

# **Bachelor of Science**

Faculty of Science

## Dean's Summary

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Submitted by:

Dr. Michael Hitch, Dean, Faculty of Science

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Accepted by:

Senate in November 2025

Academic Planning and Priorities Committee in October 2025

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## MEMORANDUM

Academic Planning and Priorities Committee

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**TO:** James Mandigo, Chair, Senate

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

**DATE:** October 28, 2025

**RE:** Bachelor of Science Program Review

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The Bachelor of Science program 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 APPC received an overview of the Bachelor of Science (BSc) program review noting that the reviewers were overall very satisfied with the program. The BSc is a feeder program for many disciplines and as such the reviewers provided a recommendation to review the mathematics and statistics requirements to see if they can be made more flexible while still ensuring they match the essential requirements for each of the disciplines. The reviewers also recommend continuing with the current department governance structure noting that “The current system works well for the departments offering the programs”. The report provides additional recommendations which will be relayed to the corresponding departments, such as renaming the “Math minor (statistics option)” to “Statistics minor”, consider developing a Data Science credential, identifying courses with high waitlists and adjusting for future demands, and reviewing the structure of the minors for efficiencies. A few other recommendations include continuing and expanding Indigenous student outreach, consider allowing students to submit their declaration in their first year of studies, and survey alumni and current students on various topics.

The APPC offered their congratulations for this great review and thanked the program review committee for their work.

Attachments:

- Memo to APPC
- Action Plan and Dean’s Summary

Program Review: Action Plan  
Bachelor of Science  
June 2025

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## Executive Summary

### Project Timeline

The first formal program review of the Bachelor of Science at UFV began in Winter 2024 with the formation of a Program Review Committee. The committee began by selecting some other comparable and aspirational institutions in Canada, and researching how their Bachelor of Science degrees compared to ours in some key areas. In Summer 2024, the committee worked on appendices to help guide the content of certain sections of the Self-Study Report, which was completed in Fall 2024. The External Review Committee participated in a virtual site visit in March 2025, and provided an External Review Report in April 2025. This Action Plan document responds to the recommendations made in the External Review Report.

### Key Recommendations

The External Review Committee's report includes a total of 27 recommendations, categorized into *Curriculum and Assurance of Learning*, *Student Achievement*, *Governance and Resources*, *Planning and Sustainability*, and *Other*. Those whose implementation would likely be most impactful are the recommendations to adjust the mathematics and statistics course core requirements in the Bachelor of Science, to allow students to declare entry into a major program upon admission to the degree (rather than after one year of study), and to reach out with surveys to prospective students, current students, and alumni of the program to help with student recruitment, retention and success. Our report addresses these and all other recommendations with a goals corresponding to each one, outlining tasks that will support progress toward each goal, with timelines and measures of progress where appropriate.

## Curriculum and Assurance of Learning

**Goal C#1: Determine Math and Stats requirements for general Bachelor of Science that best fit the academic needs of students as a core minimum, and propose this to the Faculty as an update to the degree requirements.**

### **Rationale/evidence in support of the Goal:**

From BSc External Review Report, Recommendations related to Curriculum and Assurance of Learning:  
*“Recommendation C#1: Replace the 8 credits in Calculus program requirement with 8 credits in Mathematics or Statistics, such that students might take courses more suitable for their program.*

*Description and rationale for recommendation: For example, integral calculus may not be required in every program. Replacing it, and possibly also differential calculus, with options that are inherently more applicable should improve retention and success rates.”*

The committee appreciates this recommendation by the external panel, but feels that “8 credits in Mathematics or Statistics” is too broad. In our opinion, a student graduating from a BSc should have at least one course in Calculus, while of course students in some of the more quantitative, analytical, computational Science disciplines need two or three. Furthermore, there should be some boundaries on the Math and Stats courses that can serve as the second course.

The status quo minimum Mathematics requirement in our BSc is two 4-credit Calculus courses, and there is no core minimum Statistics requirement. Should we propose replacing this with a requirement 8 credits of Mathematics and/or Statistics that includes at least one course in Calculus, it remains to be determined whether (a) the existing MATH 111 (Calculus I), which is primarily a course on Differential Calculus, would be appropriate to serve as this course, or (b) a new course should be designed that has a more even balance of Differential and Integral Calculus.

In recent years, we have seen many students struggle in MATH 111 to achieve the grade of “C or better” required to advance to MATH 112 or MATH 118 (options for the second Calculus course), where again many students struggle to succeed. If MATH 111 is the only Calculus course required in disciplines that don’t have a strong need for further Calculus study in undergraduate curriculum, such as Biology and Physical Geography, we may see greater retention of students in the BSc in those areas.

Meanwhile, there is a proposal underway to increase the high school Precalculus 12 prerequisite grade for MATH 111, due to observed success rates over the last 10 years. The rationale behind this proposal is to ensure that students entering this course are generally better prepared for it than they are presently. If this change is made, some students will need to take a university Precalculus course (MATH 096 or MATH 110) in advance of MATH 111. Removing the second Calculus requirement from the BSc would ensure that these students don’t have to take three Mathematics courses at university to complete their first-year requirements.

It is possible that the change in prerequisite for MATH 111 will turn some students away from applying to the BSc at UFV. It will be important to convey to local schools all changes to the math requirements in the BSc that are ultimately adopted – increased MATH 111 prerequisite, updated BSc math admission requirement, and/or decreased number of credits required in some Science majors.

