Summary of Recommendations from 2018/19 Biology Program Review with PROGRESS report (from 2021)

The Department of Biology underwent a program review in 2018/19, and the external review panel made 7 recommendations which informed the department's action plan. Below is an itemized summary of our progress towards addressing the recommendations and actions, two years later.

Recommendations and Action Plan:

1) Faculty and Staff:

Recommendations: For consistency and quality programming, there is a demonstrated need for more full-time tenure-track faculty. While we realize finances are tight, if the Department is to maintain its high quality of teaching in small classes, and respond to increasing demands for Faculty to engage in research, **at least one more full time Faculty position would be a recommendation**.

Alternatively, or in addition, if it is possible to offer LTAs three- to five-year contracts instead of hiring year by year, that may impart a greater sense of stability to the Department. The Biology program at UBC has developed a novel mentoring system that also adds stability to LTA contracts. It would be worthwhile consulting them on their rationale and procedures.

Returning the 83% lab technician position to full time would also help alleviate the pressure on the rest of the technicians, allowing for more flexibility in scheduling vacations and covering sick leave as well as alleviating pressure at the busiest times of year.

Action plan: A full time tenure-track position will be recommended for the 2020-2021 budget year. The department has been given the green light to request and advertise for the new faculty position. Additionally, the staff position will be restored to full time as recommended.
Schedule for implementation: Advertise full-time faculty position by winter term 2020, pending final budget approval. Top-up staff position to full-time for next fiscal year.

PROGRESS *up to 2021 (from UFV Biology Department):*

The Biology Department has hired a <u>new</u> full-time permanent faculty member who can teach courses in Biology and also for the new Biochemistry major program (that started in 2020). We have two LTA's who are essential in both teaching and research in our department as well.

Our 83% lab technician position has been returned to a 100% position.

2) Lab/Research Space:

Recommendations: We realize there are budgetary restrictions and that there may be other renovation priorities at the University, but we would strongly recommend renovation of the remaining teaching and research spaces utilized by the Biology Department within the next five years or so. Meanwhile, we would suggest optimizing the use of the teaching lab in Chilliwack; perhaps a suite of first year Biology and Chemistry labs or second year and/or upper-level Biology labs could be offered in Chilliwack such that Abbotsford students could spend a "lab" day there. This might relieve some of the pressure on the un-renovated Abbotsford lab and research space. We realize careful co-ordination between Biology and

Nursing, who also use the Chilliwack lab, would have to happen as well as careful co-ordination with the Chemistry Department. Providing supplemental funding to the innovative student-run bus system would help to facilitate this while keeping expenses to a minimum.

Action plan: Deficiencies that affect health and safety of students and staff will be addressed as they arise. Upgrades and renovations are being considered for the next phase of renovations occurring this coming year in conjunction with the exterior building envelope upgrade of Building A East. However, continuing space needs will need to be addressed institutionally as there is the need for a Science/Research building.
Schedule for implementation: ongoing, but expect to have lab upgrades completed by Fall of 2020.

PROGRESS *up to 2021 (from UFV Biology Department):*

We have not had our proposals approved for renovation of some existing ageing and deteriorating teaching and preparatory laboratory spaces in Abbotsford (A328, A332, A334, A336). These spaces have not been brought to the same level as the most recently (2017) renovated ones (A337, A331, A335, A345). We suggest that this should be made a priority for UFV as this is becoming a safety issue for the institution.

We are still in discussions around how to best use the Biology space on the Chilliwack campus and is there may be nearby spaces which could be renovated to create much needed teaching or research space for our students.

There is some preliminary planning for some a new Biology lab and some more dedicated student/faculty research space in Building A West. The addition of this space would greatly enhance the ability of the Biology department to grow to respond to the increased student demand for our courses.

3) Office Space:

Recommendations: We recommend that every effort be made to provide LTAs with their own offices and computers, or at the very least a shared LTA office with University-provided laptops each so that confidential student information does not need to be stored on their own or shared computers. We also recommend that the Faculty of Science implement a one-semester exam storage policy and attempt to provide a central space for storage exams, with a regular schedule of confidential shredding administered by the department.

Action plan: We have procured additional offices in the T building but this is a temporary measure and a more permanent solution needs to be found. We are also considering placing lockers in strategic places to accommodate storage needs and have been in discussion with Facilities who are looking to find spaces in the temporary containers outside buildings C and D.
Schedule for implementation: ongoing. Immediate needs have been addressed but a more permanent solution needs to be found.

