Biology

Faculty of Science

Dean's Summary

Submitted by:
Dr. Michael Hitch, Dean, Faculty of Science

Accepted by:
Senate in November 2025
Academic Planning and Priorities Committee in October 2025

UNIVERSITY OF THE FRASER VALLEY

MEMORANDUM

Academic Planning and Priorities Committee

TO: James Mandigo, Chair, Senate

FROM: Tracy Ryder Glass, Chair, Academic Planning and Priorities Committee

DATE: October 27, 2025

RE: Biology Program Review

The Biology programs (honours, major, minor, and bioinformatics) within the Faculty of Science underwent a program review in 2025. The Academic Planning and Priorities Committee reviewed all of the documentation related to the program review and accepted them at its October 22, 2025 meeting and recommend to Senate for acceptance.

The Biology program review recommendations would allow for additional breath options to students plus reducing potential barriers. Options include the reduction of some five-credit courses down to four and removing required courses, such as MATH 112 and CHEM 214, noting that students interested in pre-vet/pre-med paths can still selectively choose the required courses. The department is also considering ways to match the RPBio requirements as an additional option for students. To align with other institutions, a required 2nd year evolution course is also being considered as a requirement. The review also notes that the department is committed to review and enhance the efficiency of many biology courses which could free up additional time for students to increase their breadth while also freeing up classroom resources.

The APPC congratulated the department on a great review and for providing such a detailed student-centred approach to the action plan.

Discussion and comments:

- The Biology department is committed to continually find ways to Indigenize and decolonize and appreciate the consultation that the Indigenization Teaching and Learning Specialist provides. Some courses have Indigenization components and faculty and staff continue their own educational journey. The APPC suggested that additional communication components could also be added.
- The APPC recognized the high level of student readiness, and it was noted that much is credited through effective communication and experiential learning opportunities for students to ask questions and faculty to share their research projects. Such opportunities include the Science Rocks camps, Bio Centre, and the Biology and Chemistry Association (BCSA). The department is also working to better support students who begin their studies in the summer term.

Attachment:

- Action Plan and Dean's Summary

Program Review: Action Plan

Biology (Honours, Major, Minor, Bioinformatics)

Curriculum and Assurance of Learning
Goal #1: The credit value of many science courses at UFV appears to be out of the norm in comparison with most other post-secondary institutions. The high number of 4- and 5-credit science courses (particularly BIO 111/112, CHEM 113/114, and PHYS 105/111/112) greatly inflates the credit requirement of Biology programs. This credit inflation results in a reduction of breadth in programs, where a large majority of the required 120 credits are mostly made up of science courses (80-85% for the Major in Biology), leaving limited opportunity for electives or to complete a Minor in another discipline. None of the students interviewed during the site visit were completing a Minor and they cited the limited room within the degree as a deterrent to completing a Minor. In addition, students expressed concerns that transfer of their high-credit courses may not be equitably recognized during transfers. We recommend that the Faculty of Science review credit value assignment for science courses, with a possible goal of realignment towards post-secondary norms.
Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal. The proposed goal addresses the high credit intensity of the first-year Biology program, which limits student flexibility and restricts opportunities to pursue Minors or electives. This structure also misaligns with provincial and national norms, hindering interdisciplinary study and transferability to other post-secondary institutions. These factors highlight the need to reduce first-year credit loads. However, given projected budget deficits in the near future, implementation will need to be deferred until the financial situation improves.
Tasks to complete the goal (add rows as needed): *Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.*

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Consultation with UFV PHYS and CHEM departments	Currently, first-year courses required for PHYS and CHEM majors (PHYS 111+112; CHEM 113+114) are also assigned 5 credits. To ensure consistency across science disciplines, corresponding credit reductions in these first-year CHEM and PHYS courses would need to be implemented in alignment with the proposed reductions in BIO 111 and 112.	Early 2027	BIO, PHYS, CHEM Department Heads
Evaluate and modify BIO 111 and 112 official course outlines to determine depth and breadth of material covered to constitute a 4-credit course.	New course learning objectives (CLOs) for both courses will be developed to reflect changes to course content and skills and will be based on feedback acquired from all faculty during curriculum committee meetings. Submission of revised official course outlines will undergo the "major course change" process at UFV (BIOCC > FSC > UEC > CWC).	Mid 2027	BIO 111 Sub-Committee (Chair: Marina Tourlakis) BIO 112 Sub-Committee (Chair: Jennifer Barrett)

