a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Okanagan Senate

THE SEVENTH REGULAR MEETING OF THE OKANAGAN SENATE
FOR THE 2019/2020 ACADEMIC YEAR

THURSDAY 26 MARCH 2020

3:30 P.M. | ASC140 (Note change in room) OR VIA ZOOM

1. **Call to Order – Dr Deborah Buszard**
2. **Suspension to the Rules and Procedures of Senate to Allow Remote Attendance at Senate Meetings (approval) (docket page 3)**
   NB: Assuming the suspension above is approved by those senators in physical attendance, the remainder of the Senate may participate remotely after this item.
3. **Minutes of the Meeting of 27 February 2020 – Dr Deborah Buszard** (approval) (docket pages 4-13)
4. **Business Arising from the Minutes – Dr Deborah Buszard**
5. **Remarks from the Provost – Dr Ananya Mukherjee-Reed** (information)
6. **Council of Senates Budget Committee – Dr Ramon Lawrence**
   a. 2020-21 Budget Presentation (information)
   b. 2018-2019 Consolidated Financial Statements (information) (docket pages 14-50)
7. **Agenda Committee – Dr Peter Arthur**
   a. Amendments to Faculty Council Terms of Reference to Authorize Virtual Meetings (approval) (docket pages 51-52)
   b. Suspension to the Rules and Procedures of Senate to Extend the Powers of the Senate Agenda Committee to Act on Behalf of the Senate on Urgent Matters (approval) (docket pages 51-52)
8. **Curriculum Committee – Dr Peter Arthur**

   Curriculum Proposal from the faculties of Applied Science, Arts & Sciences, and Education (approval) (docket pages 53-117)

9. Joint Report of the Admission & Awards and Curriculum Committees – Dr Peter Arthur

New Program: Bachelor of Sustainability (approval) (docket pages 118-257)

10. Other Business

Extension of the Credit/D/Fail Grading System to the Okanagan Campus (approval) (docket pages 258-259) – Dr Ananya Mukherjee-Reed

The Rules and Procedures of the Okanagan Senate states that
meetings will adjourn no later than 5:30 p.m. Regrets: Telephone 604.822.5239 or e-mail: facsec@mail.ubc.ca

UBC Senates and Council of Senate website: http://www.senate.ubc.ca

To: Senate

From: Senate Agenda Committee

Re: Suspension of the Rules and Procedures of Senate to Facilitate Remote Senate Meetings Due to COVID-19

Date: 16 March 2020

The Senate Agenda Committee has met recently to discuss the evolving COVID-19 situation. First, the Committee thanks the many health care professionals across B.C., Canada and the world who are working tirelessly to combat COVID-19 and assist those who have fallen ill. The Committee also thanks those at UBC for their continued work during this challenging time and our students, faculty and staff who are supporting one another.

As public health authorities have issued a Public Health Order prohibiting gatherings of more than 50 persons, this presents a challenge for Senate to meet in person given that it has a membership of 60 and often has upwards of a dozen guests at its meetings. The *Rules and Procedures of Senate* (https://senate.ubc.ca/sites/senate.ubc.ca/files/downloads/Rules%20and%20Procedures%20of%20the%20Okanagan%20Senate%20-May%202019.pdf) prohibit remote attendance at meetings. The Senate Agenda Committee would recommend that the relevant rules – Rules 20 and 21 – be suspended and replaced by new text until 31 December 2020, with the understanding that the Senate may need to revisit and extend that deadline should the public health situation not improve by this fall.

The Senate agenda Committee recommends as follows:

That Rules 20 and 21 of the *Rules and Procedures of Senate* be suspended until 31 December 2020 and be replaced by the following amended rule during that time:

> 20.Senators may only attend and participate in debate at Meetings of Senate in person **or via such remote attendance means deemed acceptable to the Secretary.**
>
> ~~21.Section 20 notwithstanding, the chancellor or President may participate in debate via videoconference upon recognition of the chair, but shall not be considered in attendance while doing so; their participation in such a manner shall be minuted appropriately.~~

OKANAGAN SENATE

MINUTES OF 27 FEBRUARY 2020
DRAFT

Attendance

Present: D. Buszard (Vice-Chair), K. Ross (Secretary), S. Alam. A. Alnaar, P. Arthur, H. Berringer, G. Binsted, D. Carter, J. Cioe, G. DiLabio, T. Ebl, J. Eikenaar, J. Hossain, R. Lalonde, R. Lawrence, S. Lawrence, S. Lucet, B. Marcolin S. McNeil A. Mukherjee-Reed, S. O'Leary, F. Pena, M. Reeikie, K. Ragoonaden, D. Roberts, B. Rutherford, R. Sugden, B. Traister, S. Chong, K. Morgan. L. Mudde, G. Newry, V. Tamondong.

Regrets: P. Barker, M. Campbell, R. Campbell, C. Comben, B. Frank, L. Gordon, J. Gustar, M. Hoorfar, J. Jakobi, J. Olson, S. Ono, G. Wetterstrand, C. Yan, D Efretuei, R. Jain, G. Jayathilake, H. Kang, J. Lafontaine, J. Naqvi, S. Sandhu, A. Shields.

Clerk: C. Eaton

Call to Order

The Vice-Chair of Senate, Dr Deborah Buszard called the sixth regular meeting of the Senate to order at 3:30 pm.

Minutes of 30 January 2020

Jan Cioe
Barbara Marcolin } *That the Minutes of the Meeting of 30 January be adopted as corrected.*

Corrections: Senator Ebl was present.

Approved

Business Arising from the Minutes

COURSE VECTORS

Senator Arthur advised that the Senate Curriculum Committee had reviewed the matter with the Deputy Registrar and looked into the registration system. The Committee felt that the status quo works and sees no need to recommend changes at this time.

Senator Cioe asked how the scheduling system knew what kinds of activities were scheduled.

Mr Eaton replied that it wasn't automated by vectors; the staff needed to be advised by the departments.

Remarks from the Deputy Vice-Chancellor

The Deputy Vice-Chancellor advised Senate that a committee was formed to plan for COVID-19 at UBC. She and the Provost were concerned about academic continuity should the public health authorities' direct schools and universities to close. It would be helpful for us to make contingency plans for classes and examinations. The Provost will work with the deans and the faculties. Dr Buszard noted that this was equally a question for researchers and experiment maintenance.

With regards to changes in personnel, the Board of Governors has named the next Deputy Vice-Chancellor, Professor Leslie Cormack. She extended her sincere congratulations to her. This will be the second dean of arts from the University of Alberta, following Douglas Owram. Dr Cormack has previously dean of arts and social sciences at Simon Fraser University. The Board has also approved the re-appointment Philip Barker as Vice-Principal Research for a further 5 years. She referenced the enormous impact Dr Barker has had on the Okanagan's research success. Dr Buszard noted that we were commencing a search for the next AVP students at the Okanagan campus. We hope to have that search at the finalist stages by April or May.

Senator Cioe asked if the Senior Advisor on Indigenous Affairs position would be extended past the one year announced.

Dr Buszard said that because it was a new role, Mr Cull was appointed on an interim basis while a position was finalized.

Dr Buszard said that she was pleased to announce that Dr Cigdem Eskicioglu has been appointed as Industrial Research Chair in advanced resource recovery from wastewater.

Senator Ebl expressed a concern about the stability of Canvas at the end of the year already if this was used as a resource in dealing with COVID.

Dr Buszard said that this was being kept in mind and there were other alternatives to Canvas.

Senator Morgan asked about academic concessions and COVID.

Mr Eaton said a memo will be going out this evening.

Remarks from the Provost

The Provost, Dr Ananya Mukherjee-Reed, gave an update on campus initiatives, including searches for new deans of the soon-to-be faculties of Arts & Social Sciences and Science, and a new dean of the College of Graduate Studies.

SCHEDULING

Dr Mukherjee-Reed presented on plans to revise scheduling of academic classes at UBC. She noted that to aid in this work, Scientia Consultants were contracted. She outlined a number of key principles:

- A scheduling system should not impede pedagogy.
- Decisions should reside with an academic unit, not by a computer system.

Dr Mukherjee-Reed noted several issues found in the reviewing process: sub-optimal use of resources, expectations of courses only following a grid, and scheduling needs not meeting pedagogy. She further noted that some faculties made rule-based requests, some date and time-based requests, and in part this led to inequity in distribution of resources.

Senator Cioe said that issues around scheduling equity within a unit was a small piece of a larger issue; we need to solve issues between units as well.

> The Provost said that there is no particular reason why inequity should occur. The system being considered is rule based rather than humans showing favouritism. This does need to be an iterative process and if problematic patterns occur, we need to see how we can resolve them within the system.

Senator Roberts said that from Engineering's experience, whoever is writing the rules needs to know that 1 hours 3 times a week was different than 1.5 hours twice a week. Secondly, two courses that shouldn't be scheduled together sometimes are and the only fix is to offer one at night. The rules need to be written better.

Senator Arthur expressed his support for pedagogy being important. He asked if classroom type would be a variable considered as some rooms were more supportive than others for certain pedagogy. Secondly, he asked if service courses for other faculties will be considered.

Senator Alnaar said that scheduling was much simpler in the past and he thanked Enrolment Services for taking this on. He noted that in the past there was a practice of leaving a free block to allow for student and faculty activities and that this was valuable. He asked for more engagement with the student body.

Senator Eikenaar asked if this process also included exam scheduling.

The Registrar said no.

Senator Marcolin said that she was the Management scheduling rep who did this in the first year. It was an iterative process to learn how to express things as rules but this required thinking of things differently. She suggested that one issue was manual data re-entry being required.

Senator Cioe noted that if the schedule is done by 8 May and registration opens 8 June, then students had a month less time to plan their schedules.

The Provost said that this truncated schedule was just for a transition year.

Senator S. Lawrence asked what happens when the number of rules and requests are impossible to fulfill.

The Provost said that we discussed with Scientia and Deans' Council. Scientia said that in their experience that has yet to happen because of how the optimization process works. The problem is the match or mismatch but it shouldn't be undoable.

Senator Ebl asked how what the rules would be communicated to the faculty. She noted a concern about how Senate obligations would be put into the scheduling system.

The Provost said that the system doesn't track service requirements. That is a decision within the faculty. Your dean needs to see how that can be accommodated. All of the deans have circulated their guidelines within their faculties in different ways.

Senator McNeil said that in the data supplied there needed to be robust data to match pedagogy to those rooms that can support that pedagogy. He noted that it was non-trivial to adapt a course to some rooms.

The Provost said that the scheduling change will not remove gaps in classroom types, but may provide data about where those gaps are.

Dr Mukherjee-Reed said that with regards to the student experience, a lot of decisions are made within faculties and so we need to see if we should be consulting broadly or more specifically within the programs and faculties where more specific issues are more known and understood.

Admissions & Awards Committee

The Chair of the Senate Admissions & Awards Committee, Ms Tamara Ebl, presented.

2020-2021 ENROLMENT TARGETS

Tamara Ebl Deborah Roberts	}	*That Senate approved and recommend to the Board of Governors the 2020-20201 enrolment targets as presented.*

Senator Rutherford said that there was a drop proposed of 50 students in the Bachelor of Arts program. She asked what the rationale was given that those seats were filled last year.