Tasks to complete the Goal			
Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Survey other BC universities for minimum Calculus requirement in BSc programs.	Survey results shared with Science Faculty Council	Summer 2025 / Fall 2025	Associate Dean
Determine appropriate minimum Calculus requirement for UFV BSc, informed by survey.	Determination of appropriate first-year Math and Stats requirement	Fall 2025	Science Faculty Council
Propose updated BSc Calculus requirement.	Updated BSc	Fall 2025	Associate Dean
Communicate changes to BSc requirements to local high schools	N/A	January 2026	Associate Dean, Future Students Office
<b>Goal C#2: Review progress of students from lower-level to upper-level courses, considering which 200-level and/or upper-level courses would benefit from greater background in Mathematics and/or Statistics experience at university level.</b>			
<p><b>Rationale/evidence in support of the Goal:</b></p> <p>From BSc External Review Report, Recommendations related to Curriculum and Assurance of Learning:  <i>"Recommendation C#2: Provide some structure around the advancement of students through the years of the program. For example, one could require the completion of a certain number of 100 and 200 level credits before being able to enroll in more than a limited number of courses at 300 or 400 level.</i></p> <p><i>Description and rationale for recommendation: Being unable to complete a certain number of 300/400 credits until students advance past year 1 and 2 may help in promoting the progression of students through the program in an organized fashion."</i></p> <p>The Program Review Committee hasn't found that there is generally a problem with students' movement through the degree, except that some students whose programs don't require early completion of Calculus and Statistics courses (Biology and Physical Geography) postpone these courses until late in their degree, sometimes their final year. By that time, while they have gained some academic experience and maturity, the prerequisite mathematics high school material is no longer fresh, which puts them at greater risk of not succeeding in these courses – and with little or no time to spare if a class needs to be retaken.</p> <p>Some students who are not successful in an early attempt at a Calculus course (MATH 111, 112, or 118) postpone retaking it until later in their degree. There will be fewer such students if the entry grade requirement for MATH 111 increases, as has been proposed, and fewer still if there is a reduction in the Calculus requirements in the BSc.</p> <p>Ideally, BSc students should complete their 100-level Math and Stats courses within their first 60 credits, so (a) not too much time has passed since high school, and (b) the learning outcomes and skills from these</p>			

courses can be applied in the upper-level courses and research projects that are in their final 60 credits of study. However, creating course prerequisite barriers to students' advancement into third year courses, without evidence that the prerequisite introduces is truly in the students' best interest academically, would likely lead to frustration for many students.

Thus our goal here is to seek ways of motivating students to attempt their Math and Stats requirements earlier, without setting rigid barriers, while considering which particular upper-level courses' students would benefit most from having strengthened quantitative skills. By reviewing how student success rates in 200-level courses correlate with prior completion of 100-level foundational quantitative courses in mathematics and statistics, we can introduce these quantitative courses as prerequisites where (and only where) they are of significant benefit.

A good example of where this has been done already is the 200-level Chemistry courses. The CHEM 213/214 sequence, CHEM 221, and CHEM 241 all require simply CHEM 114 as a prerequisite, CHEM 224 (Atoms, Molecules and Spectra) requires CHEM 114, PHYS 111, PHYS 112 or 105, MATH 111, and MATH 112. CHEM 224 is required in the Chemistry major, but not in the minor.

#### Tasks to complete the goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Departments consider which 200-level and upper-level courses would benefit from more Mathematics and/or Statistics experience at university level than is currently required.	Report from each department	Fall 2025 to Winter 2026	Departments (other than Math & Stats) with major in the BSc
Request from Institutional Research data on when (after how many credits) students in the BSc are taking MATH 111, STAT 104, STAT 106 for the first time	Report from IR	Summer 2025	Associate Dean
Examine whether success rates in key mid-level Science courses correlate with prior completion of 100-level Mathematics and Statistics courses	Report from IR	Summer 2026	Associate Dean

**Goal C#3: Department of Mathematics and Statistics consider renaming “Math minor (Statistics option)” to “Statistics minor”, and/or investigating the possibility of building a Statistics major in the BSc.**

**Rationale/evidence in support of the Goal:**

From BSc External Review Report, Recommendations related to Curriculum and Assurance of Learning:  
*“Recommendation C#3 Add a statistics option more visibly into the Mathematics degree, or make a statistics degree available.*

***Description and rationale for recommendation: Statistics has an upward trajectory at other universities.”***

“Math minor (Stats option)” has been title of the minor since before there were STAT courses, when Statistics was treated academically as a branch of Mathematics, rather than as a distinct discipline. For this reason alone, the title is well overdue to be changed.

Also, the name of the credential could be an unnecessary disincentive for some students who are interested in Statistics but not Math, as it suggests that there is upper-level Math course content in the program – which is not the case.

The committee feels that changing the name of the minor in this way could help make it more visible and attractive to students, and will convey this to the Department of Mathematics and Statistics, where the minor resides. The department may also consider whether the time is right to design a Statistics major in the BSc.

The committee recognizes that the decisions on whether or not to pursue these initiatives are made by the Department of Mathematics and Statistics.

**Tasks to complete the goal**

<b>Task</b>	<b>Key Milestone or Measurable Outcome</b>	<b>Timeline</b>	<b>Assigned to</b>
Convey to Department of Mathematics and Statistics the suggestion to rename “Math minor (Statistics option)” to “Statistics minor”.	N/A	Fall 2025	Associate Dean
Convey to Department of Mathematics and Statistics the suggestion to create a Statistics major in the Bachelor of Science.	N/A	Fall 2025	Associate Dean



**Goal C#4: Department of Mathematics and Statistics explore the possibility of collaborating with School of Computing to develop a Data Science credential (certificate, minor or major) that can be done within the BSc.**

**Rationale/evidence in support of the Goal:**

From BSc External Review Report, Recommendations related to Curriculum and Assurance of Learning:  
*"Recommendation C#4: Explore the possibility and the demand for adding a Data Science or Data Analysis option at undergraduate level.*

*Description and rationale for recommendation: These degrees are also in demand at other universities."*  
 The committee supports this recommendation, but recognizes that the decision whether or not to pursue this initiative is made by the Department of Mathematics and Statistics.

