatchewan Centre for Disease Control); they are enthusiastic teachers (and gain exposure to potential students through teaching), and are very keen to offer research and employment opportunities to students (building future employees for their workforce). Six curators at RSM were suggested as available to teach up to 12 courses (6 and 6, on an every-other-year basis) in areas related to botany and systematics, ecology, paleoecology, ethnobotany, etc. This resource could be invaluable in programming, and build a route toward employment for students. This would also bring indicators of success for the University of Regina, in building the workforce of highly-skilled personnel for the Province.”

Response to AUR: *Three RSM scientists (“Curators”) are Adjunct members of the Biology Dept. One of the three scientists teaches a Biology course (Entomology) approximately every second year. Of the other two Curators that are Adjunct members, one has taught graduate courses in Biology (under the Selected Topics rubric). All three of the Biology-associated RSM scientists currently co-supervise Biology graduate students.*

Among the other three Curators at the RSM, one is an Adjunct member of the Geology Dept., another is an Adjunct member of the Dept. of Geography & Environmental Studies, and the third non-Biology-associated Curator is an Adjunct member of the Dept. of Archaeology & Anthropology. In short, the UofR is not overlooking any of the six RSM Curators.

Our most recent Adjunct appointment, is an employee of the Saskatchewan Ministry of the Environment (our second Adjunct from that ministry), and he is writing grant applications and co-supervising students in conjunction with Biology Dept. faculty. This is happening without the need for an MOU.

On a related note, the Biology Dept. formerly offered Ornithology (BIOL 485) via an Adjunct member at Canadian Wildlife Service; this member is too busy these days to do that anymore. Being “too busy” to teach is something that we hear frequently from our Adjunct members, and that is not surprising given the increasing demands on time and diminishing resources at many of the external organizations with which we interact.

Five-year follow-up: Biology continues to maintain strong ties with the Royal Saskatchewan Museum (RSM), the Saskatchewan Centre for Disease Control and the scientists at both institutions. Four curators at the RSM are adjuncts in Biology and are actively supervising one or more Biology graduate students each. Biology also continues to expand these fruitful and mutually beneficial relationships with other agencies; for instance, we also have adjuncts in Biology who are Ph.D. level researchers at Agriculture and Agri-Food Canada, Saskatchewan Water Security Agency, and File Hills Qu’Appelle Tribal Council (FHQTC) Office of Lands, Resources, Environment & Stewardship who are actively collaborating with Biology staff and students. Of particular note is Dr. David Fortin at FHQTC, who offers increased opportunities for Biology academic staff and students to build on existing relationships with local Indigenous groups and foster new relationships.

Luther College

Pages 8-9 from the Review - “Strongly advocate that Luther College should pursue a replacement position that would serve the needs of two programs: a position in Bioinformatics/Computational Biology would help fill an area of high demand in the Department and also contribute to needs for teaching (and research) in Computer Science. In addition, the challenges for Luther College to find start-up funding and teaching release for new recruits suggest that there may be some creative solutions possible for sharing resources with the Faculty of Science and the Biology Department (e.g., research facilities such as the IECS lab for visiting scientists, indirect costs funding, USRAs, TA-ships, etc.).”

Response to AUR: *Luther College “interviewed” three departments in Science as part of their pursuit for a replacement position. They eventually did decide in favour of a Computational Biologist position. This search is underway, and the successful candidate will become a regular member of the Biology Dept., will be more than welcome to interact (will be invited to interact) with other members of the Dept. (possible collaborators have already been identified), and their graduate students would be eligible for Biology Dept. TAships and for funding via the Biology allocation from the new Graduate Studies Base Funding system. If the holder of this position secures NSERC funding, then they would also be eligible to supervise students who possess an USRA. In terms of their research career, they would be treated in exactly the same manner as any other Biology faculty member (including having access to facilities at the IECS), while their teaching duties would subject to consultation between Luther College and the Biology Dept. (these consultations have already begun).’*

Five-year follow-up: Luther College did decide to recruit a biologist with computational skills, hiring Dr. Nicole Hansmeier who is a microbiologist with expertise in the area of clinical or medical microbiology. Dr. Hansmeier actively attends Biology meetings, teaches courses for non-majors and medical microbiology to Biology students, supervises Biology undergraduate independent and thesis research projects and is currently supervising one graduate student.