> The Provost said that we were trying to stabilize enrolment. When we looked at overall balance, the Bachelor of Arts has increases to both its domestic and international targets over the past few years. The Arts departments are going through significant faculty hiring, and once that has been completed a further change in targets may be warranted in the future. The Provost said that next month when the budget is presented, it will show to be stable for enrolment revenue.

In response to a question from Senator Cioe, the Provost said that we based this on last year's targets rather than last year's actuals. This is only a 1-year decision. She noted that the Senate Admissions and Awards Committee had advised that it wants to be involved earlier next year in these processes.

Senator Morgan said that as enrolment increased we are still deficient in study spaces, both formal and informal.

Approved

VANTAGE SUSPENSION

Tamara Ebl Jan Cioe	}	*That Senate approve the suspension of admission to the Vantage College – Management Stream for the 2020 winter session.*

Senator O'Leary asked what the rationale was for the proposal.

> The Principal of Vantage College, Dr Joanna Fox, said that the rationale last year was low enrolment and retention. We are taking time to thoughtfully reconsider how this program may operate.

Approved

Academic Policy Committee

REVISION TO POLICY O-125: TERM AND FORMAL EXAMINATION SCHEDULING

Jan Cioe Peter Arthur	}	*That the revised policy O-125.1: Term and Formal Examination Scheduling be approved as set out in the attached document, effective 1 September 2020."*

Dr Cioe noted that there were some technical improvements but the largest change is the enabling of a longer term 1 break, which is especially important when Remembrance Day falls on Wednesday. He suggested that his Committee still hasn't given up on the idea of a full term break but we need more time.

Senator Rutherford asked why we did not schedule exams on Sundays.

Senator Cioe said that this was one factor being considered. A survey was recently set out that addressed just this.

Senator S. Lawrence asked if there was thought to moving the add/drop date forward as teaching occurred at that time that was problematic if missed.

Senator Cioe said that we would take that under advisement.

Senator Binsted said that a day off makes sense, but it would make sense to allow that day to be flexible. Secondly, he asked if teaching days were for the course in question or in general.

Senator Cioe said the latter.

Senator Morgan thanked the committee for its work.

Senator Eikenar asked why 11:59 was specified as the end of a teaching week.

Mr Eaton said that this was when we programmed the SIS to no longer allow registration changes.

Senator Roberts said that the add date was a problem as students do not have time to decide if they should stay in a course. She asked if we could separate them.

Dr Ross said that this presented a financial aid challenge.

Senator S. Lawrence said that in the 1930s there was an effort make days off more variable in the Soviet Union and it didn't work.

Approved

Report from the Registrar

Term Dates

The Registrar said this coming academic year we have a late start to the term and a late end of exams in term 1, and an early start to term 2.

Senator O'Leary asked if teaching would still happen on the first day.

> Senator Cioe said that the first day has always been a teaching day. First year students would still have orientation that day, but social interactions will be moved to the weekend.

Senator Lalonde asked why we always started so soon after New Year's Day versus what the University of Calgary does.

Senator S. Lawrence said that we often had a few more days in term 1.

> Senator Cioe said that some places had more condensed exam schedules or those that go to the end of the month.

Mr Eaton reminded senators that draft dates are set out on the senate website several years in advance.

Senator Roberts expressed a desire for whole weeks.

Agenda Committee

Peter Arthur
Tamara Ebl
} *That, in accordance with Rule 15 (b), the regular senate meeting schedule for 2020-2021 be established as follows:*
- *24 September 2020*
- *29 October 2020*
- *26 November 2020*
- *17 December 2020*
- *28 January 2021*
- *25 February 2021*
- *25 March 2021*
- *29 April 2021*
- *20 May 2021*

Approved

Curriculum committee

The Chair of the Senate Curriculum Committee, Dr Peter Arthur, presented.

FEBRUARY CURRICULUM REPORT

See Appendix A: Curriculum Report

Peter Arthur Jan Cioe	}	*That Senate approve and recommend to the Board of Governors for approval the revised degree requirements for the Master in Social Work program, and new courses brought forward for the Faculty of Health and Social Development, the new and revised courses brought forward from the Faculty of Arts and Sciences, the new courses brought forward from the Faculty of Creative & Critical Studies.*

Senator Rutherford asked if ANTH 170 was a preferred prerequisite for ANTH 373, why didn't we just make 170 the prerequisite rather than accepting ANTH 100 or ANTH 170.

Dr Arthur said that we did discuss this at the committee and the program didn't view ANTH100 as a concern.

Senator Cioe said that we could refer it back.

Mr Eaton suggested that after it consulted with program, the Curriculum Committee could strike the preference.

Dr Arthur agreed with this approach.

Senators Lalonde and McNeil said many course descriptions already used similar language.

Approved

Nominating Committee

TRIENNIAL REVIEW

The Chair of the Senate Nominating Committee, Dr Jannik Eikenaar, reminded the Senate the deadline for feedback on the triennial review of Senate and its committees was28 February

Other Business

CANDIDATES FOR DEGREES

Abdul Alnaar Robert Lalonde	}	*That the candidates for degrees as recommended by the faculties and the College of Graduate Studies, be granted the degrees for which they were recommended, effective November 2019, and that a committee comprised of the Registrar, the relevant dean(s), and the Chair of Senate be empowered to make any necessary adjustments. (2/3 majority required)*

Approved

Adjournment

Seeing no other business, the meeting was adjourned at 4:57 p.m.

Appendix A: Curriculum Report

FACULTY OF HEALTH AND SOCIAL DEVELOPMENT

Master of Social Work, Advanced and Foundational Tracks

SOCW 525 (3) Human Development for Clinical Social Work

SOCW 555 (3) Organizations and Leadership

FACULTY OF ARTS AND SCIENCES

ANTH 373 (3) The Acquisition of Language and Cultural Practice

PSYO 440 (3) Introduction to Counselling and Interviewing

FACULTY OF CREATIVE AND CRITICAL STUDIES

WRLD 340 (3) Tales of Resistance: Indigenous Voices in Central America

WRLD 428 (3) Anti-Semitism: Then and Now

CONSOLIDATED FINANCIAL STATEMENTS

For year ended March 31, 2019

Vancouver, B.C. Canada

Statement of Management Responsibility

The consolidated financial statements of the University of British Columbia (the University) have been prepared by management in conformity with Canadian public sector accounting standards and Treasury Board direction outlined in note 2(a). The financial statements present the financial position of the University as at March 31, 2019, and the results of its operations, remeasurement gains and losses, and the changes in net debt and changes in its cash flow for the year ended March 31, 2019.

In fulfilling its responsibilities and recognizing the limits inherent in all systems, management has developed and maintains a system of internal control designed to provide reasonable assurance that University assets are safeguarded from loss and that the accounting records are a reliable basis for the preparation of financial statements.

The Board of Governors is responsible for reviewing and approving the financial statements, and overseeing management's performance of its financial reporting responsibilities.

The Board of Governors carries out its responsibility for review of the financial statements principally through its Audit Committee. No members of the Audit Committee are officers or employees of the University. The Audit Committee meets with management, the external auditors and the internal auditors to discuss the results of audit examinations and financial reporting matters. The external and internal auditors have full access to the Audit Committee, with and without the presence of management.

The financial statements for the year ended March 31, 2019 have been reported on by KPMG. The Independent Auditor's Report outlines the scope of the audit and provides the audit opinion on the consolidated financial statements.

Santa Ono
President and Vice-Chancellor

Peter Smailes
Vice-President, Finance & Operations

June 13, 2019

KPMG LLP
PO Box 10426 777 Dunsmuir Street
Vancouver BC V7Y 1K3
Canada
Telephone (604) 691-3000
Fax (604) 691-3031

INDEPENDENT AUDITORS' REPORT

To the Board of Governors of the University of British Columbia, and
To the Minister of the Ministry of Advanced Education, Skills & Training, Province of British Columbia

Opinion

We have audited the consolidated financial statements of the University of British Columbia (the "Entity"), which comprise:

- the consolidated statement of financial position as at March 31, 2019
- the consolidated statement of operations and accumulated surplus for the year then ended
- the consolidated statement of changes in net debt for the year then ended
- the consolidated statement of cash flows for the year then ended
- the consolidated statement of remeasurement gains and losses for the year then ended
- and notes to the consolidated financial statements, including a summary of significant accounting policies

(hereinafter referred to as the "financial statements").

In our opinion, the accompanying financial statements as at and for the year ended March 31, 2019 of the Entity are prepared, in all material respects, in accordance with the financial reporting provisions of Section 23.1 of the Budget Transparency and Accountability Act of the Province of British Columbia.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the "***Auditors' Responsibilities for the Audit of the Financial Statements***" section of our auditors' report.

We are independent of the Entity in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of Matter - Financial Reporting Framework

We draw attention to Note 2 to the financial statements which describes the applicable financial reporting framework and the significant differences between that financial reporting framework and Canadian public sector accounting standards.

Our opinion is not modified in respect of this matter.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation of the financial statements in accordance with the financial reporting provisions of Section 23.1 of the Budget Transparency and Accountability Act of the Province of British Columbia and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Entity's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Entity's financial reporting process.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

  The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Entity's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Entity to cease to continue as a going concern.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group Entity to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

KPMG LLP

Chartered Professional Accountants

Vancouver, Canada
June 13, 2019

CONSOLIDATED STATEMENT OF FINANCIAL POSITION
AS AT MARCH 31
(in thousands of dollars)

		March 31 2019	March 31 2018
Financial Assets			
Cash and cash equivalents	(Note 3)	$ 149,596	$ 231,171
Accounts receivable		222,992	166,616
Inventories for resale		6,170	6,073
Investments	(Note 4)		
Operating		666,657	525,191
Endowment (expendable balance)		877,469	779,374
Investments in government business enterprises	(Note 5)	108,902	26,362
		2,031,786	1,734,787
Liabilities			
Accounts payable and accrued liabilities	(Note 7)	312,991	297,283
Employee future benefits	(Note 8b)	9,865	8,987
Deferred contributions	(Note 9)	1,170,797	1,115,806
Deferred capital contributions	(Note 10)	1,555,969	1,510,738
Deferred land lease revenue	(Note 11)	957,180	758,277
Debt	(Note 12)	350,286	355,235
		4,357,088	4,046,326
Net debt		(2,325,302)	(2,311,539)
Non-Financial Assets			
Tangible capital assets	(Note 13)	3,529,400	3,375,734
Investments			
Endowment (original contribution)	(Note 4)	970,536	942,455
Inventories held for use		2,119	2,015
Prepaid expenses		25,101	22,230
		4,527,156	4,342,434
Accumulated surplus		$ 2,201,854	$ 2,030,895
Accumulated surplus is comprised of:			
Accumulated surplus		$ 2,149,598	$ 1,990,999
Accumulated remeasurement gains		52,256	39,896
		$ 2,201,854	$ 2,030,895
Contractual obligations and contingent liabilities	(Note 17)		

Approved on behalf of the Board of Governors:

Michael Korenberg
Chair, Board of Governors

Peter Smailes
Vice-President Finance and Operations

(See accompanying notes to the consolidated financial statements)