**Tasks to complete the goal**

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Convey to Department of Mathematics and Statistics the suggestion to explore the possibility of collaborating with School of Computing to develop a Data Science credential (certificate, minor or major) that can be done within the BSc.	N/A	Fall 2025	Associate Dean

**Goal C#5: Gather feedback from BSc alumni upon graduation and 5 years later.**

**Rationale/evidence in support of the Goal:**

From BSc External Review Report, Recommendations related to Curriculum and Assurance of Learning:  
*"Recommendation C#5: Encompass a survey of alumni on their experiences and future successes. It may be possible to do this in collaboration with Institutional Research and Planning.*

*Description and rationale for recommendation: Feedback from alumni should be helpful in determining what works, and what does not work, in academic programs. This can provide valuable information for program improvements."*

The committee agrees with this recommendation. We believe an effective approach would be to contact graduates of the BSc twice. The first contact would be immediately after graduation, with contact coming from department heads. Questions would focus on their experience at UFV and plans for the coming years. At this point, BSc grads would be asked to provide (if they choose) an email address other than their UFV address, for later communication. The second contact would be five years after their graduation, to gather information about where they are now in academic study or career, and their opinion on how their experience at UFV has aided them so far.

Tasks to complete the goal			
Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Find out from IR and Alumni Office if this is already being done in a way that allows separation of BSc student data.	N/A	Summer 2025	Associate Dean
Find out if something similar is done for other degrees, like BA, BIS, BCIS, BBA.	N/A	Summer 2025	Associate Dean
Form Student Survey Working Group to plan surveys, to deliver June 2026.	Terms of reference for Student Survey working group	Fall 2025 to Winter 2026	SFC

**Goal C#6: Express support for first-year student success course and share suggestions below with the current working group.**

**Rationale/evidence in support of the Goal:**

From BSc External Review Report, Recommendations related to Curriculum and Assurance of Learning:  
*“Recommendation C#6: Include advice and training on basic study skills (effective study, test taking, written communication, time management, personal responsibility for education) into some of the discipline specific courses to address the increasing variation in preparation of incoming students.*

*Description and rationale for the recommendation: Students are more likely to heed this message if it is embedded in several of the courses that speak to their academic interests, instead of a single remedial course. First lectures of first-year courses or introductory lab sessions provide occasions where these topics fit naturally. “*

There is already a committee looking at building a study skills course for science students. The committee prefers the idea of a standalone course, rather than embedding the content in first-year courses, since (a) MATH 111 is the only first-year course that all students must take, (b) MATH 111 is packed full of content already, and (c) not all BSc students take MATH 111 in their first year.

We would like to express support to the committee building the study skills course, and offer the following suggestions.

- Course could be named something like “SCI 100”.
- Course could be 1-credit.
- Course could be pass/fail, rather than having an assigned grade that affects GPA.
- Course could span 2 semesters, with study skills focus in semester 1 (effective study habits, test taking, time management, personal responsibility) and scientific method and research exposure in semester 2.
- 100-level introductory Math and Science courses could have this course as a co-requisite, to ensure that it’s taken when the students first encounter first-year science courses.

- Course could be hosted on Brightspace, not delivered as a taught sections with instructors – partly to accommodate unpredictable demand.
- Course could be included as a prerequisite for 200-level Science courses, ensuring that it's complete by the time a student attempts these courses.

While the committee agrees that such a course could be helpful to many students, if properly designed and delivered, we also recognize that there are some challenges inherent in its implementation that will not be easily solvable.

For example, *adding* a course to the workload of every student in order to help them manage their workload successfully – even if the course is designed to be low-stress – could backfire for some students. Meanwhile, if too much emphasis is put on making sure that it's low-stress, then the students who would benefit more from its learning outcomes will find a way through without achieving the growth in maturity and study-skills that the course is designed to help them with.

Also, the budgetary impact of creating a 1-credit course, required for some 300 students annually, can't be ignored. The total tuition revenue from this course would be in the range of \$50,000-60,000 annually, roughly the equivalent of three 36-student 3-credit courses. Resources would be needed to administer the course, to acknowledge the work that students in the course are doing and provide feedback and advice. It's not clear (to this committee) where the funding would come from to provide appropriate supervision for such a course. We recommend that the working group for the course should investigate how supervision of such courses is handled at other institutions where they're offered.

#### Tasks to complete the goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Communicate support and suggestions to working group.	N/A	Summer 2025	Associate Dean

#### Goal C#7: Identify courses with high waitlists each semester adjust future offerings to accommodate demand in future.

##### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Curriculum and Assurance of Learning:  
*"Recommendation C#7: Review the situation and occurrence of waitlists for courses. If this is an ongoing problem, additional teaching resources may be required."*

*Description and rationale for the recommendation: Waitlists are apparently of sufficient concern to be mentioned in the self-study document, although it is also mentioned that extra sections are added and/or expanded, and/or extra sections are added in the following semester to accommodate the extra students. This is fine as a rarely used emergency measure. However, deferring students to course sections in the following semester should only be used as an exceptional measure, not as a regular band aid to deal with high student demand for courses. "*

With class size maximum set at 36, there will always need to be a careful balancing act for multi-section courses between the acceptable number of empty seats and the acceptable number of waitlisted students

who ultimately aren't able to join a section. It's always greatly appreciated when instructors overfill their classes to accommodate waitlisted students, but this is not possible in sections with meetings in science labs or computer labs.