Gender Balance and Cultural Diversity

Page 9 of the Review – “The Department will not be able to achieve gender balance or cultural diversity in full-time faculty without opportunity for new hires. Females seem to dominate in the student population, in contrast to the low proportion of female faculty. As well, junior female faculty seem to have large commitments to service and teaching, although junior faculty expressed that good role models (e.g., more senior faculty) are generous in mentoring them, especially in grant writing.”

Response – *The Biology Dept. has long recognized that we have an issue with gender parity, and also with diversity; this is indeed an ongoing issue. One of our female faculty members was hired under an NSERC-sponsored program designed to increase female faculty members; the Biology Dept. used this program twice (in consecutive years), although in the first year we were unsuccessful. We have also made job offers to several female candidates over the past several years, and one member of a visible minority. Several female candidates have turned our offers, for various reasons, and the visible minority candidate turned down our offer in favour of a highly prestigious competing offer in the U.S. (I should point out that white male candidates have also turned down job offers in the Biology Dept.)*

We are hopeful that we can partially address the gender imbalance issue through the Canada 150 Research Chairs Program. Of the candidates put forward by the UofR, only the Biology Dept. application is still in play (Biology’s nominee, a female scientist from the U.K., is on the reserve list).

I strongly dispute the idea that junior female faculty have disproportionate commitments to service and teaching. Our female faculty members have the same teaching loads as other members of the Biology Dept. One of the faculty members was initially hired as a Lecturer, and did at that point have the highest teaching load in the Dept.; but upon her promotion to Assistant Professor her teaching load decreased. Furthermore, Dept.-level service commitments are not higher for these members, although one of them does have a substantial service commitment to URFA.

Five-year follow-up: Biology continues to be aware that we lack gender and cultural diversity, has had several fruitful and lengthy discussions on the matter, and several members of the Department have strongly indicated that our next tenure-track recruitment efforts should be restricted to EDI candidates.

CRC Positions and Teaching Capacity

Page 9 of the Review - “Some teaching capacity (approximately 1.5 courses per year) will be recovered with the end of 2 CRC terms. While minimizing or eliminating the use of sessional instructors for teaching is a laudable aim, the Department may need a few new sessional instructor appointments, given the low likelihood that there will be new recruitment of tenure-track faculty to replace impending future retirements. Possible budget cuts could also affect the number of TA hours and TA-ships (supporting graduate students) which in turn would affect program delivery and the learning experience for undergraduate students. “

Response to AUR: *One of the CRC holders has been teaching 2x the specified CRC teaching load while holding a CRC; this has been Dr. Yost’s preference. This faculty member’s teaching will not increase upon the expiration of his CRC Tier 2 appointment.*

A budget cut that results in reduced TA hours would indeed be a problem for the Biology Dept. We depend on TAs to help deliver the undergraduate laboratories, and help with grading in large enrollment courses. Also, the funding/stipend that we try to provide for all graduate students (\$18,000 per year) is partially dependent on TAs (while it varies with the number of TA hours that are assigned to a graduate student, the TAs are worth approximately \$5,000 per year per graduate student).

Five-year follow-up: Although Biology did regain some teaching capacity upon the expiration of Dr. Somers’ CRC position, over the past 4 years Biology has lost significant teaching capacity, albeit at times transiently, as numerous Biology faculty are generous and valued service contributors to the institution. For instance, Biology lost 1 and 1.5 years of teaching capacity as Drs. Finlay and Cameron contributed to the University’s strategic plan and covid response teams, respectively. In the past few years 3 Biology faculty have transitioned into out of scope positions (Drs. Yost, Hart, and Manzon), with reduced or no teaching requirements, and another is the URFA president (Dr. Hall). Biology is grateful for the support from the Faculty of Science and Provost’s office to recover some of this lost teaching capacity with the hiring of a 3-year term Assistant Professor in Microbiology to cover courses that were taught by Dr. Yost, and to the Faculty of Science for support for Sessional Instructors to assist with covering teaching of other classes and labs. Contract teaching staff are welcome and necessary; however, with a retirement on the horizon, strong student enrollment numbers in Biology, and the proposed expansion of the Nursing program, Biology will likely struggle to meet enrollment demands while continuing to ensure that the courses we deliver have the enriching and engaging hands-on laboratory experiences which makes us attractive to students. Recognizing the current fiscal challenges the University faces, it is unlikely that Biology will see increases to its Faculty compliment, but there are concerns that we will not be able to meet student demand without further Lab Instructor and Faculty teaching support.