		Budget (Note 2(o))	2019	2018
Revenues				
Government grants and contracts	(Note 15)	$ 1,120,933	$ 1,147,750	$ 1,077,096
Tuition and student fees		785,576	814,904	725,040
Sales and services		393,108	403,626	399,791
Non-government grants, contracts and donations		172,879	175,720	182,159
Investment income		87,105	96,925	81,825
Income from government business enterprises	(Note 5)	5,111	3,974	13,763
Revenue recognized from deferred capital contributions	(Note 10)	85,132	84,833	81,848
		2,649,844	2,727,732	2,561,522
Expenses	(Note 19)			
Learning		1,308,943	1,297,538	1,197,877
Research		520,364	505,031	496,441
Facilities		296,905	289,200	283,343
Students		328,828	343,548	318,571
Community engagement		63,669	66,167	60,018
Administration		96,145	90,391	84,743
		2,614,854	2,591,875	2,440,993
Annual surplus from operations		34,990	135,857	120,529
External endowment donations		25,000	22,742	25,650
Annual surplus		59,990	158,599	146,179
Accumulated surplus, beginning of year		1,990,999	1,990,999	1,844,820
Accumulated surplus, end of year		$ 2,050,989	$ 2,149,598	$ 1,990,999

(See accompanying notes to the consolidated financial statements)

	Budget (Note 2(o))	2019	2018
Annual surplus	$ 59,990	$ 158,599	$ 146,179
Exclude items not affecting net debt:			
Endowment donations and transfers	(25,000)	(28,081)	(26,402)
	34,990	130,518	119,777
Acquisition of tangible capital assets, net of dispositions	(330,668)	(362,438)	(324,366)
Amortization of tangible capital assets	213,668	208,772	197,720
	(117,000)	(153,666)	(126,646)
Acquisition of inventories held for use	-	(5,255)	(4,585)
Acquisition of prepaid expense	-	(24,701)	(21,508)
Consumption of inventories held for use	-	5,151	4,686
Use of prepaid expense	-	21,830	4,901
	-	(2,975)	(16,506)
	(82,010)	(26,123)	(23,375)
Net remeasurement gains (losses)	8,051	12,360	(485)
Increase in net debt	(73,959)	(13,763)	(23,860)
Net debt, beginning of year	(2,311,539)	(2,311,539)	(2,287,679)
Net debt, end of year	$ (2,385,498)	$ (2,325,302)	$ (2,311,539)

(See accompanying notes to the consolidated financial statements)

	2019	2018
Cash provided from operating activities		
Annual surplus	$ 158,599	$ 146,179
Add non-cash items:		
Amortization of tangible capital assets	208,772	197,720
Amortization of deferred capital contributions	(84,833)	(81,848)
Amortization of deferred land lease revenue	(8,598)	(8,040)
Change in employee future benefits	878	(3,107)
	274,818	250,904
Change in non-cash operating working capital:		
Decrease (increase) in accounts receivable	(54,876)	57,722
Decrease (increase) in inventories	(201)	48
Increase in prepaid expenses	(2,871)	(16,607)
Increase in accounts payable and accrued liabilities	15,709	6,007
	232,579	298,074
Cash used in capital activities		
Tangible capital asset acquisitions	(363,938)	(324,366)
Cash provided by (used in) investing		
Investment in government business enterprises	12,732	19,956
Endowment and operating investments	(242,673)	(180,287)
	(229,941)	(160,331)
Cash provided from financing activities		
Net increase in deferred contributions	43,577	133,724
Net decrease in long-term debt	(6,145)	(6,602)
Increase in deferred land lease revenue	112,229	75,833
Increase in deferred capital contributions	130,064	127,866
	279,725	330,821
Increase (decrease) in cash and cash equivalents	(81,575)	144,198
Cash and cash equivalents, beginning of year	231,171	86,973
Cash and cash equivalents, end of year	$ 149,596	$ 231,171
Supplemental cash flow information		
Cash paid for interest	$ 20,418	$ 20,553

(See accompanying notes to the consolidated financial statements)

	2019	2018
Accumulated remeasurement gains, beginning of year	$ 39,896	$ 40,381
Remeasurement (gains) losses realized and reclassified to the statement of operations from:		
Equity investments quoted in active market	(9,393)	(9,977)
Other investments designated at fair value	(677)	1,270
Unrealized gains generated during the year from:		
Equity investments quoted in active market	9,716	5,881
Other investments designated at fair value	12,778	2,069
Other comprehensive income (losses) from government business enterprise	(64)	272
Net remeasurement gains (losses) for the year	12,360	(485)
Accumulated remeasurement gains, end of year	$ 52,256	$ 39,896

(See accompanying notes to the consolidated financial statements)

Notes to the Consolidated Financial Statements

1 Authority and Purpose

The University of British Columbia (UBC or the University) operates under the authority of the *University Act* of British Columbia. UBC is a comprehensive research university offering a full range of undergraduate, graduate and continuing studies programs. The academic governance of the University is vested in the Senate. As a not-for-profit entity, UBC is governed by a Board of Governors, the majority of whom are appointed by the provincial government of British Columbia. UBC is also a registered charity and is therefore exempt from income taxes under section 149 of the *Income Tax Act*.

2 Significant Accounting Policies

The consolidated financial statements of the University are prepared by management in accordance with the basis of accounting described below. Significant accounting policies of UBC are as follows:

(a) Basis of Accounting

The consolidated financial statements have been prepared in accordance with Section 23.1 of the Budget Transparency and Accountability Act of the Province of British Columbia supplemented by Regulations 257/2010 and 198/2011 issued by the Province of British Columbia Treasury Board.

The Budget Transparency and Accountability Act requires that the consolidated financial statements be prepared in accordance with the set of standards and guidelines that comprise generally accepted accounting principles for senior governments in Canada, or if the Treasury Board makes a regulation, the set of standards and guidelines that comprise generally accepted accounting principles for senior governments in Canada as modified by the alternate standard or guideline or part thereof adopted in the regulation.

Regulation 257/2010 requires all tax-payer supported organizations in the Schools, Universities, Colleges and Hospitals sectors to adopt Canadian Public Sector Accounting Standards (PSAS), as issued by the Public Sector Accounting Board (PSAB), without any PS4200 elections effective their first fiscal year commencing after January 1, 2012.

Regulation 198/2011 requires that restricted contributions received or receivable are to be reported as revenue depending on the nature of the restrictions on the use of the funds by the contributors as follows:

(i) Contributions for the purpose of acquiring or developing a depreciable tangible capital asset or contributions in the form of a depreciable tangible capital asset are recorded and, referred to as deferred capital contributions and recognized in revenue at the same rate that amortization of the related tangible capital asset is recorded. The reduction of the deferred capital contributions and the recognition of the revenue are accounted for in the fiscal period during which the tangible capital asset is used to provide services.

(ii) Contributions restricted for specific purposes other than those for the acquisition or development of a depreciable tangible capital asset are recorded as deferred contributions and recognized in revenue in the year in which the stipulation or restriction on the contributions have been met.

For British Columbia tax-payer supported organizations, these contributions include government transfers and externally restricted contributions.

2 Significant Accounting Policies (continued)

(a) Basis of Accounting (continued)

The accounting policy requirements under Regulation 198/2011 are significantly different from the requirements of PSAS which require that:

- government transfers, which do not contain a stipulation that creates a liability, be recognized as revenue by the recipient when approved by the transferor and the eligibility criteria have been met in accordance with PS3410; and

- externally restricted contributions be recognized as revenue in the period in which the resources are used for the purpose or purposes specified in accordance with PS3100.

As a result, revenue recognized in the Statement of Operations and Accumulated Surplus and certain related deferred capital contributions would be recorded differently under PSAS.

(b) Basis of Presentation

The University reports its operations on a consolidated basis, which includes activities from various funds within the University and external entities.

(c) Basis of Consolidation

(i) Consolidated Entities

The consolidated financial statements reflect the assets, liabilities, revenues, and expenses of organizations which are controlled by UBC. Controlled organizations are consolidated except for government business enterprises which are accounted for by the modified equity method. Inter-organizational transactions, balances, and activities have been eliminated on consolidation.

The following not-for-profit organizations whose activities are intended to benefit UBC are 100% controlled by the University and are consolidated in these financial statements:

- UBC Foundation, a not-for-profit foundation formed to develop public awareness and encourage financial support of the University.

- American Foundation for UBC, an American charitable foundation that encourages financial support of the University.

- Hong Kong Foundation for UBC, a not-for-profit organization incorporated in Hong Kong that promotes and advances all matters concerning education.

- UK Foundation for the University of British Columbia, an official charitable organization in the United Kingdom that promotes and advances all matters concerning education.

- UBC Society for the Education of Young Children, a not-for-profit organization that maintains and operates an educational program for young children.

- UBC Asia Pacific Regional Office Limited, a Hong-Kong based association formed to promote and advance the academic and research interests of the University and its partners in the Asia Pacific region.

- entrepreneurship@UBC Management Inc., a not-for-profit organization that allows UBC to make seed investments in promising student ventures.

2 Significant Accounting Policies (continued)

(c) Basis of Consolidation (continued)

(i) Consolidated Entities (continued)

The following for-profit entities are controlled by the University and are consolidated in these financial statements:

- UBC Investment Management Trust, whose primary purpose is to manage the investment assets of the University including the Endowment Fund, Staff Pension Plan, Supplemental Arrangement and Operating Fund. The University has a 100% interest in the trust.

- UBC Research Enterprises Inc., which promotes the creation, testing, development, production and commercialization of intellectual property owned by the University. The entity was dissolved by way of voluntary dissolution under the B.C. Business Corporations Act on December 4, 2017. The University held a 100% interest in the company prior to its dissolution.

- Paragon Testing Enterprises Inc., an English language testing organization that administers English language proficiency tests and develops products and programs to help test takers. The University has an 80% (2018 - 83%) interest in the company.

(ii) Investment in Government Business Enterprises

Government business enterprises are accounted for by the modified equity method. Under this method, the University's investment in the business enterprise and its net income and other changes in equity are recorded. No adjustment is made to conform the accounting policies of the government business enterprise to those of UBC other than if other comprehensive income exists, which is accounted for as an adjustment to accumulated surplus (deficit) of the University. Inter-organizational transactions and balances have not been eliminated, except for any profit or loss on transactions between entities of assets that remain within the entities controlled by UBC.

The following organizations are government business enterprises and are accounted for by the modified equity method:

- UBC Properties Investments Ltd. ("UBCPIL")

  UBCPIL is incorporated pursuant to the B.C. Business Corporations Act, and is a wholly-owned subsidiary of UBC. UBCPIL is the sole trustee of UBC Properties Trust, which was established to carry out real estate development activities on behalf of the University.

- Great Northern Way Campus Trust ("GNW")

  The University has a 25% (2018 - 25%) interest in GNW which was formed on September 15, 2002 to include the lands and premises comprising the Great Northern Way Campus for the equal benefit of the University, Simon Fraser University, British Columbia Institute of Technology and the Emily Carr Institute of Art and Design.

2 Significant Accounting Policies (continued)

(c) Basis of Consolidation (continued)

(iii) Investment in Government Partnerships

Government partnerships that are business partnerships are accounted for by the modified equity method. Accounting policies of the business partnership are not conformed to those of the partners before the equity pick-up. The University is not party to any government business partnerships.