Our proposed approach to address this challenge is in two parts. First, we must continue to be flexible and responsive during registration times, taking actions to accommodate unanticipated demand as it appears. Second, where such measures have still not prevented significant waitlists by the beginning of classes, we must make note of where that demand is, ensure that it can be met in the following semester, and update course planning for the following year lessen the likelihood that it happens again for that course.

#### Tasks to complete the goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Track waitlists during registration to identify opportunities for immediate accommodation of demand.	1. Log of Fall 2025 timetable updates made during registration 2. Log of Winter 2026 timetable updates made during registration	1. Fall 2025 registration period (June) 2. Winter 2026 registration period (November)	Department Heads and Coordinators, Associate Dean
Report waitlists on Day 1 of classes, flagging high waitlists (any course), and any waitlists in bottleneck courses.	Waitlist summaries by department.	First week of class, Fall 2025 and Winter 2026.	Department Heads and Coordinators, Associate Dean
Address those courses flagged with plan to accommodate waiting students and avoid waitlists in future	Plans for future timetable adjustments by department.	Third week of class, Fall 2025 and Winter 2026.	Department Heads, Associate Dean

#### Goal C#8: Review structure of minors in BSc, specifically whether the requirements of minors in a double minor should be the same as those for a minor that's taken alongside a major.

##### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Curriculum and Assurance of Learning:  
*"Recommendation C#8: Consider options to include Minor options with the Major degrees.*

*Description and rationale for the recommendation: Combinations of Majors with Minors that do not require too many additional courses would add value to the degree. This could be accomplished if a Minor might only require 4-6 additional senior courses in a different subject. The requirements could be different for Minors combined with Majors than for Minors combined with Minors."*

An important first step in addressing this recommendation is to determine what BSc students are currently doing with minors.

- How many students are doing (and have done) double minors? In which disciplines?

- How many are doing (and have done) major/minor combinations? In which disciplines?
- How do these numbers compare to the number of students doing simply a major?
- How is length of program completion affected by specialization structure?

Based on information learned from the questions above, and feedback from students, the Faculty of Science may consider changes to the BSc regulations around minors.

#### Tasks to complete the goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Get data from Institutional Research on minors.	Report from IR	Summer 2025	Associate Dean
In light of Institutional Research data, departments review size and shape of minors.	Reports from departments	Fall 2025	Department Heads
In light of Institutional Research data, SFC discuss BSc rules on minors.	Decision on BSc rules on minors	Winter 2026	SFC
Ask about minor in exit survey.	Exit survey creation, results	Winter 2026, Summer 2026	Student Survey working group (from Goal C#5)

#### Goal C#9: Assess need for more student feedback on courses and instruction.

##### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Curriculum and Assurance of Learning:  
*"Recommendation C#9: We have not detected any issues with teaching. However, it is surprising that not all courses are evaluated. It should be explored whether evaluation of all courses is beneficial."*

*Description and rationale for the recommendation: Online evaluations of courses at the end of the semester, but before final exams are written (and release of the anonymous results to the instructor after submission of the final grades) is widely used now to ensure high standards of teaching. Faculty can be apprehensive when this is introduced, but usually it does not cause problems (with the understanding that there can be the odd unprofessional comment from single students every now and then). General course evaluations can help faculty members to further enhance the quality of their teaching. "*

While the committee acknowledges the value of feedback to instructors from teaching evaluations, rules about when mandatory evaluations are done, and what questions are asked, must be addressed at the university level, with conversation between the union and administration.

An alternate approach would be to discuss within the Faculty of Science the idea of a feedback survey that is shared across Science courses, with information provided to the instructor only. Of course, agreeing on what should be asked on such a survey, and when and how it is expected to be administered, would be a challenge.

There is currently work underway in the Teaching and Learning Centre on the design of a course evaluation survey, which focuses on the course and its content rather than the instructor and the methods of instruction.

**Tasks to complete the goal**

<b>Task</b>	<b>Key Milestone or Measurable Outcome</b>	<b>Timeline</b>	<b>Assigned to</b>
Review course evaluation proposal, under construction by TLC.	Report from TLC	Summer 2025	Associate Dean
Discuss possibility of shared feedback survey, for instructor info only.	SFC Decision	Fall 2025	SFC

## Student Achievement

**Goal S#1: Review declaration requirements for BSc programs to potentially allow direct entry into majors and minors.**

### **Rationale/evidence in support of the Goal:**

From BSc External Review Report, Recommendations related to Student Achievement:

*“Recommendation S#1: Encourage students to declare their interest for a particular major upon enrolment or in their first semester at UFV, to get a clear picture whether retention issues affect particular programs more strongly, and also where possible to connect students with advising early on.*

*Description and rationale for recommendation: Together with the data from Recommendation 2, this will help to inform measures in the form of program improvement and resource allocation, to improve retention and graduation rates. “*

The committee feels this is a recommendation worth exploring. There are advantages to giving students the option of declaring a program specialization when they apply to the BSc.

- Students feel part of the community at UFV which learns and teaches in that discipline.
- Students won't be concerned that they might be denied entry into that program of study after investing a year at UFV.
- Departments can communicate directly with first-year students who have declared this interest, letting them know of upcoming courses, talks, events, volunteer opportunities.
- Students will be able to see a four-year recommended course schedule to help them plan course selection, beginning with their first semester.
- Data will be available on which disciplines are retaining students into second year, and where students are going who are not retained (another major, another program, another university).
- Departments can better plan for the number of sections that will be required to accommodate the students in their program in their first three semesters.

There may be concern that students who declare a major before beginning any classes at university may feel committed to stay in that major, so it would be important that students are clearly informed when asked about which program of study they are interested in declaring, that this can be changed at any point in their degree.

It also seems reasonable to give students the option to declare a major (or a major with a minor, or a double minor) upon admission to the BSc, without requiring them to declare. Those who prefer to remain undecided in their first year should be free to do so.