Determine if 80-minute bi-weekly tutorial is needed for BIO 111 and 112	The current structure of BIO 111 and 112 includes 45 hours of lecture, 45 hours of lab, and 12 hours of tutorial time. With the proposed reduction of 5 to 4 credits, a decision will need to be made regarding the necessity of retaining the 12 hours of tutorial instruction with the revised credit framework.	Mid 2027	BIO 111 Sub-Committee (Chair: Marina Tourlakis) BIO 112 Sub-Committee (Chair: Jennifer Barrett)
Develop new OCOs for BIO 111 and 112	If financial situation improves and credit reduction is approved, changes will need to be made to official course outlines (OCOs) and approved through the "major program change" approval route: BIOCC > FSC > UEC > CWC.	Early 2028	BIO Curriculum Committee, Faculty of Science, UEC, Advising

Goal #2: To allow students to increase their breadth opportunities (completing a Minor, for example), we suggest reducing the number of math courses required from two first-year Calculus courses down to one. Given that many students may require two semesters of Calculus for certain career paths after graduation, we suggest that MATH 111 be required, while MATH 112/118 (or a statistics or computer science course) be listed as possible electives. Effective communication around this requirement and integration with Academic Advising would be important to properly inform students about whether they should take a second Calculus course (e.g., to meet pre-vet requirements).

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.

A central objective of the proposed revision is to reduce the number of required MATH courses in the BSc program to enhance student flexibility and support broader academic exploration. Currently, students must complete two first-year calculus courses (MATH 111 and 112). The proposed change would require only MATH 111, with MATH 112 or MATH 118 available as elective options for students whose academic or professional goals require further calculus.

This adjustment would not affect the current STAT requirements and will retain STAT 104, 106, and 270 as possible options to fulfill the STAT component of the BSc. Notably, STAT 270 remains mandatory for students pursuing **Registered Professional Biologist (RPBio)** designation. Additionally, students enrolled in the BSc Biology Honours program must still complete an additional 3-credits in STAT, choosing from STAT 271, 272, 307, 315, 330, or 350.

The removal of MATH 112 and 118 as core requirements aims to lower barriers to degree completion while maintaining academic integrity. These courses are not essential for all science majors and can still be taken as electives when relevant for post-graduate pursuits (such as medical, veterinary, or graduate studies).

In contrast, STAT requirements remain essential, as these courses provide foundational skills in data analysis, experimental design, and interpretation, which are all necessary skills for evidence-based scientific inquiry. This change promotes academic flexibility, supports interdisciplinary opportunities (pursuing a Biology Minor), and ensures that graduates possess strong research and analytical capabilities aligned with diverse scientific career paths.

Tasks to complete the goal (add rows as needed):

Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Program Structure Discussion	As this change affects multiple majors within the BSc, all departments affected must meet and discuss these changes (AGRI, COMP, PHYS, CHEM, PGES, MATH) working together with Associate Dean (Ian Affleck).	Fall 2025	Science Department Heads, Ian Affleck
Draft Documents for Major Program Change	This is a major program change affecting multiple programs and will need approval through: BIOCC, FSC, FSCC, UEC, CWC.	Late 2026	Science Department Heads

Goal #3:
Again, with the idea of freeing up more program space to allow students to increase their degree breadth, we suggest reducing the number of Chemistry requirements from 4 to 3 courses when appropriate in different concentrations. More specifically, it may not be beneficial for all students to have an additional Chemistry course at the second-year level or above, as they may be better served taking other courses supporting other interests. CHEM 113, CHEM 114, and CHEM 213, would still be required, but the additional 200+ level Chemistry course would be dependent on their specific stream (e.g., if required for students with a concentration in Cellular, Molecular & Genetics). Again, this is where seeking advice from an Academic Advisor would be valuable to students, and perhaps some more specific requirements for the different concentrations if appropriate.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
The current second-year CHEM 2XX requirement functions primarily as an elective, and because students can choose whether to take it, it is unclear whether it meaningfully contributes to the overall program learning objectives (PLOs). As a department, we propose removing the CHEM 2XX requirement from the BSc Biology program to enhance interdisciplinary flexibility, support students in pursuing a Biology Minor, and expand elective course options. BSc Biology students will still be required to complete 14-credits of CHEM through CHEM 113, 114, and 213, with each course including a weekly 3-hour lab. The CHEM 214 requirement will still be a requirement for students pursuing the Pre-Medicine/Pre-Veterinary Concentration in Biology, but CHEM 2XX will not be a requirement for students pursuing the Ecology and Biology of Organisms or Cellular, Molecular, Genetics Concentrations.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Consult with CHEM to remove CHEM 2XX Requirement, while maintaining CHEM 214 requirement for Pre-Med/Pre-Vet Concentration	Meeting with CHEM Department and CHEM Department Head to discuss removal of CHEM 2XX requirement from BSc Biology and maintaining CHEM 214 in the Pre-Med/Pre-Vet Concentration.	Fall 2025	BIO Curriculum Committee
Draft Documents for Removal of CHEM	Remove CHEM 2XX Requirement from BSc Biology. This is a major program change	Early 2026	BIO Curriculum Committee

2XX from BSc Biology major.	affecting multiple departments and requires approval via: BIOCC > FSC > FSCC > UEC > CWC.		