PROGRESS *up to 2021 (from UFV Biology Department):*

We have asked for more spaces for our faculty and we agree there should be dedicated spaces for LTA faculty separate from temporary short term sessionals. This has not happened yet. All of our faculty share offices and a few are in small offices with three individuals.

4) Equipment:

Recommendation: That the university commit to a stable and predictable budget for equipment acquisition, replacement and emergency repair. This fund may be supported in part by user fees for grant-supported researchers, assuming that they have budgeted for such in their grants. Going forward, some level of research overhead and/or requirement for researchers to include equipment use fees in grant proposals would help in this area. Implementing student lab fees as part of their tuition may be an additional option that could be considered; lab fees are charged at other institutions to help defray costs.

Action plan: As the Faculty of Science expected a surplus in this budget year, equipment replacement is a priority that is being addressed along with Chemistry and Geography laboratory needs. Faculty are encouraged to apply for external grants and include overhead costing for equipment needs. This has been under continual discussion with the Office of Research.

Schedule for implementation: Winter 2020 to Fall 2020.

PROGRESS *up to 2021 (from UFV Biology Department):*

We have recently put in a proposal to add nominal lab fees to our courses (with labs) to the University which was rejected by administration. Since many other institutions have lab fees this proposal would be one way that we could maintain our lab-based courses and help solve the issue around ageing equipment.

We have been able to upgrade several pieces of necessary equipment from capital given by the office of the Dean of Science. We do not have a long-term capital replacement plan in place at this time.

5) Course Offerings and Timetabling:

a) Upper-level offerings:

Recommendations: Careful scheduling of courses is a must so that options for students do not overlap and enrollments can be optimized. Perhaps fewer courses could be offered in areas of particular Faculty expertise and a stable two-year rotation for upper-level courses could be established, with the more popular elective courses being offered every year as well as the core courses. We would also recommend that some mechanism be put into place, either through advising or through talking to students in second-year classes, to gauge interest in upper-level electives and special topics courses so as to schedule them appropriately. As well, giving priority to upper-level students or adjusting pre-requisites in upper-level electives might allow upper-level students to take the electives they want. The Department is encouraged to continue to excel in instruction and offering hands-on laboratories for students.

Action plan: With the addition of a new full-time position in Biology, it should be possible to better plan for regular course offerings. Additionally, updating and reducing old courses at the upper level is in process.

Schedule for implementation: ongoing, expected completion within a year frame.

PROGRESS *up to 2021 (from UFV Biology Department):*

We have a five-year plan for offering all our courses in place with some courses given every term, some courses annually, and some courses every two years. We have minimized the numbers of 'special topics' courses we give to concentrate on our regular course offerings. Several obsolete upper-level courses have been removed from the calendar. We have updated the course prerequisites for many of our core biology courses for our Biology major.

We have continued to offer hands on lab components of many of our courses, even during the pandemic (with strict COVID safety protocols like distancing and PPE), unlike many other BC institutions.

b) Ecology offerings:

Recommendations: We would like to suggest that if another organismal/ecology type course was offered as an option in 2nd year, either as a requirement or as a choice (as is done for upper-level core courses), more students might pursue Ecology/Organismal biology as a concentration and it might take some of the pressure off enrollment in the other core courses at second year. One thought we had was that a course such as Plants and Animals of BC (BIO 330) could be moved to 2nd year, or a similar introductory course about local flora and fauna be developed; this would have the added benefit of introducing "Indigenous biology" early in the curriculum and make better use of Faculty with ecology backgrounds. Or BIO 219 Biogeography could be added as an option to the suite of core of second year courses. Perhaps BIO 202 (Cell signaling/gene regulation) could be moved to the upper level, as a core option or as an elective (as it is at many other universities in BC). We would also encourage the Dean to allow especially ecology courses to run with less than full classes for a time to establish a rotation that enables students in the ecology stream to graduate in a reasonable amount of time. The summer term may be an opportunity to offer students more courses in ecology and if advertised enough in advance, they may get better enrolments.

We also recommend moving the evolution course earlier into the course sequence (perhaps third year) and making it a required part of the degree. An evolutionary understanding is vital for biology, and also could serve to get some students excited about inquiry at the ecological scale.

In addition, we recommend either updating existing molecular courses to include more ecological content, or creating a new molecular ecology course. Molecular concepts and techniques and bioinformatics are becoming more and more important to the field of ecology. Concepts such as DNA barcoding, environmental DNA, metagenomics, and new population genomics methods are vital in ecology and would attract some more molecular-minded students to ecological courses.

Action plan: The departmental curriculum committee will be tasked to review the ecology/plant type course offerings and offer alternatives to the bottleneck currently seen in the cellular/molecular type courses.
Schedule for implementation: immediate and ongoing. The curriculum committee's recommendations are expected to be implemented in the next academic year (2020/21).