Government partnerships that are not business partnerships are accounted for under the proportionate consolidation method. The University accounts for its share of the partnership on a line by line basis in the consolidated financial statements and eliminates any inter-organizational transactions and balances. Accounting policies of a partnership that is not a business partnership are conformed to those of UBC before it is proportionately consolidated.

The consolidated financial statements include the accounts of the following non-business government partnerships:

- Tri-Universities Meson Facility (TRIUMF)

  The University has a 7.14% (2018 - 7.69%) interest in TRIUMF, Canada's particle accelerator centre. TRIUMF is a joint venture amongst the University and thirteen other universities (2018 - twelve), which was established to operate a facility that supports fundamental and applied research in particle and nuclear physics, as well as the materials and life sciences. TRIUMF operates on the UBC campus and elsewhere.

- Western Canadian Universities Marine Sciences Society (WCUMSS)

  The University has a 20% (2018 **-** 20%) interest in WCUMSS, operating as Bamfield Marine Sciences Centre. The University is one of five university members of WCUMSS, which is formed to provide a permanent base for marine and coastal-oriented field operations in Bamfield, B.C. WCUMSS mandates to provide research infrastructure for scientists, offer senior undergraduate and graduate courses and programs, and provide training opportunities for students, First Nations and other public groups.

- CDRD Ventures Inc. (CVI, formerly DDI Drug Development Inc.)

  The University has a 33% (2018 - 33%) interest in CVI and is one of three shareholders. CVI is the commercialization partner of the Centre for Drug Research and Development (CDRD), which provides financial, managerial and development support to turn promising technologies into companies and to help existing companies grow.

(iv) Trusts Under Administration

Trusts administered by UBC as directed by agreement or statute for certain beneficiaries are not included in the University's consolidated financial statements.

(d) Cash and Cash Equivalents

Cash and cash equivalents include highly liquid investments with a term to maturity of three months or less at the date of purchase.

2 Significant Accounting Policies (continued)

(e) Revenue Recognition

(i) Restricted Revenue

The University follows the deferral method of accounting for contributions. Some contributions, such as grants and donations for research or capital purposes, are restricted in use by the external contributor. Externally restricted contributions are recognized as revenue when the restrictions imposed by the contributors on the use of the monies are satisfied as follows:

- Non-capital contributions for specific purposes are recorded as deferred contributions and recognized as revenue in the year in which the stipulation or restriction on the contribution has been met. Unspent capital contributions are initially recorded as deferred contributions and transferred to and recorded as deferred capital contributions when the amounts have been spent on tangible capital assets and are recognized into revenue as noted below.

- Contributions spent in acquiring or developing a depreciable tangible capital asset or received in the form of a depreciable tangible capital asset, in each case for use in providing services, are recorded and referred to as deferred capital contributions and recognized in revenue at the same rate that amortization of the tangible capital asset is recorded. The reduction of the deferred capital contributions and the recognition of the revenue are accounted for in the fiscal period during which the tangible capital asset is used to provide services. Where the tangible capital asset involved has an unlimited life, the contribution is recorded in the Consolidated Statement of Operations and Accumulated Surplus.

Some restricted contributions must be retained in perpetuity, allowing only the investment income earned thereon to be spent, and are recorded as external endowment donations in the Consolidated Statement of Operations and Accumulated Surplus for the portion to be held in perpetuity and as deferred contributions for the investment income earned thereon.

(ii) Unrestricted Revenue

Unrestricted contributions are recorded as revenue when received or receivable if the amounts can be estimated and collection is reasonably assured. Government grants not restricted as to their use are recognized as revenue when received or receivable. Other unrestricted revenue, including tuition fees and sales of services and products, are reported as revenue at the time the services are provided or the products are delivered. Tuition fees received in advance of courses being delivered are deferred and recognized when the courses are delivered.

(iii) Deferred Land Lease Revenue

The University leases certain properties to third parties for a period of 99 years. Deferred land lease revenue is initially recognized and deferred when the contract has been entered into and all performance obligations have been met. Subsequently, deferred land lease revenue is amortized over the 99 year term of the lease.

(iv) Investment Income

Investment income includes interest recorded on an accrual basis and dividends recorded as declared, realized gains or losses on the sale of investments, write-downs on investments where the loss in value is determined to be other than temporary, and fair value adjustment of investments. Investment transactions are recorded on a trade date basis. Transaction costs are expensed as incurred. To the extent that investment income relates to externally restricted endowments, income is recorded in the year in which the related expenses are incurred.

2 Significant Accounting Policies (continued)

(f) Financial Instruments

Classification, Disclosure and Presentation

Financial instruments are classified into two categories: fair value or cost.

Fair value category: Portfolio investments that are quoted in an active market, private equity investments, and sinking fund investments are all reflected at fair value as at the reporting date. Sales and purchases of investments are recorded on the trade date. Transaction costs related to the acquisition of investments are recorded as an expense. Unrealized gains and losses on financial assets, except those that are related to restricted endowments, are recognized in the Consolidated Statement of Remeasurement Gains and Losses until such time that the financial asset is derecognized due to disposal or impairment. At the time of de-recognition, the related realized gains and losses are recognized in the Consolidated Statement of Operations and Accumulated Surplus and related balances reversed from the Consolidated Statement of Remeasurement Gains and Losses. Unrealized gains and losses on financial assets related to restricted endowments are included in deferred contributions.

Cost category: Gains and losses are recognized in the Consolidated Statement of Operations and Accumulated Surplus when the financial asset is derecognized due to disposal or impairment. Sales and purchases of investments are recorded on the trade date. Transaction costs related to the acquisition of investments are included in the cost of the related investments. Debt is measured at amortized cost.

(g) Short-term Investments

Short-term investments are defined to include highly liquid securities with terms to maturity of one year or less. Short-term investments are cashable on demand and are recorded at fair value.

(h) Inventories for Resale

Inventories held for resale, including books, food services, and gift shop items, are recorded at the lower of cost or net realizable value. Cost is determined using the weighted average basis. Cost includes invoice cost and other costs incurred in bringing the inventories to their present location and condition. Net realizable value is the estimated selling price less the estimated costs necessary to make the sale. Inventories are written down to net realizable value when the cost of inventories is estimated not to be recoverable. When circumstances that previously caused inventories to be written down below cost no longer exist, the amount of write-down previously recorded is reversed.

(i) Non-financial Assets

Non-financial assets are not available to discharge existing liabilities and are held for use in the provision of services. They have useful lives extending beyond the current year and are not intended for sale in the ordinary course of operations.

(i) Tangible Capital Assets

Tangible capital assets are recorded at cost, which includes amounts that are directly attributable to acquisition, construction, development or betterment of the asset. Interest is not capitalized whenever external debt is issued to finance the construction of tangible capital assets. Contributed tangible capital assets are recorded at fair value at the date of contribution.

2 Significant Accounting Policies (continued)

(i) Non-financial Assets (continued)

(i) Tangible Capital Assets (continued)

Tangible capital assets are amortized on a straight-line basis over their estimated useful life as shown below. Land is not amortized as it is deemed to have a permanent value.

Site improvements	15-80 years
Buildings	10-50 years
Building renovations	5-40 years
Furnishings, equipment and systems	3-10 years
Library books	10 years

Assets under construction are not amortized until the asset is available for productive use.

Tangible capital assets are written down when conditions indicate that they no longer contribute to UBC's ability to provide goods and services, or when the value of future economic benefits associated with the tangible capital assets are less than their net book value.

(ii) Leased Tangible Capital Assets

Leases which transfer substantially all of the benefits and risks incidental to ownership of property are accounted for as leased tangible capital assets. All other leases are accounted for as operating leases and the related payments are charged to expenses as incurred.

(iii) Unrecognized Assets

Major categories of unrecognized assets include works of art and historical collections, mineral resources, and licenses.

These assets cannot be reasonably measured for various reasons, including being priceless or irreplaceable, not intended for sale, intended for exhibition purposes, restricted for research and academic purposes, or an estimate of future benefits associated with the assets cannot be made due to their extraordinary nature.

(iv) Inventories Held for Use

Inventories held for use are recorded at the lower of cost and replacement cost.

Cost includes the original purchase cost, plus shipping and applicable duties. Replacement cost is the estimated current price to replace the items.

(j) Employee Future Benefits

(i) Pension Plans

The University has two pension plans and a supplemental arrangement plan providing pension and other benefits to its employees. The assets and liabilities of these plans are not included in the University's consolidated financial statements.

2 Significant Accounting Policies (continued)

(j) Employee Future Benefits (continued)

(i) Pension Plans (continued)

Faculty Pension Plan

The Faculty Pension Plan is a defined contribution plan providing benefits on a money purchase basis. The cost of pension benefits includes the current service cost based on 10.00% of salary (2018 – 10.00%), less a fixed offsetting amount relating to Canada Pension Plan contributory earnings. The University expenses contributions to this plan in the year the contributions are related to.

Staff Pension Plan

The Staff Pension Plan is a target benefit plan and provides benefits based on 1.80% (2018 - 1.80%) of the average best three years' basic salary multiplied by the number of years of contributory service. The University's contribution for the Staff Pension Plan is 9.40% of salary (2018 - 9.13%), less a fixed offsetting amount relating to Canada Pension Plan contributory earnings. In the event of funding deficiencies, the University's contributions remain fixed and benefits for members may be reduced. Accordingly, the University accounts for this as a defined contribution plan and expenses contributions to this plan in the year of the related contributions. Benefits security for employees is improved by the plan maintaining a contingency reserve. The contingency reserve ceiling recommended by the plan's actuary and approved by the pension board and Canada Revenue Agency is 40% of liabilities.

Supplemental Arrangement

The Supplemental Arrangement has been established for those Faculty Pension Plan members whose aggregate annual pension contributions exceed the contribution limit allowed under the Income Tax Act for registered plans. Excess University contributions are deposited into notional accounts established for each member in the Supplemental Arrangement account. No payments are made out of the Supplemental Arrangement account before the earliest of the member's termination, retirement or death.

(ii) Income Replacement Plan / Disability Benefit Plan

The income replacement plan for faculty and disability benefit plan for all other employees provide income for disabled employees. The plans commence after a qualifying period of four months for CUPE 2950 employees and six months for all other employees. When an employee is in receipt of income replacement or disability benefits, the University continues to pay the costs of certain member benefits. The costs of the plans are employee funded. The University is not required to contribute to the plans nor is it responsible for any deficit that the plans may incur.

(iii) Sick Leave Benefits

Sick leave benefits are available to UBC's employees. Employees are entitled to sick leave in accordance with the terms and conditions of their employment contracts. The costs of those benefits which vest or accumulate are actuarially determined based on service and estimates of retirement ages and expected future salary or wage increases. The obligation is accrued based on projected benefits as the employees render services necessary to earn the future benefits. Actuarial gains and losses from event-driven benefits that do not vest or accumulate are recognized immediately in the Consolidated Statement of Operations and Accumulated Surplus.

2 Significant Accounting Policies (continued)

(k) Liability for Contaminated Sites

Contaminated sites are a result of contamination being introduced into air, soil, water or sediment of a chemical, organic or radioactive material or live organism that exceeds an environmental standard. Liabilities are recorded net of any expected recoveries. A liability for remediation of contaminated sites is recognized when all the following criteria are met:

(i) an environmental standard exists;

(ii) contamination exceeds the environmental standard;

(iii) the University is directly responsible or accepts responsibility;

(iv) it is expected that future economic benefits will be given up; and

(v) a reasonable estimate of the amount can be made.