Goal #4:
In their Self Study document, the Department identified the lack of a required course on Evolution as a program shortcoming, and we agree with this assessment. We suggest the introduction of a course on Evolution to be required in 2nd year, and the modification of BIO 202 (Cell Signaling/Gene Regulation) such that it is not required or perhaps offered as a 3rd year course. The Biology Department has already begun work on some curriculum changes to incorporate an Evolution course at the second-year level, and we would encourage them to continue to pursue those changes to improve student breadth of biological knowledge, as well as to free up student timetable space with a 2nd year course that does not have a lab component as part of its pedagogy. This change may indirectly help address previous concerns about the Ecology concentrations not achieving advanced program learning outcomes, especially if upper-level ecology / organismal biology courses can now build on 200-level knowledge from both BIO 210 (Introductory Ecology) and a new Evolution course.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
Integration of Evolution into the 2nd year of the BSc Biology program brings our curriculum into alignment with other post-secondary institutions across BC. As a foundational course, Evolution provides critical conceptual scaffolding for a wide range of biological subfields, including genetics, ecology, physiology, and molecular biology. It supports students' progression into upper-level courses by establishing a unifying framework for biological understanding. Our curriculum mapping tool indicates that we do not teach some of our upper-level organismal courses at an advanced level, and Evolution present at the 2nd year can help us better reach advanced learning outcomes. Additionally, because Evolution does not require a lab component, offering it as a 3-credit lecture-based course increases accessibility while helping to reduce departmental financial pressures. Consequently, this change involves moving BIO 202 to a 3rd year elective i.e. BIO 302, which has shifted the second-year curriculum to be less focused on molecular content, allowing students greater flexibility to explore either organismal/ecological or molecular/genetic streams.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
*** All 3 tasks below must be done simultaneously. * Update OCO for BIO 416 to become BIO 216 (2nd year) mandatory course for BSc Biology**	The OCO and memo are prepared and submitted for approval as a minor course change, following the established pathway: BIOCC > FSC > UEC.	Early 2026	Jennifer Barrett, Sandra Gillespie, Dina Navon
Update OCO for BIO 202 to become BIO 302 (3rd year) elective	The OCO and memo are prepared and submitted for approval as a minor course change, following the established pathway: BIOCC > FSC > UEC.	Early 2026	Nathan Bialas, Greg Schmaltz, Justin Lee

Modify Changes for BSc Biology Majors Program and Biology Minors (BKin, BSc, BA [extended minor]) making BIO 216 (Evolution) a mandatory course	Update BSc Biology major program requirements and Biology minor requirements (BSc, BKin, BA [extended minor]) to have 2nd year mandatory courses BIO 201, 210, **216** (Evolution), and 220. This is a major program change requiring the approval route of BIOCC > FSC > UEC > CWC.	Early 2026	Jennifer Barrett, Dina Navon, Sandra Gillespie

Goal #5:
Both the Faculty and Students recognize the importance of hand-on skills learned in labs, however, the students felt that the labs could be run more efficiently. Students mentioned that several of the labs did not require actual experiments or hands-on skills, and were instead being utilized for seminars, presentations, etc. We suggest that the Department review the contents of upper-level labs and consider opportunities for running labs in alternate weeks, or perhaps incorporating different types of activities to meet pedagogical needs. This again could help to free up some space for students and allow them to take other courses to increase their breadth or pursue other interests. Further, it may be useful for the Department to assess workload across courses, as students also indicated that courses with equivalent credits had different workload expectations.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
With increasing classroom space constraints on the Abbotsford campus and a projected budget shortfall, it is essential to enhance the efficiency of our course offerings. The Biology Department will undertake a comprehensive review of all current BIO courses designated as "2 workload units/4 credits/90 hours/24 seats." This process will involve evaluating the course learning objectives (CLOs) of each course to determine whether they can be streamlined without compromising academic rigor or alignment with peer institutions across BC. Courses included in this review are: BIO 201, 202, 210, 301, 305, 306, 307, 308, 309, 330, 340, 360, 370, 380, 390, 403, 410, 418, 425, and 426.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Perform Curriculum Mapping and Review of OCOs for BIO 201, 202, 210, 301, 305, 306	Conduct a comprehensive evaluation of CLOs to assess the feasibility of implementing alternating-week lab formats, ensuring academic rigor is maintained and content remains aligned with standard at other post-secondary institutions across BC.	Fall 2025	Biology Curriculum Committee Lead Instructors of all BIO courses Claire Hay, Teaching and Learning
Perform Curriculum Mapping and Review of OCOs for BIO 308, 309, 330, 340, 360, 370, 380, 390	Conduct a comprehensive evaluation of CLOs to assess the feasibility of implementing alternating-week lab formats, ensuring academic rigor is maintained and content remains aligned with standard at other post-secondary institutions across BC.	Winter 2026	Biology Curriculum Committee, Lead Instructors of all BIO courses
Perform Curriculum Mapping and Review	Conduct a comprehensive evaluation of CLOs to assess the feasibility of implementing	Mid 2026	Biology Curriculum Committee,