PROGRESS *up to 2021 (from UFV Biology Department):*

We have not yet established a committee to look into fundamental changes in the core courses we offer to establish different streams for Biology majors (e.g., ecology stream). We

continue to offer a core second year course in ecology and several upper-level courses in ecology (including a newly offered BIO340: Population and Community Ecology).

6) Advising:

Recommendations: Better coordination between Advising and the Department Head regarding scheduling will allow for students to plan their degree completion pathways with more efficiency. Efforts should be made to better gauge student demand for various courses, especially ecology and Special Topics courses and to ensure that the offering of these courses has been decided and announced well in advance of registration.

Action plan: The department will work with Advising to clarify the three-year plan for course offerings and will ensure the department website clearly indicates all the main courses that will be offered. The department will also try to add extra sections of high demand courses (e.g., BIO 309 Microbiology) based on previous year wait lists. Furthermore, the department will limit the offering of special topic courses to ensure the main courses listed in the calendar are offered annually or every two years in the fall or winter semesters. The department will also evaluate whether courses should be discontinued if they are low demand or no longer offered. To inform students of course offerings well in advance, faculty will be encouraged to consult with the Science Communications specialist to update relevant web-pages and other communication venues. This will be facilitated by the Department Assistant as well as the Faculty of Science Administrative Assistant and the Science Communicator.
Schedule for implementation: over the current academic year and ongoing, with curriculum review components to be implemented starting in 2020/21.

PROGRESS *up to 2021 (from UFV Biology Department):*

We have clarified and published (on the UFV biology website) a three-year plan for courses offered so students can organize their course selections over several years. The Dean's office has been very accommodating regarding adding extra sections for high-demand courses like Microbiology (BIO309). We offer popular field school courses in most summer terms (except during COVID).

7) Research:

Recommendations:
We would encourage the Research Office to be creative in finding sources of small to medium-sized grants for Faculty to continue research projects that involve students and the community rather than just the larger Tri-Council grants. Smaller research institutions have the advantage of being more closely plugged into the research needs of the local community, and, as evidenced by the research activities of the Biology Faculty, UFV is not an exception to this rule. While landing Tri-Council grants is the large prize, obtaining a variety of smaller (and some larger) locally-targeted grants could help to set the foundation for Tri-Council grants. In addition, some larger funding agencies have regular calls that often apply to local research activities. These include GenomeBC and MITACS. Successful grant applications, and then the research work and publishing made possible by using funds from such organizations, may help Faculty to ultimately land more NSERC Discovery (etc.) grants. In addition, we would like to draw the Department's attention to NSERC's new Alliance grants, all of which require partnerships, but some of which do not require matching funds, and none of which require applicants to hold Discovery grants.

We recognize that the transition from being a College to a University, where research is an expectation, is not an easy one. Many or most of the Faculty at UFV were in place during the transition, and not all of them may want to create large research programs at this point in their careers. While we feel that all Faculty at a university should be involved in research at some level, it is likely that some Biology Faculty will be more interested than others in the work required to develop a research program. Those Faculty members should be able to identify themselves and should have access to funds and programs that will allow them to excel in that area. Future hires should be made with research in mind. Workloads for both teaching and research then need to be considered and balanced depending on Faculty output in both areas. The Department should also make use of the Canada Research Chairs program to bring in new faculty or to retain existing faculty who would like to spend more of their time pursuing research, as the CRC program can be leveraged within an institution to improve the research output of other faculty members beyond the Chair.

Action plan: The Dean's office has been providing discretionary amounts of funding to facilitate research and support student researchers. This is obviously not enough, and faculty will be encouraged to become more active in seeking external research funds as well as in seeking internal sources of funding. Along with the Office of Research, the faculty has been made aware of various funding opportunities including the Alliance grants and it is expected that some faculty may apply within the foreseeable future.
Schedule for implementation: ongoing.

PROGRESS *up to 2021 (from UFV Biology Department):*

Many of our faculty have continued to pursue research projects with the majority of these including UFV students. Several faculty have collaborations with faculty from other institutions or with industrial or community partners. A number of our faculty have research focused on the local community.

UFV has made some funding available to help faculty establish research projects (e.g., hiring work-study students). The Dean's office has continued to support our offerings of directed studies courses (e.g., BIO408, BIO409) which are student research projects with faculty members.

Our dedicated research spaces (A334, A336) in Abbotsford are often very full in Fall and Winter terms and a new area for research is desperately needed. There is no clear dedicated biology research space on the Chilliwack campus.