Fieldwork Opportunities for Undergraduates

Page 11 of the Review – “Maintain and increase fieldwork opportunities for courses and program, given the strengths of ecology researchers in the department. There seemed to be some opportunities available to use the Cypress Hills Field Station for the field component of a variety of courses. Add a fieldwork course to the program

Response to AUR: *Three “ecology” Biology undergraduate courses currently include fieldwork in the local area, and one of these courses (BIOL 275, Ecology) is a required course. Additionally, Animal Behaviour (BIOL 380, an elective course) includes a five-day stay at the University of Regina Field Station in the Cypress Hills prior to the start of the Fall semester. Luther College formerly ran a 400-level field course in the Yukon; this course was eventually discontinued due to low enrollments and high costs.*

Biology undergraduate students are eligible to receive transfer credit for field courses offered by other institutions and organizations. While this requires pre-approval of the field course for use in the Biology BSc program, such approval is always forthcoming for bona fide courses. For example, courses offered by the Bamfield Marine Sciences Centre and Operation Wallacea have been used for credit towards Biology degrees.

Five-year follow-up: Although the global pandemic presented some challenges, Biology continues to offer field experiences in Ecology (Biol 275), Limnology (Biol 335) and Terrestrial Ecosystems (Biol 399-AC). Moreover, Biol 380 (Animal Behaviour) includes a 5-day field research experience at the Cypress Hills Field Station and many of our independent research (Biol 396) and thesis research (Biol498/499) undergraduates conduct field-based research as part of these undergraduate research classes.

Student Evaluations of Teaching

Page 11 of the Review – “Feedback to faculty on teaching has a very low response rate (~10% using the online tool). Consider reverting to paper surveys or have faculty do the evaluations by surveys in class. [There is an optical scanner available for student evaluations of teaching in the Psychology department on campus.]”

Response to AUR: *The suggestion to revert to paper-based surveys is a non-starter in Science. The Dean is not surprisingly looking to reduce costs, and the change to online surveys was part of the process to reduce costs. While the online response rate is lower than the paper-based rate, “10%” is perhaps an exaggeration of the situation. Science is examining ways to try to improve the online response rate, including using class/lab time to complete the surveys (similar to what had been done for the paper-based surveys).*

Five-year follow-up: No additional comments

Safety Training

Page 13 of Review – “Although there is some lab-safety training for graduate students, there is also a need for safety training for fieldwork (e.g. first aid, etc.) that addresses specific risks to students.”

Response to AUR: *The UofR’s Health, Safety & Wellness unit offers a large range of safety training courses, including a Zoonotic Disease Awareness Training (taken by all graduate students that work with animals) and arrangements to register for third-party First Aid training. These courses are extensively accessed by Biology Dept. graduate students and personnel, although First Aid is not a required training course.*

Researchers that have field-based programs ensure that their personnel are trained; training includes lab-specific safety training and safety manuals, and also acquisition of the required federal Pleasure Craft

Licence for those research programs that include motorboat operation.

Five-year follow-up: No additional comments

Graduate Courses

Page 14 of Review – “Some of the Advanced Topics graduate courses seemed to be scheduled on an *ad hoc* basis, as needed to accommodate students’ interests. Other graduate courses are a hybrid with an undergraduate course. These factors may create problems for students, as it is not ideal to have hybrid grad/undergrad courses on a graduate-student transcript.”