of OCOs for BIO 309, 330, 340, 360, 370, 380, 390, 403, 410, 418, 425, 426	alternating-week lab formats, ensuring academic rigor is maintained and content remains aligned with standard at other post-secondary institutions across BC.		Lead Instructors of all BIO courses
Populate list of courses that could undergo alternate lab week format and draft memo and OCO changes	Upon successful review, all eligible courses for the alternating-weeks format will have their OCOs revised, and accompanying memos will be prepared to initiate the major course change process through the approval pathway (BIOCC > FSC > UEC > CWC).	Early 2027	Biology Department Head

Goal #6:
At present, both Biology and Chemistry offer required first-year courses (BIO 111, 112, CHEM 113, 114) in the Summer, but they are typically run in the condensed format. For example, this Summer BIO 111 and BIO 112 are offered concurrently in the May-June semester, and similarly for CHEM 113 and CHEM 114. Given that UFV International does not generally allow new international students to take courses in the condensed format, we suggest either those Summer courses not be run in the condensed format, or that it not be advertised that international students can begin their program in the Summer semester.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
BIO 111 and 112 have traditionally been offered in a condensed format during the Summer semester in response to student preferences for having July and August free. However, it has been determined that this accelerated format negatively impacts student comprehension and is not pedagogically sound. Additionally, it restricts students' ability to enroll in other courses during the Summer term. Some International students also begin their 1st year at UFV at non-traditional start times (i.e. Winter and Summer semesters) and the full-semester Summer format better facilitates incoming International students and improves course accessibility. Beginning in Summer 2026, BIO 111 and 112 will be delivered as full-term, non-condensed courses. To support this change, faculty and staff have discussed staggering their vacation schedules to ensure coverage during the July-August vacation period.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Discuss with faculty and staff to stagger vacation time to cover BIO 111 and 112 full terms.	Coordinate with faculty and staff to implement staggered vacation schedules, ensuring instructional and lab technician coverage for BIO 111 and 112 during full-term offerings in the Summer semester.	Fall 2025	Biology Department Head
Timetable BIO 111 and 112 in Summer 2026 for 13-weeks (full-semester May to August)	Schedule BIO 111 and 112 as 13-week full-semester courses for Summer 2026 running from May to August	Winter 2026	Biology Department Head, Biology Coordinator

Coordinate with CHEM Department to ensure CHEM 113/114 do not conflict	Ensure that CHEM Department Head is contacted to ensure no time conflicts with CHEM 113 (with BIO 111) and CHEM 114 (with BIO 112).	Winter 2026	Biology Department Head, Biology Coordinator

Goal #7:
To better facilitate student progress through the program for those who begin their studies in the Winter or Summer, we suggest exploring the feasibility of offering a section of BIO 112 in the Fall. Having this option would help these students stay on track and not fall too far behind when advancing to take courses beyond first year.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
We recognize that this may create a barrier for students taking BIO 111 during the Summer semester. To address this, we will begin offering BIO 112 in the Fall semester starting in Fall 2026. However, due to space limitations on the Abbotsford campus, this course will be offered exclusively at the Chilliwack (CEP) campus.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Timetable BIO 112 at Chilliwack Campus	BIO 112 is now offered at the Chilliwack campus beginning Fall 2026	Winter 2026	Biology Department Head, Biology Coordinator
Ensure no time conflicts of BIO 112 with CHEM 114	Consult with CHEM to ensure that BIO 112 does not conflict with CHEM 114 (as both courses are the 2nd part of first-year requirements in BIO and CHEM major programs).	Winter 2026	Biology Department Head, Chemistry Department Head, Biology Coordinator, Chemistry Coordinator

Goal #8:
At present, completion of BIO 111 is a prerequisite for BIO 112. The Department should review if direct entry in both courses with high school prerequisites (i.e., decoupling) could facilitate progress through the program. We understand that the current approach is set up to build essential lab skills between the first and second course, so some curriculum modifications would be required to facilitate such a change. This approach is used at many post-secondary institutions and may provide some flexibility for students who do not follow the standard 4-year pathway or semester sequence, and it may help address the issue identified in Recommendation #7.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
The current stepwise progression from BIO 111 to BIO 112 remains the most effective structure at this time. UFV is unique among BC post-secondary institutions in that it serves a geographically vast and diverse population, spanning from Metro Vancouver to Hope. As a result, we accommodate a wide range of academic preparedness among incoming students. While some students enter with prior in-person lab experience, the majority do not.