(l) Use of Estimates

The preparation of these consolidated financial statements in accordance with PSAS requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of revenues and expenses during the reporting period. Significant areas requiring the use of management estimates and assumptions relate to the determination of useful lives of tangible capital assets for amortization and the amortization of related deferred capital contributions, valuation of financial instruments, the present value of employee future benefits and commitments, and provisions for contingencies. Where actual results differ from these estimates and assumptions, the impact will be recorded in future periods when the difference becomes known.

(m) Debt Issue Costs

The underwriting discount along with consulting fees relating to the debenture issuances are capitalized and amortized to match the term of the long-term debenture. Amortization is calculated based on the effective interest rate method.

(n) Functional Classification of Expenses

Expenses in the Consolidated Statement of Operations and Accumulated Surplus have been classified based upon functional lines of service provided by the University. The outline of services provided by each function is as follows:

(i) Learning - This function includes expenses related to all direct educational delivery within the institution and activities that directly support the academic functions of the institution. This includes credit and non-credit courses, diploma, certificate and degree programs; continuing education; curriculum and program development; libraries and galleries; on-line delivery; information technology; specific purpose funding; and endowment non-award funding. Costs associated with this function include contract expenses; Deans/Directors and/or Chairs; and instructional administration (general and financial), support staff and support costs directly related to these activities.

2 Significant Accounting Policies (continued)

(n) Functional Classification of Expenses (continued)

(ii) Research - This function includes research activities specifically funded by contracts and/or grants from external organizations and undertaken within the institution to produce research outcomes. Costs associated with this function include such things as research administration, research accounting, support costs established to conduct all research projects, and research related amortization.

(iii) Facilities - This function includes all capital asset related expenditures for the operation of the University. These include the operation and maintenance of physical plant and equipment for all institutional activities; utilities; facilities administration; custodial services; landscaping and grounds keeping; major repairs and renovations; security services; administration of infrastructure development; amortization expense (other than research related) and debt servicing costs related to the entire University.

(iv) Students - This function includes activities that directly support the individual students or groups of students. These include student service administration; counseling; career services; social development and recreation; financial aid administration; scholarships and bursaries; and any other centralized general and financial administration and support costs related to these activities. It also includes ancillary operations that provide goods and services to the students, endowment award related funding and award funds that support students. Costs associated with this function include general and financial administration and support costs directly related to these activities.

(v) Community engagement - This function includes activities that support the relationship between the University and the community. It includes campus planning; advancement and development office; alumni; public / government relations; community affairs, and any other centralized institution wide external affairs. Costs associated with this function include general, financial administration and support costs directly related to these activities.

(vi) Administration - This function includes activities that support the institution as a whole, such as executive management; governance committees; the Board and Senate; corporate finance; human resources; purchasing; and any other centralized institution-wide general administrative activities.

(o) Budget Figures

The budget was approved by the Board of Governors on April 19, 2018. These figures have been provided for comparative purposes.

3 Cash and Cash Equivalents

	March 31 2019	March 31 2018
Cash	$ 34,535	$ 25,473
Cash equivalents	115,061	205,698
	$ 149,596	$ 231,171

The University has a seasonal revolving line of credit. During September 1 to May 31, the line of credit is CAD $40 million, and during June 1 to August 31, the line of credit is increased to CAD $60 million. This operating facility includes, as a sub-limit, a US dollar current account overdraft facility up to US $5 million. As at March 31, 2019, the University had a CAD $40 million revolving line of credit (March 31, 2018 - $40 million) with a sub limit of US $5 million line of credit (March 31, 2018 – US $5 million).

4 Investments

Investments include operating, endowment and sinking fund investments. Operating investments consist of research, capital, and other funds received and held in advance for future expenditures. Endowment investments consist of donations held in perpetuity and land lease revenues received by the University to benefit current and future generations. Sinking fund investments are managed by the provincial government and will be applied against repayment of provincial debentures on maturity (Note 12).

(a) Analysis of Investments

	March 31 2019	March 31 2018
Government and corporate bonds		
Maturity		
Less than 1 year	$ -	$ -
1 - 5 years	681,901	534,814
Greater than 5 years	-	-
Various – pooled	213,026	230,190
	894,927	765,004
Short-term notes and treasury bills	22,414	27,403
Canadian equities	221,632	221,311
Canadian pooled funds	241,157	212,237
United States equities and pooled funds	182,941	139,319
Other international pooled funds	947,501	883,897
Other	35,204	24,809
	$ 2,545,776	$ 2,273,980

These investments are presented in the consolidated financial statements as:

	March 31 2019	March 31 2018
Operating investments	$ 666,657	$ 525,191
Endowment (expendable balance)	877,469	779,374
Endowment (original contribution)	970,536	942,455
Sinking fund investments (Note 12)	31,114	26,960
	$ 2,545,776	$ 2,273,980

Other investments include cash and short-term investments related to endowments and real estate investments and promissory notes issued by unrelated parties.

4 Investments (continued)

(b) Endowment Investments

(i) Endowment investments are reported as financial assets (expendable portion) and non-financial assets (externally restricted principal portion). The portion reported as non-financial assets comprise investments representing the original donation and amounts required to be reinvested to maintain the capital, which are externally restricted by donors and, therefore, cannot be spent and are not considered financial assets.

	March 31, 2019			March 31, 2018		
	Principal	Expendable	Total	Principal	Expendable	Total
Balance, beginning of year	$ 942,455	$ 779,374	$ 1,721,829	$ 916,053	$ 622,219	$ 1,538,272
Donations	22,742	-	22,742	25,650	-	25,650
Internal transfers	5,339	-	5,339	752	-	752
Transfers to/from cash	-	80,000	80,000	-	75,000	75,000
Investment income	-	94,380	94,380	-	150,689	150,689
Expenses	-	(76,285)	(76,285)	-	(68,534)	(68,534)
Balance, end of year	$ 970,536	$ 877,469	$ 1,848,005	$ 942,455	$ 779,374	$ 1,721,829

(ii) Endowments Held by Vancouver Foundation

Endowments with a fair value of $24.4 million (March 31, 2018 - $25.7 million) are held by the Vancouver Foundation in perpetuity for the benefit of the University and are not included in the University's consolidated financial statements. The capital of these endowment funds are held permanently by Vancouver Foundation and invested in accordance with the provisions of the Vancouver Foundations Act.

Endowments with a fair value of $26.8 million (March 31, 2018 - $28.2 million) are held and managed by Vancouver Foundation and are included in the University's consolidated financial statements. The University has the discretion to direct Vancouver Foundation to transfer the whole or any part of the capital of these endowment funds to the University.

(c) Fair Value of Financial Instruments

Fair value of a financial instrument is defined as the amount at which the instrument could be exchanged in a current transaction between willing parties. UBC uses the following methods and assumptions to estimate the fair value of each class of financial instruments for which the carrying amounts are included in the Consolidated Statement of Financial Position under the following captions:

- Cash and cash equivalents, accounts receivable and accounts payable and accrued liabilities – the carrying amounts approximate fair value because of the short-term maturity of these instruments.
- Operating investments
- Endowment investments

4 Investments (continued)

(c) Fair Value of Financial Instruments (continued)

The financial instruments measured at fair value held within each investment are classified according to a hierarchy which includes three levels, reflecting the reliability of the inputs involved in the fair value determination. The different levels are defined as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices)
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs)

The composition of investments recorded at fair value is as follows:

March 31, 2019	Total	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Endowment investments:				
Cash and short-term notes	$ 52,017	$ 52,017	$ -	$ -
Fixed income mutual funds	102,620	102,620	-	-
Canadian equities	293,226	293,226	-	-
Canadian equities mutual funds	84,489	84,489	-	-
United States equities mutual funds	131,139	131,139	-	-
International equities mutual funds	476,145	476,145	-	-
Real estate	158,780	-	-	158,780
Private equity	110,364	-	-	110,364
Hedge fund	106,565	-	-	106,565
Infrastructure equity	200,498	-	-	200,498
Private debt	25,817	-	-	25,817
Other	104,745	-	26,773	77,972
Total endowment investments recorded at fair value	1,846,405	1,139,636	26,773	679,996
Operating investments:				
Fixed income				
Government	651,509	651,509	-	-
Mutual funds	1,000	-	-	1,000
Canadian equities	1,566	1,566	-	-
United States equities	23	23	-	-
Private equity	12,559	-	-	12,559
Total operating investments recorded at fair value	666,657	653,098	-	13,559
Total	$ 2,513,062	$ 1,792,734	$ 26,773	693,555

4 Investments (continued)

(c) Fair Value of Financial Instruments (continued)

March 31, 2018	Total	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)
Endowment investments:				
Cash and short-term notes	$ 37,260	$ 37,260	$ -	$ -
Fixed income mutual funds	97,515	97,515	-	-
Canadian equities	321,384	321,384	-	-
Canadian equities mutual funds	73,564	73,564	-	-
United States equities mutual funds	97,193	97,193	-	-
International equities mutual funds	576,249	529,834	46,415	-
Real estate	141,091	-	-	141,091
Private equity	74,851	-	-	74,851
Hedge fund	80,136	-	-	80,136
Infrastructure equity	182,935	-	-	182,935
Private debt	9,875	-	-	9,875
Other	28,176	-	28,176	-
Total endowment investments recorded at fair value	1,720,229	1,156,750	74,591	488,888
Operating investments:				
Fixed income				
Government	508,828	508,828	-	-
Mutual funds	1,000	-	-	1,000
Canadian equities	1,416	1,416	-	-
United States equities	-	-	-	-
Private equity	13,947	-	-	13,947
Total operating investments recorded at fair value	525,191	510,244	-	14,947
Total	$ 2,245,420	$ 1,666,994	$ 74,591	$ 503,835

The following table reconciles the changes in fair value of financial instruments classified as level 3 during the year.

	March 31 2019	March 31 2018
Balance, beginning of year	$ 503,835	$ 430,945
Unrealized gains	30,777	4,748
Purchases	189,624	121,096
Dispositions	(30,681)	(52,954)
Balance, end of year	$ 693,555	$ 503,835

5 Investments in Government Business Enterprises

Two entities are accounted for in the University's consolidated financial statements using the modified equity method of accounting for government business enterprises (Note 2(c)(ii)).

Financial information in respect of these entities is disclosed below.