Response: *The Biology graduate degrees (MSc, PhD) are thesis-based and much focused on research. MSc students take a minimum of two courses, with the majority of students taking two or three courses. BIOL 803 (Research Methods for Biological Sciences Graduate Students) is a non-hybrid course designed for incoming MSc students, and is taken by the majority of the MSc students. The other courses taken by MSc students are either specialized courses in their discipline, typically taken as Special Topics courses or as Hybrid/Integrated courses. There is a wide diversity of research projects undertaken by graduate students, and formal graduate courses for one student at a time are not feasible in a unit of our size. Some of our graduate students have taken an 800-level statistics course offered by the Psychology Dept., and others have taken 800-level GIS courses via the Dept. of Geography and Environmental Studies. Lastly, I’m not aware of issues with having hybrid courses on a transcript.*

A recent addition (three years) to the roster of Integrated/Hybrid courses is BIOL 490BW/835AM (Modelling Biological Data). This course focuses on the use of “R”, which is a statistical analysis system that is rapidly becoming the way to do analyses in the biological sciences (and beyond). However, despite the relevance and currency of this course, it remains relatively low enrollment (four undergraduates and four graduate students in 201810).

PhD students in Biology take a minimum a two-part Comprehensive Exam (BIOL 801, 802), which, by regulation, are taken fairly early in the program. Additional courses may be taken by PhD students, and often include Statistics courses. Other courses are taken as needed, but the prevailing view is that PhD students who have passed the Comprehensive Exam are capable of a good deal of self-directed learning.

Five-year follow-up: Biology continues to offer Biol 803 (Research Methods for Biological Sciences Graduate Students) and Biol 835 (Biological Modelling) as graduate courses on an annual basis, and other courses as needed on an *ad hoc* basis. Although in an ideal world it would be beneficial for our graduate students to be able to select from a series of regularly offered classes, it is simply not practical to dedicate Faculty to regularly offering courses beyond the two aforementioned classes as there is limited demand for most of our graduate classes on an annual or even bi-annual basis.

Graduate Training

Page 14 of Review – “There seems to be encouragement for undergraduate students to seek out graduate training elsewhere (away from the department at the University of Regina). The department seems to have a traditional approach to graduate education. It would be useful to consider that this tendency (to send students away after they complete one degree) may have long-term implications for student recruitment, and place the Department at a disadvantage (retaining students with strong research skills), in comparison to other institutions who aim to retain students for further training (possibly by transferring from a Master’s to a PhD program without defending the MSc).”

Response: *We admit to having had a traditional approach to graduate training, suggesting to our BSc graduates that they go elsewhere for graduate training and trying to recruit graduate students from other institutions. This is an approach that formerly also had the approval of NSERC. We’ve now had*

many conversations about this issue, both formally and informally, and while there is no Departmental policy about this issue, all Biology faculty are now aware that there are other approaches to graduate training (especially, that the traditional view that BSc graduates should definitely head to a different institution is no longer universally endorsed).

In terms of transferring from the MSc to the PhD program, the UofR's FGSR has a protocol for that possibility, and the Biology Dept. has had several graduate students make that transfer.

Five-year follow-up: Biology faculty members continue to train their graduate students using a variety of approaches that best serve their needs and the needs of their students. This includes working to retain University of Regina students, but also to encourage both University or Regina students and students from other institutions to gain additional and diverse experiences both at our Institution and abroad.

Graduate Program

Page 15 of Review – “Consider developing a graduate program manual and graduate orientation session (e.g., a workshop with the graduate coordinator, the staff person supporting the graduate program (either from the department or FGSR), and representatives from the graduate student society) or a similar mandatory class.”

Response to AUR: *There is an online “Guide to Graduate Studies in Biology” on the Biology Dept. website. While there is no formal graduate orientation session, the first session of BIOL 803 contains a presentation by the Graduate Coordinator about graduate studies in Biology and at the UofR. Admittedly, PhD students do not take BIOL 803 and thus do not attend that session.*

Five-year follow-up: No additional comments

Animal Care Facilities

Page 15 of Review – “Having an animal holding facility brings huge opportunities for student training in research, and their subsequent entry into professional-education programs and employment. We learned that many students in the optometry school in Ontario come from the University of Regina, directly through their experiences in research using animals in the facility (.....). This facility could be used strategically to increase profile of University of Regina’s Department of Biology.”

Also on Page 15 of the Review – “A research cluster in integrated health might build a new strength in the Department and give opportunity to other departments to share recruitment and address needs for teaching expertise.”