BIO 111 functions as a critical foundational course in the BSc Biology program, offering approximately one month of introductory lab instruction. This ensures that students gain essential competencies in areas such as scientific method, dilutions, spectrophotometry, microscopy, and pipetting. If BIO 112 were to proceed without BIO 111 as a

prerequisite, similar introductory content would need to be repeated at the start of BIO 112 leading to unnecessary duplication and reduced instructional efficiency.

Maintaining BIO 111 as a prerequisite guarantees that students enter BIO 112 with a consistent level of lab proficiency and confidence, enabling deeper engagement with more advanced material. Given UFV's distinctive student demographics and the variability in first-year preparedness, we do NOT support the removal of BIO 111 as a prerequisite. The current structure offers critical scaffolding that is aligned with the specific needs of our student population.

Furthermore, other post-secondary institutions in BC that have attempted to decouple these courses have reported decreased student success and preparedness in second-year coursework, reinforcing the importance of maintaining this current sequential model.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	*Key Milestone or Measurable Outcome*	*Timeline*	*Assigned to*
None - the BIO Department is maintaining are current sequential structure of BIO 111 and 112.	**N/A**	**N/A**	**N/A**

Goal #9:
While the Major in Biology was the primary focus of the self-study and the site visit, we noticed that the Minor in Biology (BSc/BA, Kin) is extremely credit-intensive, where 53-55 credits must be completed to satisfy its requirements (44-46% of the full degree). This is partly a result of the high credit value of many of the required courses (as identified in Recommendation #1), but also due to the large number of required courses. The BC Ministry of Post-Secondary Education and Future Skills (MPSEFS) has recently updated its Quality Assessment Process and Criteria for BC Public Post-Secondary Institutions. The BC MPSEFS defines a Minor as *a secondary specialization taken in a subject area outside the primary specialization, normally comprising 20-30% of the courses in a full degree program with 12-15 upper-level credits in the field/subject area of the minor*. We recommend a review of the Minor in Biology with a goal to realign its requirements to be more in line with the BC MPSEFS definition. This could potentially result in a bigger uptake of the Minor by students in other programs. This is also likely a concern for other UFV science Minors; therefore, the Faculty of Science could undertake a review of its Minors.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
Following further consultation with members of the BIO department, we concur with the feedback from our external reviewers that the current credit requirements for the Biology Minor are overly demanding, which likely contributes to low student enrolment in these programs.

We would first like to approach students in BKin, BSc (non-BIO majors), and BA with a formal survey to determine any barriers, which may prevent them from pursuing a Biology Minor. From this point forward the "Biology Minor" constitutes the BSc Biology Minor, BA Biology Extended Minor, and BKin Biology Minor.

To further address this, and in alignment with proposed Goals #3 and #4, we recommend a reduction in total credit requirements. Specifically, the removal of the CHEM 2XX requirement will reduce the total by 4 credits.

Additionally, offering BIO 216 (Evolution) as a second-year, non-laboratory course will reduce the Minor requirement by 1 credit. CHEM 213 (Organic Chemistry I) will also be removed, as it is not essential for the Biology Minor, contributing a further 4-credit reduction.

To enhance the flexibility of the Biology Minor, we propose expanding the list of eligible BIO courses that may fulfill the **current 2-course requirement** (i.e. one 200-level BIO course + an additional 200-level BIO course or an upper-level BIO from the following list: BIO 310, 330, 333, 340, 360, 380, 390, 410, 418, 427, 430, and BIO/IPK 477. The aforementioned listed courses require at most one 200-level BIO course as a prerequisite.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	*Key Milestone or Measurable Outcome*	*Timeline*	*Assigned to*
Conduct formal survey with BA, BSc (non-BIO major), BKin students	Formal review of survey results to determine barriers inhibiting students from pursuing a Biology Minor.	Fall 2025	Biology Curriculum Committee
Consult with CHEM to remove CHEM 2XX and CHEM 213 requirement from the BIO Minor	Complete consultation with CHEM and initiate a major program change process: BIOCC > FSC > UEC > CWC.	Early 2026	Biology Curriculum Committee
Update Advising and UFV website to reflect new changes	Coordinate with UFV Advising team to update the UFV website and academic advising materials to accurately reflect the revised Minor requirements and the addition of all BIO upper-level courses listed above to satisfy the current 8-credit requirement	Late 2026	Biology Department Head