	UBC Properties Investments Ltd.		Great Northern Way Campus Trust	
Consolidated Statement of Financial Position:	**March 31 2019**	**March 31 2018**	**March 31 2019**	**March 31 2018**
Financial assets	$ 145,028	$ 86,103	$ 41,045	$ 49,387
Liabilities	480,724	504,280	10,987	32,251
Net assets (liabilities)	(335,696)	(418,177)	30,058	17,136
Non-financial assets	447,014	447,851	19,348	20,318
Accumulated surplus	$ 111,318	$ 29,674	$ 49,406	$ 37,454
Adjustment for Infrastructure Impact Charges (IIC's) and contributions	(14,767)	(12,676)	-	-
Adjusted accumulated surplus	$ 96,551	$ 16,998	$ 49,406	$ 37,454
UBC's proportionate share	$ 96,551	$ 16,998	$ 12,351	$ 9,364
Consolidated Statement of Operations:				
Revenue	$ 97,972	$ 88,926	$ 26,114	$ 38,969
Expenses	18,256	8,380	13,905	23,306
Surplus for the year	79,716	80,546	12,209	15,663
Adjustment to defer land sales	(79,145)	(71,051)	-	-
Adjustment for IIC's	351	352	-	-
Adjusted accumulated surplus	$ 922	$ 9,847	$ 12,209	$ 15,663
UBC's proportionate share	$ 922	$ 9,847	$ 3,052	$ 3,916

(a) UBCPIL recognizes revenue from sales of 99-year leases when the contract has been entered into and all performance obligations have been met including the transfer of control of the prepaid lease. The University defers these revenues in its Consolidated Statement of Financial Position and amortizes the balance to its Consolidated Statement of Operations and Accumulated Surplus over the duration of the leases (Note 11). During the year, UBCPIL adopted IFRS 15 *Revenue from Contracts with Customers*, resulting in an $95.3 million increase to its current year's opening equity. This adjustment has been recorded in the investment in government business enterprises on the University's consolidated financial statements.

(b) During the year, the University received distributions from UBCPIL of $81.8 million (2018 - $91.5 million) and from GNW of $6.4 million (2018 - $8.0 million).

5 Investments in Government Business Enterprises (continued)

(c) During the year, the following significant related party transactions occurred:

UBCPIL invoiced the University $2.8 million (2018 - $3.8 million) for project management fees.

UBCPIL issued promissory notes in favour of the University amounting to $27.6 million (2018 - $2.6 million). The University charged UBCPIL interest in the amount of $0.3 million (2018 - $0.3 million).

The University collected $19.3 million from UBCPIL (2018 - $1.1 million) for infrastructure impact charges. These charges have been eliminated in the consolidated financial statements.

6 Investments in Government Partnerships

UBC provides contributions to fund the operations of TRIUMF, WCUMSS, and CDRD Ventures Inc. Their financial results are proportionately consolidated with those of UBC based upon UBC's share of their total contributions.

The amounts included in these consolidated financial statements are as follows:

	TRIUMF		WCUMSS		CDRD Ventures Inc.	
Consolidated Statement of Financial Position:	**March 31 2019**	**March 31 2018**	**March 31 2019**	**March 31 2018**	**March 31 2019**	**March 31 2018**
Financial assets	$ 54,737	$ 49,175	$ 619	$ 1,098	$ 25,552	$ 16,456
Liabilities	68,970	49,930	1,694	1,847	11,768	8,146
Net assets (liabilities)	(14,233)	(755)	(1,075)	(749)	13,784	8,310
Non-financial assets	27,303	25,418	7,400	7,513	4	12
Accumulated surplus	$ 13,070	$ 24,663	$ 6,325	$ 6,764	$ 13,788	$ 8,322
UBC's proportionate share	$ 934	$ 1,897	$ 1,265	$ 1,353	$ 4,596	$ 2,774
Consolidated Statement of Operations:						
Revenue	$ 73,851	$ 77,086	$ 3,929	$ 6,505	$ 8,077	$ 844
Expenses	85,445	75,364	4,369	4,062	2,611	824
Surplus for the year	$ (11,594)	$ 1,722	$ (440)	$ 2,443	$ 5,466	$ 20
UBC's proportionate share	$ (828)	$ 132	$ (88)	$ 489	$ 1,822	$ 7

TRIUMF expenses all capital assets in its income statement as acquired; the University capitalizes the capital assets and amortizes them over the useful lives. TRIUMF recognizes revenue in the year it is received, whereas the University follows the deferral method of accounting for contributions.

7 Accounts Payable and Accrued Liabilities

	March 31 2019	March 31 2018
Accounts payable and accrued liabilities	$ 273,187	$ 260,959
Salaries and benefits payable	20,380	18,584
Accrued vacation pay	8,532	8,109
Amounts payable to government organizations	10,892	9,631
	$ 312,991	$ 297,283

Included in accounts payable and accrued liabilities at March 31, 2019 is a balance of $23.0 million owing to UBCPIL. (March 31, 2018 - $29.2 million).

8 Employee Future Benefits

(a) Contributions to Pension Plans

University contributions made to each of the pension plans were:

	March 31 2019	March 31 2018
Faculty Pension Plan	$ 43,256	$ 42,580
Staff Pension Plan	48,675	43,482
Supplemental Arrangement	4,796	4,571
	$ 96,727	$ 90,633

(b) Accumulated Sick Leave Benefit and Income Replacement Plan (IRP)/Disability Benefit Plan (DBP)

The accrued sick leave benefit and accrued IRP and DBP obligations as at March 31, 2019 are based on actuarial valuations prepared as of March 31, 2019 and 2018, respectively. The accrued benefit obligations are calculated as follows:

	Sick leave	IRP and DBP	March 31 2019	March 31 2018
Balance, beginning of year	$ 2,290	$ 6,697	$ 8,987	$ 12,094
Current service and interest cost	898	1,070	1,968	2,582
Benefits paid	(1,163)	(1,045)	(2,208)	(2,439)
Actuarial loss (gain)	1,118	-	1,118	(3,250)
Balance, end of year	$ 3,143	$ 6,722	$ 9,865	$ 8,987

8 Employee Future Benefits (continued)

(b) Accumulated Sick Leave Benefit and IRP/DBP (continued)

Components of net benefit expense	2019	2018
Service cost	$ 1,674	$ 2,274
Interest cost	294	308
Net benefit expense	$ 1,968	$ 2,582

Actuarial assumptions used to determine the University's accrued sick leave benefit obligation are as follows:

	March 31 2019	March 31 2018
Discount rate	3.30%	1.90%
Expected wage and salary increases	2.50%	2.00%

Actuarial assumptions used to determine the University's accrued income replacement benefit obligation are as follows:

	March 31 2019	March 31 2018
Discount rate	3.50%	3.50%
Expected future inflation rate	2.00%	2.00%
Expected wage and salary increases	2.00%	2.00%

9 Deferred Contributions

Deferred contributions represent unspent externally restricted grants, donations, contributions and endowment investment income.

	March 31 2019	March 31 2018
Research	$ 368,005	$ 333,348
Capital	17,802	25,781
Trust	145,275	136,472
Endowment	639,715	620,205
Balance, end of year	$ 1,170,797	$ 1,115,806

Changes in deferred contributions are as follows:

	March 31, 2019				
	Research	Capital	Trust	Endowment	Total
Balance, beginning of year	$ 333,348	$ 25,781	$ 136,472	$ 620,205	$ 1,115,806
Grants, contributions, donations and endowment income	508,763	65,148	214,169	70,754	858,834
Transferred to deferred capital contributions (Note 10)	(52,941)	(77,123)	-	-	(130,064)
Recognized to revenue	(421,165)	3,996	(205,366)	(51,244)	(673,779)
Balance, end of year	$ 368,005	$ 17,802	$ 145,275	$ 639,715	$ 1,170,797

	March 31, 2018				
	Research	Capital	Trust	Endowment	Total
Balance, beginning of year	$ 286,921	$ 39,488	$ 103,757	$ 536,114	$ 966,280
Grants, contributions, donations and endowment income	473,484	83,595	238,463	128,545	924,087
Transferred to deferred capital contributions (Note 10)	(31,580)	(96,286)	-	-	(127,866)
Recognized to revenue	(395,477)	(1,016)	(205,748)	(44,454)	(646,695)
Balance, end of year	$ 333,348	$ 25,781	$ 136,472	$ 620,205	$ 1,115,806

10 Deferred Capital Contributions

Contributions that are restricted for capital and have been spent on capital are recorded as deferred capital contributions. Contributions that are restricted for capital but have not yet been spent are recorded as deferred contributions until such time that the amounts are spent on tangible capital assets. Amounts are recognized into revenue as the liability is extinguished over the useful life of the related tangible capital asset.

Changes in the deferred capital contributions balance are as follows:

	March 31 2019	March 31 2018
Balance, beginning of year	$ 1,510,738	$ 1,464,720
Grants, contributions and donations spent (Note 9)	130,064	127,866
Current year amortization	(84,833)	(81,848)
Balance, end of year	$ 1,555,969	$ 1,510,738

11 Deferred Land Lease Revenue

	Balance at March 31 2018	Additions	Recognized to Revenue	Balance at March 31 2019
Deferred land lease revenue, gross	$ 808,074	$ 207,501	$	$ 1,015,575
Accumulated amortization of deferred land lease revenue	(49,797)		(8,598)	(58,395)
Deferred land lease revenue, net	$ 758,277	$ 207,501	$ (8,598)	$ 957,180

	Balance at March 31 2017	Additions	Recognized to Revenue	Balance at March 31 2018
Deferred land lease revenue, gross	$ 732,241	$ 75,833	$ -	$ 808,074
Accumulated amortization of deferred land lease revenue	(41,757)	-	(8,040)	(49,797)
Deferred land lease revenue, net	$ 690,484	$ 75,833	$ (8,040)	$ 758,277

12 Debt

Debt is measured at amortized cost as follows:

	Maturity Date	Interest Rate	March 31 2019	March 31 2018
Series A Debentures Unsecured, to be repaid at maturity	2031	6.65%	$ 126,761	$ 126,710
Series B Debentures Unsecured, to be repaid at maturity	2035	4.82%	125,543	125,520
Canada Mortgage and Housing Corporation $454.9 paid semi-annually	2019 to 2023	6.25% to 7.88%	2,256	3,111
Province of BC Unsecured Debentures, to be repaid at maturity	2037	4.70%	126,628	126,626
Royal Bank of Canada Demand Loans, $9.6 paid monthly	2020	3.39%	212	228
			381,400	382,195
Less sinking fund investments (Note 4a)			(31,114)	(26,960)
Total			$ 350,286	$ 355,235

The principal portion of debt repayments over the next five years and thereafter are as follows:

2020	$ 648
2021	749
2022	596
2023	433
2024	-
Thereafter	375,000
	$ 377,426

Interest expense for the year on outstanding debt is $20.8 million (2018 - $20.9 million), which is recorded in the Consolidated Statement of Operations and Accumulated Surplus.