Response – *We respectfully suggest that the above suggestions are not feasible at present, although we would certainly welcome further discussion about these points. The animal holding facility (which is officially known as the ARE Facility) is small and antiquated (barely meeting the standards of the Canadian Council on Animal Care; CCAC) and had been officially shut down several years ago when the construction of the new “vivarium” in the RIC was cancelled (the CCAC had approved the continued use of the antiquated facility as a pro tem measure). With the arrival of a neurophysiologist as a faculty member, we received permission from the CCAC for limited use of the ARE Facility. But even the limited use required some renovations (repainting, repair of water leaks and damage, adjusting of air flow, removal of certain items, and addition of emergency power) and the purchase of self-contained ventilated racks for mice and rats. The CCAC inspection of 2015 identified further deficiencies that had to be rectified (including the purchase and installation of a commercial dishwasher).*

The facility is only used by the neurophysiologist in the Biology Dept., and the day-to-day operating costs are borne by him and the operations of the unit are done solely by his research group. However, we are very grateful for the aid of the Research Office who coordinate the UofR’s President Committee on Animal Care (PCAC; which must approve all protocols involving animals in research) and the Faculty of Science who have hired a new technician whose duties include the weekly to twice a week arm’s

length inspections of the ARE Facility. Furthermore, the PCAC includes a consulting veterinarian, who has been hired by the University (Research Office). The Research Office also coordinates with the CCAC on the inspection visits (every three years). The next CCAC inspection is due for 2018, and, to be frank, we are worried about it.

In short, the one faculty member has made very good use of an antiquated facility, and his research program includes collaborations with local medical professionals (from the former Regina Qu'Appelle Health Region), but expansion of scope of the present ARE Facility is likely to be problematic. At present, we are more concerned with simply being able to keep it open.

Five-year follow-up: No additional comments

Collaborations with External Agencies

Page 15 of Review – “The nearby resource of scientists at the Royal Saskatchewan Museum and the Saskatchewan Centre for Disease Control could inspire graduate student opportunities in systematics, curation, microbiology/infectious disease, and environmental sciences and consulting. The Department/Faculty could build further on these opportunities.”

Response to AUR: *The Dept. of Biology has existing close connections with the RSM and the SDCL, with several members of each institution holding adjunct appointments in the Dept. There are currently five graduate students co-supervised between RSM scientists and Biology Dept. faculty members. And while there are no current co-supervised graduate students with the SDCL, there have been co-supervision students in the past, and SDCL scientists currently sit on Biology Dept. graduate supervisory committees.*

Both the SDCL and the RSM hire Biology Dept. undergraduate students for summer or term positions, and the SDCL also hires Biology graduate students and recent graduates (BSc, MSc, PhD) for term positions.

One member of the RSM teaches Entomology (BIOL 399AB) via Luther College in alternate years. Members of the SDCL formerly taught Medical Microbiology (BIOL 303) at the UofR, but have not done so recently due to time constraints.

Five-year follow-up: As discussed in the original response to the AUR and in the five-year follow-up above, Biology continues to maintain strong collaborative ties with various external agencies and several of our graduate students are funded and co-supervised by scientists in these agencies.

Teaching Releases

Page 16 of Review – “Consider granting teaching releases to junior faculty members with their first successful NSERC application as a PI. Release time allows faculty to strongly launch their research programs and HQP training initiatives, early in the grant cycle. Such teaching releases are available through collective agreements in other institutions in Western Canada.”

Response to AUR: *The Biology Dept. has traditionally offered new faculty members a graded approach into teaching, with new faculty expected to teach one undergraduate course in the first year of their appointment, two undergraduate courses in the second year, and reaching a steady-state of three undergraduate courses in their third year. This approach is designed to allow new faculty members to spend time developing both their research and their teaching. Furthermore, in keeping with the Faculty of Science Criteria Document, it is expected that service and administration by new faculty members is at a “participatory” level (i.e. much less service and administration is expected from non-tenured faculty compared to their tenured counterparts).*

Five-year follow-up: Biology will continue to offer reduced teaching load and reduced expectations for service contributions to its junior academic staff.

FGSR Council

Page 17 of Review (also mentioned on page 5) – The Report suggested that communication between FGSR and the Dept. of Biology could be improved “by involving the Graduate Committee Chair on the FGSR Council”.

Response to AUR: *The Biology Dept. Graduate Coordinator is now a member of FGSR Council.*

Five-year follow-up: No additional comments