Goal #10:
The Applied Bioinformatics certificate is an innovative program option that aligns well with a fast-growing biological subdiscipline. However, like other Biology programs, the requirement for 28 credits is high (more in line with a Minor - see Recommendation #9), and it may reduce the attractiveness of this program. This is reflected in the low number of students who have earned this certificate within the last few years.
Therefore, we recommend a review of the certificate with a goal to lower its requirements and improve its uptake by interested students.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
Over the past two years, only two students have completed the Applied Bioinformatics certificate, suggesting there may be barriers that discourage students from pursuing it. We propose distributing a formal survey to assess student interest in the program, raise awareness of the certificate, and identify any potential scheduling conflicts since some courses are offered in alternating years (i.e. BIO 333, 414, and 433). While BIO 202 could potentially be

removed from the certificate requirements (as it is expected to become a 3rd-year elective under Goal #4), the remaining courses are essential components of the Applied Bioinformatics curriculum.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Conduct formal survey with BSc Bio majors to determine interest in program and identify barriers	Distribute and collect responses of formal surveys. Analyze and summarize findings to determine direction of certificate requirements and promote better advertising.	Winter 2026	Biology Curriculum Committee
Removal of BIO 202 from list of required courses for certificate	Pending the outcome of Goal #4, BIO 202 can be removed from the list of courses required for this certificate. This would undergo a minor program change route (BIOCC > FSC > UEC).	Late 2027	Biology Curriculum Committee

Student Achievement

Goal #11:
We recommend that the Department expand on their strength related to student input on programming and establish a formal student advisory council. The students that we spoke with had some relevant opinions and ideas on the current Biology programming, and being able to address their concerns in a timely manner would benefit all Biology students.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
As a department, we strongly value and encourage students to share constructive feedback and raise concerns that may impact their success in our program or their future career opportunities. Beginning in Fall 2025, we will collaborate with the Biology/Chemistry Student Association (BCSA) to select a student representative who will attend monthly Biology Department meetings to communicate student perspectives and concerns. Based on departmental consensus, the student representative will participate only in the initial portion of each meeting, as some discussions later in the meeting may involve confidential matters.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Consult with BCSA to select student representative to attend and report at Biology Department meetings	Student representative begins to attend meetings and presents consolidated report (from student body) in Fall 2025.	Fall 2025	Mitra Tabatabaee / BCSA President

Governance and Resources

Goal #12: We recommend an upgrade for the first-year lab space to repair cabinetry and the faucets that are not currently available for use. The faucet issue (leaking, ineffective) points to a larger problem regarding communications and lack of consultation from UFV Facilities regarding updates and repairs that are beyond the purview of the Biology Department, but resolution of these issues may improve efficiencies and reduce issues with equipment.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
It is essential to ensure that all lab spaces are fully functional and free of hazards to support safe and effective student experimentation. While UFV Facilities has been contacted multiple times and provided timelines for repairs (such as fixing faulty faucets) additional follow-up is necessary due to a lack of progress on these issues.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Contact UFV Facilities to determine progress of faucet and cabinet repairs	Follow-up with UFV facilities to confirm the current status and projected timelines for faucet and cabinet repairs in lab spaces, ensuring progress is being made toward resolving this issue.	ASAP	Daylan Pritchard / Natallia Varankovich
Dean's office to follow-up if repairs are not made in a timely fashion	The Dean's office will follow-up if no progress is made into the upcoming Fall 2025 semester.	Summer 2025	Dean's Office

Goal #13:
We recommend that the Department explore options with the Dean of Science for a full-size autoclave to alleviate technician workload. At present, two small autoclaves are supporting both teaching and research, and technicians are sometimes staying past working hours waiting for loads to finish due to lack of automation.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
We currently rely on two small autoclaves, which often require careful scheduling (particularly during busy Fall/Winter semesters when multiple technicians are supporting several course sections and extensive prep work). Acquiring a larger, automated autoclave would help address these challenges by enabling overnight sterilization, reducing the need for lab technicians to remain on-site after hours. We are actively exploring placement options for this equipment, given existing space limitations.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to

Determine possible spaces to deploy larger, automated autoclave	Confirm space requirement for large autoclave.	Fall 2025	Natallia Varankovich
Determine feasibility of obtaining large, automated autoclave	Engage in discussions with Dean's office to explore strategies for reducing technician overtime and to request funding support for the acquisition of larger autoclave unit (~$40-$50K CAD).	2027-28	Natallia Varankovich

Goal #14:
We recommend that technical staff remain at current numbers (5 in Abbotsford, 0.5 in Chilliwack). This recommendation is based on the fact that teaching lab requirements are met by staff, but any reduction in technicians could cause issues for laboratory preparation (see Goals #14 and #15 for related issues).