In addition to principal repayments, sinking fund payments are made into government invested funds, to be applied against repayment of provincial debentures on maturity. The market value of sinking fund investments as at March 31, 2019 is $31.1 million (Note 4a) and is invested in government and corporate bonds. The University will make sinking fund payments over the next five years and thereafter as follows:

2020	$ 2,006
2021	2,006
2022	2,006
2023	2,006
2024	2,006
Thereafter	30,086
	$ 40,116

13 Tangible Capital Assets

Cost	Balance at March 31 2018	Net Additions (Transfers)	Disposals	Balance at March 31 2019
Land	$ 21,456	$ -	$ -	$ 21,456
Site improvements	243,663	11,850	387	255,126
Buildings and renovations	3,946,809	186,226	14,729	4,118,306
Assets under construction	95,387	29,145	-	124,532
Furnishings, equipment and systems	612,635	121,799	108,543	625,891
Library books	145,102	14,918	14,024	145,996
Total	$ 5,065,052	$ 363,938	$ 137,683	$ 5,291,307

Accumulated Amortization	Balance at March 31 2018	Disposals	Amortization	Balance at March 31 2019
Land	$ -	$ -	$ -	$ -
Site improvements	44,988	387	5,945	50,546
Buildings and renovations	1,252,709	13,229	103,426	1,342,906
Assets under construction	-	-	-	-
Furnishings, equipment and systems	323,777	108,543	84,847	300,081
Library books	67,844	14,024	14,554	68,374
Total	$ 1,689,318	$ 136,183	$ 208,772	$ 1,761,907

	Net book value March 31 2019
Land	$ 21,456
Site improvements	204,580
Buildings and renovations	2,775,400
Assets under construction	124,532
Furnishings, equipment and systems	325,810
Library books	77,622
Total	$ 3,529,400

13 Tangible Capital Assets (continued)

Cost	Balance at March 31 2017	Net Additions (Transfers)	Disposals	Balance at March 31 2018
Land	$ 19,622	$ 1,834	$ -	$ 21,456
Site improvements	230,941	13,017	295	243,663
Buildings and renovations	3,646,051	307,252	6,494	3,946,809
Assets under construction	196,683	(101,296)	-	95,387
Furnishings, equipment and systems	603,527	87,667	78,559	612,635
Library books	140,764	15,892	11,554	145,102
Total	$ 4,837,588	$ 324,366	$ 96,902	$ 5,065,052

Accumulated Amortization	Balance at March 31 2017	Disposals	Amortization	Balance at March 31 2018
Land	$ -	$ -	$ -	$ -
Site improvements	39,636	295	5,647	44,988
Buildings and renovations	1,164,084	6,494	95,119	1,252,709
Assets under construction	-	-	-	-
Furnishings, equipment and systems	319,674	78,559	82,662	323,777
Library books	65,106	11,554	14,292	67,844
Total	$ 1,588,500	$ 96,902	$ 197,720	$ 1,689,318

	Net book value March 31 2018
Land	$ 21,456
Site improvements	198,675
Buildings and renovations	2,694,100
Assets under construction	95,387
Furnishings, equipment and systems	288,858
Library books	77,258
Total	$ 3,375,734

13 Tangible Capital Assets (continued)

(a) Assets Under Construction

As at March 31, 2019, assets under construction having a value of $124.5 million (March 31, 2018 - $95.4 million) have not been amortized. Amortization of these assets will commence when the assets are put into service.

(b) Write-Down of Tangible Capital Assets

Write-downs of tangible capital assets during the year were nil (2018 - nil).

14 Financial Risk Management

The University has exposure to the following risks from its use of financial instruments: interest rate risk, liquidity risk, credit risk and foreign exchange risk.

The Board of Governors ensures that the University has identified its major risks and ensures that management monitors and controls them.

(a) Interest Rate Risk

The University is exposed to interest rate risk on fixed income investments held; the risk arises from fluctuations in interest rates and the degree of volatility of these rates. The University is not at risk for changes in interest rates on its long-term debt obligations as all borrowings are at fixed rates of interest.

(b) Liquidity Risk

The University is exposed to liquidity risk which may arise from the possibility that the University is not able to meet its financial obligations as they become due, or can only do so at excessive costs. The University establishes budgets and cash flow projections to ensure it has the necessary funds, including access to a revolving line of credit to fulfill its obligations when due.

(c) Credit Risk

The University is exposed to credit risk if a counterparty to a financial instrument fails to meet its obligations. The University accounts for a specific bad debt provision when management considers that the expected recovery is less than the account receivable.

(d) Foreign Exchange Risk

The University is exposed to foreign exchange risk on investments held in foreign currencies and may use foreign currency swaps to mitigate this risk.

15 Government Grants and Contracts

	March 31 2019	March 31 2018
Province of British Columbia		
Core Academic Funding	$ 634,979	$ 613,902
Post Graduate Medical Education Program	139,469	135,048
Other funding	48,510	35,830
Total Province of British Columbia	822,958	784,780
Government of Canada	304,561	273,439
Other governments	20,231	18,877
	$ 1,147,750	$ 1,077,096

During the year, the University received restricted and unrestricted funding from the Province of British Columbia in the amount of $867.3 million (2018 - $842.2 million). $823.0 million has been recognized as revenue from funding received in the current year and prior years (2018 - $784.8 million). Unspent funding represents restricted contributions and is deferred in the Consolidated Statement of Financial Position.

16 Contractual Rights

The University has entered into contracts or agreements in the normal course of operations that it expects will result in the realization of assets and revenues in future fiscal years. UBC is the recipient of research grants from various federal, provincial, and municipal funding agencies. These funding agreements do not abnormally impact the University's financial position and do not guarantee the University the right to future funding.

17 Contractual Obligations and Contingent Liabilities

Contractual obligations and contingent liabilities are as follows:

(a) Capital Projects

At March 31, 2019, outstanding commitments totalled $188.2 million (March 31, 2018 - $20.2 million) for capital projects. These commitments will be payable in subsequent years, and are funded by provincial contributions, private donations and earnings from sales and services.

(b) Litigation

The University is involved from time to time in litigation, which arises in the normal course of operations. Liabilities on any litigation are recognized in the consolidated financial statements when the outcome becomes reasonably determinable. In management's judgement, there is no material negative exposure at this time from existing litigations.

(c) Derivative Financial Instruments

At March 31, 2019, the University had outstanding forward currency contracts with notional values of $269.9 million (2018 - $298.3 million) whose settlements extend to May 3, 2019. The unrealized gain at March 31, 2019 was $0.1 million (2018 - $0.2 million) and has been reflected in the Consolidated Statement of Remeasurement Gains and Losses and in the fair value of investments.

17 Contractual Obligations and Contingent Liabilities (continued)

(d) Self Insurance

Effective January 1, 2013, the University became a member of the University, College and Institute Protection Program (UCIPP), which is an actuarially valuated program of self-insurance for the Province of British Columbia that has been in place since 1987. It is one of several self-insurance programs operated within the Insurance and Risk Management Account (IRMA), which is a special account established under the Financial Administration Act, controlled by the Risk Management Branch of the Ministry of Finance. Annually, an independent actuarial firm reviews the claims history, funding levels and balances in the various programs making up IRMA to ensure that it is maintained at a level sufficient to pay both known claims and incurred, but not reported, losses.

(e) Funding Commitments

Under its endowment investment strategy, the University has outstanding commitments to fund infrastructure, private debt, private equity and real estate investments totalling approximately $6.6 million (March 31, 2018 - $3.6 million); $62.2 million (March 31, 2018 - $54.6 million); $96.1 million (March 31, 2018 - $137.7 million); and $61.6 million (March 31, 2018 - $48.5 million), respectively. The University has no outstanding commitments to previous hedge fund investments (March 31, 2018 - nil).

(f) Operating Lease

The University has lease commitments for premises is committed to total lease payments of $53.3 million over the term of the lease, which expires on March 31, 2040.

(g) Letter of Credit

The University has a letter of credit facility of CAD $26.3 million available as of March 31, 2019 (2018 - $26.3 million). This letter of credit is provided as security to BC Hydro for electrical infrastructure upgrade work to be completed by October 2020. The University does not expect to draw on the letter of credit as BC Hydro is expected to recover its costs via increased electrical billings.

18 Related Party Transactions

The University is related through common control to all Province of British Columbia ministries, agencies, school districts, health authorities, colleges, universities, and crown corporations. Transactions with these related parties, unless disclosed otherwise, are considered to be in the normal course of operations and are recorded at their exchange amounts, which is the amount of consideration established and agreed to between the University and the related parties.

19 Expenses by Object

The following is a summary of expenses by object:

	March 31 2019	March 31 2018
Salaries	$ 1,347,461	$ 1,267,799
Employee benefits	219,023	195,107
Supplies and sundries	253,467	240,110
Amortization	208,772	197,720
Cost of goods sold	45,779	45,570
Scholarships, fellowships and bursaries	147,011	130,935
Travel and field trips	57,807	55,028
Professional and consulting fees	124,606	113,862
Grants and reimbursements to other agencies	127,872	135,691
Utilities	39,296	38,317
Interest on long-term debt	20,781	20,854
	$ 2,591,875	$ 2,440,993

20 Grants and Reimbursements to Other Agencies

During the year, the University distributed research and other funds to agencies totalling $127.9 million (2018 - $135.7 million). These funds were distributed under agreements with granting agencies, whereby the University is the administrative head and a portion of the research is undertaken at other agencies.

Reimbursements of $100.0 million (2018 - $98.4 million) were made to BC health authorities for payments made on behalf of the University for the postgraduate medical education program.

21 Comparative Information

Certain comparative figures have been reclassified in order to provide presentational consistency with the current year.

To: Senate

From: Senate Agenda Committee

Re: a. Amendments to Faculty Council Terms of Reference to Authorize Virtual Meetings

b. Suspension to the Rules and Procedures of Senate to Extend the Powers of the Senate Agenda Committee to Act on Behalf of the Senate on Urgent Matters

Date: 16 March 2020

The Senate Agenda Committee has met recently to discuss the evolving COVID-19 situation. In addition to the earlier proposed rule suspension to allow remote meetings of the Senate, the Agenda Committee would make two further recommendations to allow the collegial governing bodies of the Okanagan campus to continue to function during the COVID-19 pandemic.

A) Amendments to Faculty Council Terms of Reference to Authorize Virtual Meetings

The Committee has noted that not all faculty, college, school council terms of reference authorize remote meetings, despite our larger bodies exceeding the 50 person limit set by the Public Health Order. While generally the Senate considers proposals from those bodies to amend their rules, in this instance, it is not practicable to do so. Therefore, the Senate Agenda Committee would recommend that the Senate amend all faculty, college, and school terms of reference to insert the following section:

> *Notwithstanding any provision in these terms of reference or terms of any other policy or regulation, a member shall be considered present if attending via such remote attendance means deemed acceptable to the Registrar.*

B) Suspension to the Rules and Procedures of Senate to Extend the Powers of the Senate Agenda Committee to Act on Behalf of the Senate on Urgent Matters

Presently, under Rule 25 (d) of the *Rules and Procedures of Senate*, the Senate has delegated the following power to the Senate Agenda Committee:

> d. Agenda Committee (to - by a resolution of ¾ in favour when a quorum is established as being present - approve any matter - except for amendments to the Rules and Procedures of Senate- on behalf of the Senate during the months of June to August (inclusive). Matters approved under this power must be reported to Senate at its next regular meeting for information).

The Senate Agenda recognizes and respects the importance of Senate as a deliberative body and the senior academic authority of the University. There may be situations however where a timely meeting of the Senate is not possible before an important decision must be made due to the size of the body, scheduling of its members, and the 10 day notice requirement for meetings. That is currently acknowledged during the summer months, and giving the current COVID-19 pandemic situation, the Agenda Committee would respectfully request that it be granted this authority for the remainder of this academic year. The Committee assures the Senate that it will have as many decisions as possible

still brought to the full Senate for a decision, and only use this power for such matters that truly cannot wait. The Senate Agenda committee would therefor recommend that Senate resolve as follows:

> That Rules 25(d) of the *Rules and Procedures of Senate* be suspended until 31 December 2020 and be replaced by the following amended rule during that time:
>
> Agenda Committee (to - by a resolution of ¾ in favour when a quorum is established as being present **either in person or by such remote attendance means deemed acceptable to the Secretary** - approve any matter - except for amendments to the Rules and Procedures of Senate- on behalf of the ~~Senate during the months of June to August (inclusive)~~. Matters approved under this power must be reported to Senate at its next regular meeting for information).