### **Tasks to complete the Goal**

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Bring to FSCC as decision item for recommendation to SFC.	FSCC Decision	Fall 2025	Associate Dean

Bring FSCC recommendation to SFC.	SFC Decision	Fall 2025	FSCC Chair
Propose updates to declaration requirements.	Proposals from departments to FSCC	Winter 2026	Departments

## Goal S#2: Survey all BSc students 1 year into their program.

### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Student Achievement:

*"Recommendation S#2: Follow up with a questionnaire for students who did not register for courses in second year regarding the reasons for their withdrawal.*

*Description and rationale for recommendation:*

*Together with the data from Recommendation 1, this will help to inform measures in the form of program, improvement and resource allocation, to improve retention and graduation rates.*

*The questionnaire should be short and in multiple-choice form, with optional open edit fields, to encourage high survey representation.*

*Reasons for withdrawal could be job offers, moving to another university, dissatisfaction with the chosen program or the program offerings, personal situation.*

*In this regard, we note that transfer students, building on the quality of education that they have received at UFV, may complete their degrees successfully at another university. These transfer students should be counted as a success for UFV. "*

The committee supports the idea of hearing from students at the end of their first year in the BSc, but propose to reach out to all students, not just those who do not register for second-year courses, for a few reasons.

1. It's not easy to know exactly who is not registering for second-year courses, as registration isn't until mid-June. Some students may not be available to reach by the time registration has settled.
2. Connecting with students in early May could help us to retain some who are undecided about what they might do in the coming year.
3. Even students who are planning to return for second year will appreciate hearing from department head of their program (or perhaps from the Dean's Office if they're undeclared), and being given the opportunity to have their opinion heard.

### Tasks to complete the goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Build Year 1 Exit Survey.	Survey proposal to SFC	Fall 2025 – Winter 2026	Student Survey Group (from Goal C#5)



### Goal S#3: Continue and expand outreach efforts that connect with local Indigenous students.

#### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Student Achievement:

*"Recommendation S#3: Continue the practice of inviting Indigenous high-school students to UFV campuses. Also contemplate an initiative to send faculty members to local high schools with a high number of Indigenous students, to talk about UFV and their programs."*

The committee supports this recommendation, and appreciates the recognition of the efforts in this regard in the past several years.

#### Tasks to complete the goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Set perennial event date(s) and secure funding.	Funding established	Summer 2025	Associate Dean
Establish ongoing team of student volunteers, faculty and staff hosts.	Database created	September 2025	Associate Dean and Departments
Identify high schools with high number of Indigenous students. Look into building a multi-disciplinary team that can commit to several outreach visits each year.	Team created	Fall 2025	SFC

### Goal S#4: Create questionnaire to be used at all outreach and recruiting events.

#### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Student Achievement:

*"Recommendation S#4: During the visits of high-school students on campus, or during class visits of faculty members, explore what other options students are considering for their studies or careers after graduation."*

*This could help to identify the causes why UFV is attracting a disproportionately low number of local Indigenous high school students. Exploring the students' considerations for plans after high school can and should be done in a very non-invasive and respectful way. Faculty members and advisors can be forthright about their desire to learn about improving UFV's offering and attractiveness for high-school graduates. Students will understand that and will be happy to offer advice. "*

The committee fully supports this recommendation.

Tasks to complete the goal			
Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Form Future Science Student questionnaire working group, working with Future Students	Group created	Fall 2025	Student Survey Group (from Goal C#5)
Design questionnaire to be shared with students when we visit schools, and when students visit UFV for special events, including Science Sampler days, contests, Science Fair, Open House, etc.	Questionnaire created	Winter 2025	Future Science Student questionnaire working group

#### Goal S#5: Continue with Science faculty member working part-time in Advising.

##### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Student Achievement:

*“Recommendation S#5: Where possible, designate a service role in BSc departments where a department member can be available as advisor for questions which are specific to the program.*

##### *Description and rationale for the recommendation:*

*A person with knowledge of the discipline can be a great ambassador for a program and help with student retention. That person could also be a very helpful resource for colleagues in the advising centre, and alleviate the workload of department heads for discipline-specific questions about programs. “*

The Science Advising team at UFV has a Science faculty member embedded, who is granted two course releases annually for an average of roughly 10 hours per week of advising work directly with students. The term of the appointment is two years, and every effort is made to rotate the position through different faculty from a variety of departments. This has the added advantage of creating “advising veterans” within the faculty in each department, who know first-hand the challenges that students face in planning their studies.

Furthermore, the Science Advising team has a designated representative who attends Faculty of Science Curriculum Committee meetings, Department Heads meetings, and Science Faculty Council meetings. This is invaluable in ensuring that communication between leadership, faculty and Advising stays current.

The committee feels that this initiative is working well to achieve the goals of the recommendation above. Identifying an Advising liaison within each department, with expectations of time and service commitment, might not be sustainable. We note that the department head and department coordinator of a program are available to answer questions about upcoming courses, etc.

Tasks to complete the goal			
Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
None required			

## Governance and Resources

### Goal G#1: Continue with current system of governance structure.

#### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Governance and Resources:

*“Recommendation G#1: Impose any changes of governance structure only with broad stakeholder support and with the best interest of the students being the prime consideration.*

*Description and rationale for recommendation: The current system works well for the departments offering the programs. “*

The committee fully supports this recommendation.

#### Tasks to complete the Goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
None required			

### Goal G#2: Increase opportunities for faculty to earn releases for research.

#### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Governance and Resources:

*“Recommendation G#2: Find innovative opportunities to free up time for faculty to engage in more research.*

*Description and rationale for recommendation: Research activity raises the profile and appeal of UFV for potential students. Research activity also improves currency of academic programs, makes senior undergraduate courses more interesting and more relevant, and allows faculty members to supervise research projects which are relevant within the context of current research in their field. “*

While the committee supports this recommendation, it may not be easy to financially support research releases in the upcoming few years, with budgetary uncertainty.