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
We will maintain our current technical staffing levels to ensure consistent support for all lab teaching sections across academic semesters. At the same time, we continue to advocate for the addition of a Lab Manager position, as outlined in Goal #15.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Maintain current lab technician staffing FTEs	N/A	N/A	N/A

Goal #15:
We recommend that the Department produce guidelines to outline expectations for research student training between PIs and technicians to help with technician workload and planning. Currently there is variation in the level of student training received from PIs, which causes disparity and increases responsibility for technicians to provide assistance for research students.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
We are addressing this issue by developing dedicated faculty and student handbooks specifically for Directed Studies projects. This initiative aligns with our ongoing updates to the Biosafety manual and the transition of the Biosafety online training course to the Brightspace LMS platform.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to

Draft and modify faculty-specific directed studies handbook	Finalized version of handbook to be ready for Fall 2025 academic semester. Specific guidelines will address PI and lab technician responsibilities.	Fall 2025	Sandra Gillespie
Draft and modify student-specific directed studies handbook	Finalized version of handbook to be ready for Fall 2025 academic semester.	Fall 2025	Sandra Gillespie
Migration of Biosafety course training shell to Brightspace LMS	All training modules, certifications, assessments, and SOPs are successfully migrated to Brightspace LMS	Fall 2025	Justin Lee, Biosafety Committee

Goal #16:
From the site visit, we became aware of well-recognized, significant and long-lasting challenges around technical staff, which have the potential to erode personnel morale. In collaboration with the Dean of Science, we recommend that the Department advocate for more oversight and pressing action from the technician supervisor to resolve issues with particular staff. This may reduce the requirement for a technician manager to assign tasks to technical staff and, in combination with Goal #14, may also reduce the need for a full-time research technician.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
We have taken steps to address this issue by drafting a job description for the Lab Manager position, which has already undergone an initial review with the Dean's office. We are currently awaiting final approval, after which the position will be included in the November 2025 budget approval process (for the upcoming academic year).

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Draft job description for Lab Manager position	Draft is submitted to Dean's office for approval.	Summer 2025	Natallia Varankovich/Justin Lee
Receive financial approval for November 2025 budget meeting	As an item on the November 2025 budget, this position will either be approved or rejected as an upcoming position for the 2026-27 academic year.	Nov 2025	Dean's office
Hire Lab Manager	Pending results of financial approval, job posting will be advertised on UFV Career website and hiring process will occur.	Summer 2026	Biology Selection Advisory Committee, Biology Coordinator

Goal #17:
To help reduce redundancy (and cost) in ordering specific consumables, it may be worthwhile for the lab technicians in both Biology and Chemistry to collaborate to create an itemized central storage space that can be

utilized by both departments. By ordering in bulk, the overall cost of certain consumables could be reduced, and more could be kept on hand for immediate use (fewer orders to place).

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
While this suggestion may seem reasonable, discussions between the UFV Biology and Chemistry departments revealed minimal overlap in the specific consumables used by each department, aside from a few shared solvents such as acetone and ethanol. Additionally, certain analytical instruments in Chemistry require higher-grade/quality materials, meaning the two departments often purchase different grades/qualities of the same solvents. As a result, there is limited potential for cost savings through joint ordering.

The Biology Department has recently completed a per-student, per-lab section cost analysis for consumables. We recognize that introducing lab fees could help offset some of the current financial pressure. However, this depends on the Chemistry department preparing a detailed budget for lab supplies and calculating associated costs on a per-student basis.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Consult with CHEM department to draft detailed budget for lab supplies (on a per-student basis)	Finalizing of lab consumables budget (on a per-student basis) between Biology/Chemistry departments	Late 2025	Chemistry Department Head / Biology Department Head
Institute Lab Fees with the UFV Registrar's Office	Approval for instituting lab fees in BIO and CHEM lab courses (pending UFV Registrar's Office approval)	Early 2026	Chemistry Department Head / Biology Department Head

Planning and Sustainability

Goal #18:
The Biology Program is very well-suited to prepare students for different professions in the field by providing different options for concentrations and many experiential learning opportunities that result in a large set of practical skills. The program is in high demand and courses are typically full or near full. The Department has recently added new faculty to increase teaching and research breadth. The Department provides opportunities for training in two important areas of BC's job market: Health Care and Biotechnology. Students are trained in both of these areas, and the co-op program can add additional support for students to gain experience during their undergraduate degree. The program is well-positioned to adapt to future trends and to meet the needs of current and future learners.