We propose requesting consideration of special one-course release granted by the Dean for faculty members who meet the following conditions:

- the faculty member’s research work will include mentoring students through student research courses (such as BIO 408, CHEM 408), and
- the faculty have no other releases – to ensure that this initiative increases the number of faculty with releases, not just the number of releases.

Such releases would be at the Dean’s discretion, and likely there would be a certain maximum number available each year.

Tasks to complete the goal			
Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Request consideration of special one-course release from Dean for faculty members (a) with research programs that involve students in research courses, and (b) with no other releases	Response from Dean	Fall 2025	Department Heads
<b>Goal G#3: Create opportunity for new faculty to earn release for research in second year or probation.</b>			
<p><b>Rationale/evidence in support of the Goal:</b>  From BSc External Review Report, Recommendations related to Governance and Resources:</p> <p><i>“Recommendation G#3: Reduction of teaching for research active faculty should involve reduced course assignments and the provision of teaching assistants for marking assignments in 100 or 200-level courses. Furthermore, new faculty should receive teaching relief during the pre-tenure period to support building their research program.</i></p> <p><i>Description and rationale for the recommendation: Please see rationale under Recommendation #2.”</i></p> <p>The committee isn’t confident that the Collective Agreement allows for teaching assistants to take on tasks that are within the workload description of faculty teaching classes, such as marking. Supported Learning Group meetings and drop-in centres such as the Academic Success Center and the Math and Stats Centre provide employment opportunities for students in service roles that are outside of course teaching responsibilities.</p> <p>We propose requesting consideration of special one-course release from Dean for faculty members who meet the following conditions:</p> <ul style="list-style-type: none"> <li>the faculty member is in the second year of probation,</li> <li>the faculty member’s research work will include mentoring students through student research courses (such as BIO 408, CHEM 408), and</li> <li>the faculty have no other releases – to ensure that this initiative increases the number of faculty with releases, not just the number of releases.</li> </ul> <p>Granting of such releases could conceivably be automatic for all who meet the conditions, as there are very few faculty members each year who are in the second year of their probation.</p> <p>This would provide motivation and opportunity to recapture some momentum in research work that may have been set aside in year 1 of probation, when much energy and focus had to be on teaching and teaching preparation. It would also connect new faculty with strong upper-level students, and would require them to consider how to incorporate undergraduate students into their research work.</p>			

Tasks to complete the goal			
Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Request course releases from Dean for faculty in second year of probation (a) with research programs that involve students in research courses and (b) with no other releases.	Response from Dean	Fall 2025	Department Heads

## Planning and Sustainability

### Goal P#1: Ensure that every discipline of specialization in the BSc has a 400-level research course.

#### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Planning and Sustainability:

*“Recommendation P#1: Every BSc program should offer a research course at the 400-level.*

*Description and rationale for recommendation: A capstone research option provides a unique learning opportunity for students to get deeper exposure to their chosen fields. Supervision of undergraduate research projects also provides a great opportunity for research active faculty for building their Highly Qualified Personnel portfolio for research funding applications.”*

The committee supports this recommendation, understanding that it recommends that in each BSc discipline of study, there exist upper-level research courses, that students can use toward completion of their program requirements in that discipline, not that students should be required to take such a course to complete a BSc.

#### Tasks to complete the Goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Recommend to those disciplines without a 400-level research course to create one.	List of 400-level research courses	Fall 2025	Associate Dean

### Goal P#2: Continue to ensure market research is conducted in the planning of any new programs.

#### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Planning and Sustainability:

*“Recommendation P#2: Market research should be conducted on any plans for introducing new programs. This should include surveys how similar programs fared at other universities in terms of enrolments and sustainability.*

*Description and rationale for recommendation:*

*We tend to assume that contemporary societal needs would make particular new programs especially appealing to prospective students. Sometimes, this expectation turns out to be correct. However, sometimes the expectation turns out to be wrong, and closing a program that did not meet expectations can be a lengthy and costly exercise. In cases of lack of enrolment, specialized courses in existing programs can sometimes address emerging societal needs in an efficient and sustainable way.”*

The committee supports this proposal. We note that market research is already a requirement for program development. No program will be approved without this clearly shown.

Tasks to complete the goal			
Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
None required			
<b>Goal P#3: Increase student involvement in local recruitment efforts.</b>			
<p><b>Rationale/evidence in support of the Goal:</b></p> <p>From BSc External Review Report, Recommendations related to Planning and Sustainability:</p> <p><i>“Recommendation P#3: The BSc program should build on the strengths (student involved research, undergraduate thesis, small classes and low student-to-faculty ratio) and communicate this to prospective students.</i></p> <p><i>Description and rationale for recommendation:</i></p> <p><i>The quality of teaching that can be afforded through low student-to-faculty and 3-credits per faculty ratios is a unique regional selling point for UFV, see also Commendation #1. Yet students did not communicate these opportunities as part of their decision to attend UFV. Rather they were drawn by convenience and tuition cost. Once enrolled, all students indicated the opportunities to engage with faculty as a key experience for them. Therefore, the quality of the program for undergraduate students is high, but students do not communicate this as a draw to the program.”</i></p> <p>From BSc External Review Report, Commendations related to Planning and Sustainability:</p> <p><i>“Commendation P#1 The student-to-faculty ratio of about 8/1 and the 3-credits activity level per faculty of about 80/1 are instrumental for the excellent quality of teaching that the students praised in their meeting with the committee.</i></p> <p><i>Description and rationale for commendation:</i></p> <p><i>Low student-to-faculty and 3-credits per faculty ratios are important for outstanding teaching. “</i></p> <p>The committee supports the recommendation to communicate our strengths to prospective students. We propose to involve existing students in recruitment efforts to help convey these strengths peer-to-peer to prospective students. We’re not sure what is meant by “3-credits per faculty ratio”, nor “3-credits activity level per faculty of about 80/1”, and will follow up for clarification on these.</p>			
Tasks to complete the goal			
Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Create STEAMS (Science, Technology, Engineering, Agriculture, Math and Stats) student recruiting and outreach volunteer group.	Advertisement created	September 2025	Dean’s Office

Invite all Science students and BSc majors to join STEAMS group.	Social media invite	October 2025	Dean's Office
Connect with STEAMS group in advance of outreach and recruiting events to gather volunteers.	N/A	Ongoing	Various

#### Goal P#4: Continue to track, predict, and accommodate local demand for BSc.

##### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Planning and Sustainability:

*"Recommendation P#4: Enrolment numbers in the BSc program fluctuate significantly over the 5-year period from 2018-19 to 2023-24 (see p. 10 Appendix) and show potential for growth. This should be addressed both in terms of first-year enrolments and in terms of retention. Besides highlighting strengths of the program (see Recommendation 3), attention should also be given to enrolment goals and marketing strategies of SFU and UBC, to ensure a fair and appropriate student distribution across the lower mainland."*

##### Description and rationale for recommendation:

*Large research universities can exert a high level of attraction for prospective students, although many of the students may be better served at a primarily undergraduate institution. Keeping abreast of enrolment goals and strategies of other local universities is prudent to ensure a proper distribution of student populations across different institutions."*

The committee acknowledges that the Bachelor of Science enrolment has fluctuated in recent years, and recognizes that there is potential for increased demand due to population growth in the Fraser Valley in the coming decade. Prediction and accommodation of local domestic demand is managed by UFV's Office of Institutional Research and the Strategic Enrolment Management team.

##### Tasks to complete the goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
None required			

#### Goal P#5: See Goal S#1.

##### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations related to Planning and Sustainability:

*"Recommendation P#5: Encourage students to declare their interest for a particular major upon enrolment or in their first semester at UFV, to get a clear picture whether retention issues affect particular programs more strongly."*

##### Description and rationale for recommendation:



*This will help to inform measures in the form of program improvement and resource allocation, to improve retention and graduation rates.”*

This recommendation was made earlier, as the first recommendation in the Student Achievement section.

**Tasks to complete the goal**

<b>Task</b>	<b>Key Milestone or Measurable Outcome</b>	<b>Timeline</b>	<b>Assigned to</b>
See tasks under Goal S#1.			

## Other Recommendations

### Goal O#1: Publish sample 4-year program plans for each major.

#### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations not appearing in categories above:

*“Recommendation O#1: Provide and publish suggested semester plans for each program for the students.*

*Description and rationale for recommendation: This facilitates program navigation for students.”*

The committee supports this recommendation. Ideally, requirements for a (non-cohort-based) 4-year program are presented in the university calendar without specifying precisely when in the program (which semester) they should be taken, to allow students who arrive with transfer credits or who aim to pursue the program part-time to map a program plan that works best for them.

However, it is also beneficial to include in the calendar, or at departmental websites, a sample 8-semester program pathway which demonstrates how the major may be completed in four years, beginning in a Fall semester. This will also help students to determine whether and how a minor in another discipline could be included alongside the major, with completion still possible in the 4-year timeframe.

#### Tasks to complete the Goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Create and publish sample 4-year program plans for each major.	Proposed 4-year program plans for each major	Fall 2025	Department Heads

### Goal O#2: Increase the share of Science course offerings that are 3 credits.

#### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations not appearing in categories above:

*“Recommendation O#2: Explore the possibility to replace current course-credits assignment with a uniform 3-credits assignment to all courses, such that a typical 4-year program would require 120 credits.*

*Description and rationale for recommendation: This makes timetables more uniform across different subjects. It also facilitates course transfer credit between universities.”*

The committee acknowledges that timetabling and transfer would be simplified if all courses were 3 credits. However, implementing this change without reducing the learning outcomes in affected courses and either eliminating labs or decoupling labs in lecture/lab courses would have unsustainable budgetary implications, and would disrupt most existing transfer agreements. The goal we set here is to consider whether an 3-credit model is possible and appropriate when designing new courses and revising existing courses.

Tasks to complete the goal			
Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
When creating new courses and revising existing courses, prioritize adoption of a 3-credit course model, if one exists that can meet learning objectives with 45-50 contact hours.	Increased percentage of BSc course sections offered annually that are 3 credits	Ongoing	Departments

### Goal O#3: See Goal P#3.

#### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations not appearing in categories above:

*"Recommendation O#3: Explore possibilities to collaborate with 4th-year students for advertising the UFV BSc programs.*

*Description and rationale for recommendation: The students were excellent advocates for the program. There appears to be an opportunity here to provide the students with valuable experience and help UFV to spread the word about the quality of instruction in the BSc programs.*

The committee supports this recommendation. See Goal P#3 above.

Tasks to complete the goal			
Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
See tasks supporting Goal P#3.			

### Goal O#4: Increase hosting of conferences and academic events that engage students.

#### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations not appearing in categories above:

*"Recommendation O#4: Consider hosting conferences or events to further enhance the visibility and appeal of UFV.*

*Description and rationale for recommendation: UFV is competing with major research universities for students and attention. Furthermore, the location in the BC lower mainland, combined with better affordability of accommodation outside of Vancouver and Burnaby, should make the UFV campuses and surrounding communities very attractive conference locations. A capable conference office with dedicated staff members might be even able to host conferences on a cost recovery basis."*

The committee acknowledges that the hosting of conferences and academic events, including guest speakers invitations, which encourage student participation add value to the student experience in the Bachelor of Science. An excellent example of such an initiative occurred in March 2023, when the School of Land Use and Environmental Change (SLUEC) hosted the 64th Annual Meeting of the Western Division of the Canadian Association of Geographers (WDCAG). Many students from UFV were involved in the delivery of the event, hosting and/or presenting their research, and benefitted from networking opportunities with students and faculty from other academic institutions in the Pacific Northwest.