The main limitation to growth is space, as laboratory spaces are occupied all weekdays, and available classroom space cannot accommodate large classes. Further, faculty are currently in shared offices, which is not ideal for student meetings or for capacity to do productive research. We recommend that the Department continue to work with the University to explore options to increase available space for teaching, research, and faculty offices.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
Given that our program emphasizes close student-faculty interaction and hands-on experiential learning, it is essential that we continue to grow as a department in collaboration with the University to explore opportunities for expanding our teaching, research, and office spaces. Many Biology faculty members have successfully secured external research funding, highlighting the need for updated infrastructure and modern research equipment to sustain a high-quality teaching and research environment. We remain committed to working closely with Campus Planning and the Senior Executive Team (President, Provost, and VP Academic) to support the continued development of our program and contribute to UFV's reputation as a leading institution for teaching and research.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Continued Discussions with Campus Planning & Senior Executive Teams to Increase Teaching, Research and Office Spaces	Construction of more teaching, research, and office spaces	Ongoing	Biology Department, Campus Planning, Senior Executive Teams

Goal #19:
Given the importance of co-op opportunities for student careers, we recognize a need to raise the profile of the University in the region to increase opportunities for co-op education and work-integrated learning (WIL). Student feedback indicated that opportunities may be limited because of institutional reputation (or lack thereof), despite the extensive practical training that students receive in Biology that should give them an advantage over others from larger institutions.

Describe the rationale for the Goal and provide evidence supporting the necessity for the Goal.
As a department, we will continue to invite a representative from CECE to present current WIL and Co-op opportunities to students in all first-, second-, and third-year Biology courses. This helps students plan and integrate WIL or Co-op placements effectively into their academic paths. Additionally, we will further develop partnerships with biotechnology companies across the Lower Mainland to expand Co-op opportunities, including ongoing collaboration with the BERRi research lab led by Dr. Lauren Erland.
Additionally, the Provincial Ministry of Agriculture and Food Plant and Animal Health lab is being built in the farmland directly adjacent to UFV. (News Release: https://news.gov.bc.ca/releases/2023AF0001-000089). Location here: https://fvcurrent.com/p/new-plant-animal-health-centre. Discussions with the Plant Health Lab have confirmed openings to hire future UFV co-op students and collaborating with UFV faculty on research projects.

Tasks to complete the goal (add rows as needed):
Identify the task(s) and describe the specific steps needed to address the goal, including key milestones and measurable outcomes. Identify potential issues and barriers, if relevant.

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to

Contact CECE for representative to attend 1st, 2nd, and 3rd year BIO courses	A representative from CECE visits Biology courses to promote potential WIL and Co-op placement opportunities for students.	Fall 2025	Yvonne Dzal
Establishment of future partnerships with Biotechnology companies around lower mainland	Initiate and develop strategic partnerships with biotech companies across the Lower Mainland to create opportunities for student internships, collaborative research, industry engagement, with the major goal of formalizing at least one partnership agreement by Fall 2026.	Fall 2026	Harley Gordon
Establishment of partnerships with Provincial Ministry of Agriculture	Develop research partnerships and secure co-op placements for students with Plant Health and Animal Health Lab	Fall 2027	Harley Gordon

Dean's Summary Statement

The BSc Biology program review action plan identifies key priorities for curriculum renewal, student flexibility, and program alignment with provincial and national higher education standards. Central actions include realigning the credit value of core science courses to reduce total program credits, thus enabling students to pursue minors or electives and improving transferability.

The department will consult with Chemistry to remove specific course requirements, streamlining prerequisites while maintaining essential pre-med/pre-vet pathways. Another critical action is introducing a required second-year Evolution course, facilitating a broader and conceptually unified foundation for higher-level biology studies; this involves shifting molecular content to the third year and balancing the curriculum toward both organismal/ecological and molecular/genetic streams.

Continued review of lab course prerequisites, including potential decoupling of BIO 111 and BIO 112, aims to enhance access and student progression for diverse entrants, while preserving essential skill-building elements.

Implementation steps include interdepartmental consultation, document drafting, and alignment of course schedules. Budget constraints may delay some changes, but measurable milestones are defined to ensure long-term program improvement and responsiveness to student needs.

Action Plan reviewed and approved by:

Information verified by:

Department Head: Justin Lee Date: May 22, 2025

Dean [name] Michael Hitch Date: September 26, 2025