#### Tasks to complete the goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Encourage Science departments to look for opportunities to host conferences and other academic events that engage students.	Increase in number of annual academic events that engage students	Ongoing	Departments

#### Goal O#5: Maintain up-to-date lists of upcoming course offerings at each departmental website.

#### Rationale/evidence in support of the Goal:

From BSc External Review Report, Recommendations not appearing in categories above:

*"Recommendation O#5: When feasible, advertise course offerings for upper-level courses sufficiently in advance to facilitate program planning for the students.*

*Description and rationale for recommendation: We understand that not all advanced courses can be offered every year. However, students may miss out on those courses if they cannot plan their program timetables, both for the courses and for the required prerequisites, sufficiently far in advance.*

The committee supports this recommendation, and notes that most Science departments already provide upcoming course lists several years in advance. Implementation of this recommendation will complement implementation of Recommendation O#1 (Provide and publish suggested semester plans for each program for the students), as students will be able to see when their courses of interest will be offered as they map their program plan.

#### Tasks to complete the goal

Task	Key Milestone or Measurable Outcome	Timeline	Assigned to
Review what exists, determine where improvements are appropriate.	Report on existing	Summer 2025	Associate Dean
Departments ensure Upcoming Courses web page is built to include	Departments determine course plans for next four academic years	Fall 2025	Department Heads and Coordinators

next four academic years.			
Departments review and update Upcoming Courses web page each May-June to include next four academic years.	N/A	Ongoing	Department Heads and Coordinators

## Dean's Summary Statement

The Bachelor of Science Program at UFV is undergoing its first thorough program review following a rigorous self-study, external evaluation, and substantial engagement with staff, students, and external reviewers. This review reaffirms the program's dedication to academic quality, curriculum innovation, and student-centered learning. Recommendations aim to make significant improvements, such as updating mathematics and statistics prerequisites for many scientific disciplines, encouraging early major declarations to promote retention, and expanding alumni and student feedback programs. The introduction of additional pathways, such as a prospective Statistics major and Data Science qualifications, will help to match the curriculum with rising business demands and student interest.

The review emphasises the significance of inclusive governance, effective resource allocation (including increased research possibilities), and proactive student recruiting and assistance. It recognises current assets such as small class sizes, undergraduate research possibilities, and committed faculty advising. To maintain relevance and accessibility, future action plans will emphasise teamwork, evidence-based planning, and transparent communication with local schools and partners. The Faculty of Science is committed to continual improvement, promoting student success and equipping graduates to succeed in changing scientific landscapes, all while preserving UFV's position as a hub for innovative, high-quality science education.

We wish to express our appreciation to the members of the ERC for their thoughtful observations and advice. They made several suggestions that will be helpful as we move forward with the Bachelor of Science program. The BSc Program Review Team has submitted an Action Plan that addressed all recommendations made by the ERC where practical, given budgetary constraints. The summary below and Action Plan attached includes several action items that will ensure realization of the panel's main recommendations in the next few years.

The Dean accepts the majority of the panel's recommendations.

The main recommendations and goals resulting from the program review pertain to the following areas of program improvement:

- Coming to terms with the current Math/Stats service requirements vs. what the receiving department's needs are (Goal C#1). This is not a new conversation within the faculty: it is well-known that there is a gap and that math/stats service courses become gatekeepers for student success and positive and timely graduation
- There was unanimous support for creating a first-year student success course - "Recommendation C#6: Include advice and training on basic study skills (effective study, test taking, written communication, time management, personal responsibility for education) into some of the discipline specific courses to address the increasing variation in academic preparation of incoming students. The groundwork for this course was started in the Winter of 2024
- Waitlists were identified, as we expected, as an area needing attention. The recommendation deals with a closer examination of what courses have significant waitlists and to establish why (e.g. multiple repeats taking up seats, popular instructors, time slots, etc.). The action plan calls for will track and do the 'forensic' review to see if the waitlists are operational or generated by a deeper root cause that needs attention.

- The reviewers were quite surprised by our periodic teaching and course reviews (Goal C#9). They did recommend determining what more can be done.
- The review team commented positively on the faculty's practice of inviting Indigenous high-school students to UFV campuses (Goal S#3). We will continue hosting visits if the budget is there to do so.
- The reviewers highlighted the need to give research active faculty breathing room in their workload to focus more on their efforts. Their suggested mechanism is through additional releases beyond those awarded as part of Cat I or ROSA grants. This is a sensible approach, particularly when paired with student researchers and mandatory public dissemination of research result. The difficulty is funding those releases. Given the current climate, it is unlikely that funds will be available from the faculty level to support this.
- The reviewers recommend that every discipline of specialisation in the BSc has a 400-research course (Goal P#1). I support this recommendation with the proviso that there are sufficient students taking a major in that program to warrant upper-level courses.

The highlighted action points will drive progress by addressing student preparation gaps, optimizing course access, and expanding research opportunities. These initiatives will foster student success, improve academic pathways, and support faculty excellence, shaping a forward-thinking, responsive, and inclusive environment that positions the faculty for future innovation and growth.

#### Action Plan reviewed and approved by:

Information verified by:

Associate Dean and Program Committee Chair: Ian Affleck

Date: June 13, 2025

Dean Michael Hitch

Date: September 25, 2025