THE UNIVERSITY OF BRITISH COLUMBIA

Office of the Senate
University Centre | UNC 322
3333 University Way
Kelowna, BC Canada V1V 1V7

Phone 250.807.9619
Fax 250.807.8007
www.senate.ubc.ca

26 March 2020

To: Okanagan Senate

From: Curriculum Committee

Re: Curriculum Proposals (approval)

The Curriculum Committee has reviewed the material forwarded to it by the Faculties and encloses those proposals it deems ready for approval.

Therefore, the following is recommended to Senate:

Motion: *That Senate approve and recommend to the Board of Governors for approval the revised program requirements, and new course brought forward from the Faculty of Arts and Sciences, the revised program requirements, and new and revised courses brought forward from the Faculty of Education, and the new and revised courses brought forward from the Faculty of Applied Science.*

a. From the Faculty of Arts and Sciences
   i. BA Degree Requirements
   ii. BSc Degree Requirements for students who entered the program prior to 2020/2021
   iii. Major in Mathematics, BSc
   iv. Major in Mathematical Sciences
   v. Combined Major in Physics and Mathematics
   vi. Major in Microbiology
   vii. Major in Physics
   viii. Major in Psychology, BSc
   ix. Major in Statistics
   x. Major in Biochemistry and Molecular Biology
   xi. Major in Biology
   xii. Major in Chemistry
   xiii. Major in Computer Science, BSc

xiv. Major in Data Science
xv. Major in Economics, BSc
xvi. Major in Ecology and Evolutionary Biology
xvii. Major in Earth and Environmental Sciences
xviii. Major in Environmental Chemistry
xix. Major in Freshwater Science
xx. Major in Zoology
xxi. INDG 319 (3) Indigenous Perspectives on Health and Physical Activity

b. From the Faculty of Education
   i. Master of Education, Program Requirements
   ii. Master of Education, Course Offerings
   iii. EDUC 562 (3-9) d Special Topics in Education
   iv. EPSE 407 (3) Developmental Disabilities

c. From the Faculty of Applied Science
   i. APSC 504 (3) Solar Cell Engineering
   ii. ENGR 411 (3) Technology Entrepreneurship for Engineers
   iii. ENGR 511 (3) Technology Entrepreneurship for Engineers
   iv. ENGR 412 (3) Signals, Systems, and Inference
   v. ENGR 512 (3) Signals, Systems, and Inference
   vi. ENGR 418 (3) Applied Machine Learning for Engineers
   vii. ENGR 518 (3) Applied Machine Learning for Engineers
   viii. ENGR 496 (3) Aerospace Materials and Manufacturing Processes
   ix. ENGR 500 (3) Advanced Coatings
   x. ENGR 501 (3) Deep and Reinforcement Learning for Engineers
   xi. ENGR 509 (3) Intelligent Wireless Robotics
   xii. APSC 541 (3) Distributed Power Generation

For the Committee,

Dr. Peter Arthur
Chair, Curriculum Committee

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS / FCCS **Dept./Unit:** Arts and Sciences / English and Cultural Studies **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person:** Marie Loughlin **Phone:** 250-807-9330 **Email:** Marie.Loughlin@ubc.ca

Type of Action:

Other: Updating BA degree requirements to include all English course options (students entering prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of the BA. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

	Draft Academic Calendar URL: http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,857,1084
Proposed Academic Calendar Entry: ## Bachelor of Arts ## Degree Requirements ### [12399] First and Second Years Credit Requirements **[12400]** To complete the first and second years of the B.A. program, a student must complete 60 credits in Arts or Science courses. These credits must be selected from the following: ### [12459] English **[12401]** Students must complete **6 credits of** first-year English selected from: ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**. Students who fail to meet the English requirement before completing 60 Arts-eligible credits will not be permitted to register in courses other than first-year English, until this requirement is satisfied. […]	**Present Academic Calendar Entry:** ## Bachelor of Arts ## Degree Requirements ### [12399] First and Second Years Credit Requirements **[12400]** To complete the first and second years of the B.A. program, a student must complete 60 credits in Arts or Science courses. These credits must be selected from the following: ### [12459] English **[12401]** Students must complete ~~**two**~~ first-year English ~~**courses (6 credits)**~~ selected from: ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153. Students who fail to meet the English requirement before completing 60 Arts-eligible credits will not be permitted to register in courses other than first-year English, until this requirement is satisfied. […]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating BSC degree requirements to include all English course options (students entering prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of the BSC. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

	Draft Academic Calendar URL: http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,1065
Proposed Academic Calendar Entry: **Bachelor of Science** **Degree Requirements for students who entered the program prior to 2020/2021** […] [12192] First and Second Years Credit Requirements [12194] English **[12468]** Students must complete **6 credits of** first-year English selected from: ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**. Students who have not earned the 6 credits of first-year English referred to above by the time they have completed 60 credits of coursework toward a B.Sc. degree will not be permitted to enrol in any courses other than first-year English until the English requirement is met. […]	**Present Academic Calendar Entry:** **Bachelor of Science** **Degree Requirements for students who entered the program prior to 2020/2021** […] [12192] First and Second Years Credit Requirements [12194] English **[12468]** Students must complete ~~**two**~~ first-year English ~~**courses (6 credits)**~~ selected from: ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153. Students who have not earned the 6 credits of first-year English referred to above by the time they have completed 60 credits of coursework toward a B.Sc. degree will not be permitted to enrol in any courses other than first-year English until the English requirement is met. […]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** CMPS **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering the program prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

Mathematics (B.Sc.)

[12320] B.Sc. Major in Mathematics

[…]

[12323]

First Year	Credits
MATH 100, 101	6
COSC 111, 121	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
Total Credits	30

[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,994

Present Academic Calendar Entry:

Mathematics (B.Sc.)

[12320] B.Sc. Major in Mathematics

[…]

[12323]

First Year	Credits
MATH 100, 101	6
COSC 111, 121	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153	6
Total Credits	30

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** CMPS **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person: Bernard Momer** **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering the program prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:	**Draft Academic Calendar URL:** http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,1257 **Present Academic Calendar Entry:**
Mathematical Sciences [14631] Major in Mathematical Sciences […] [14633] First Year Credits CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123 6 COSC 111, 121 6 ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156** 6 MATH 100, 101 6 PHYS 111 or 112 3 PHYS 102, 121 or 122 3 Total Credits 30 […]	**Mathematical Sciences** [14631] Major in Mathematical Sciences […] [14633] First Year Credits CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123 6 COSC 111, 121 6 ~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153 6 MATH 100, 101 6 PHYS 111 or 112 3 PHYS 102, 121 or 122 3 Total Credits 30 […]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** CMPS **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person: Bernard Momer** **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering the program prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

Physics and Astronomy

[15737] Combined Major in Physics and Mathematics

[…]

[15738]

First Year	Credits
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
MATH 100, 101	6
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
PHYS 111 or 112	3
PHYS 102, 121 or 1221	3
COSC 111, 121	6
Total Credits	30

[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,995

Present Academic Calendar Entry:

Physics and Astronomy

[15737] Combined Major in Physics and Mathematics

[…]

[15738]

First Year	Credits
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
MATH 100, 101	6
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153	6
PHYS 111 or 112	3
PHYS 102, 121 or 1221	3
COSC 111, 121	6
Total Credits	30

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Biology **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person: Bernard Momer** **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering the program prior to 2020/21).

Rationale:

ENGL 109, ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

Microbiology

[14436] Major in Microbiology

[…]

[14438]

First Year	Credits
BIOL 116, 125[1]	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
ENGL **109, or two of ENGL** 112[2]**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
MATH 100, 101[1]	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Total credits	30

[1] BIOL 116, 125; CHEM 111, 113 or 121, 123; and MATH 100, 101 should be taken in the first year to ensure students have the prerequisites for second year.

[2] Strongly recommended.
[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,1242

Present Academic Calendar Entry:

Microbiology

[14436] Major in Microbiology

[…]

[14438]

First Year	Credits
BIOL 116, 125[1]	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
~~**Two of**~~ ENGL 112[2] ~~**or**~~ 114, 113, 150, 151, 153	6
MATH 100, 101[1]	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Total credits	30

[1] BIOL 116, 125; CHEM 111, 113 or 121, 123; and MATH 100, 101 should be taken in the first year to ensure students have the prerequisites for second year.

[2] Strongly recommended.
[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** CMPS **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person: Bernard Momer** **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering the program prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

Physics and Astronomy

[12260] Major in Physics

[…]

[12251]

First Year	Credits
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
MATH 100, 101	6
PHYS 111 or 112[1]	3
PHYS 102, 121 or 122[1]	3
Electives[2]	6
Total Credits	30

[1] Minimum grade of 68% is required in each of PHYS 112 and PHYS 122.

[2] COSC 111 and 121 are strongly recommended. Students considering a career in geosciences should take EESC 111, 121, and 350. Students considering a career in astronomy should take ASTR 111 and 121. At least 18 credits (including the 6 credits in first-year English) must be Arts courses.
[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,995

Present Academic Calendar Entry:

Physics and Astronomy

[12260] Major in Physics

[…]

[12251]

First Year	Credits
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153	6
MATH 100, 101	6
PHYS 111 or 112[1]	3
PHYS 102, 121 or 122[1]	3
Electives[2]	6
Total Credits	30

[1] Minimum grade of 68% is required in each of PHYS 112 and PHYS 122.

[2] COSC 111 and 121 are strongly recommended. Students considering a career in geosciences should take EESC 111, 121, and 350. Students considering a career in astronomy should take ASTR 111 and 121. At least 18 credits (including the 6 credits in first-year English) must be Arts courses.

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**	
Faculty/School: IKBSAS **Dept./Unit:** Psychology (BSC) **Faculty/School Approval Date:** 20200131 **Effective Session: 2020W**	**Date:** 2019/09/23 **Contact Person: Jan Cioe** **Phone:** **Email:** jan.cioe@ubc.ca
Type of Action: **Other:** Updating program requirements to include all English course options (current BSc, students entering the program prior to 2020/21)	
Rationale: ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153. The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."	

Proposed Academic Calendar Entry:

Psychology (B.Sc.)

[12264] B.Sc. Major in Psychology

[14839] First and Second Years

First Year	Credits
BIOL 116, 125	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
MATH 100, 101	6
PSYO 111, 121	6
Total Credits	30

[1] Students who have not earned 6 credits of first-year English referred to above by the time they have completed 60 credits of coursework toward a B.Sc. degree will not be permitted to enrol in any courses other than first-year English until the English requirement is met.

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,996

Present Academic Calendar Entry:

Psychology (B.Sc.)

[12264] B.Sc. Major in Psychology

[14839] First and Second Years

First Year	Credits
BIOL 116, 125	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153[1]	6
MATH 100, 101	6
PSYO 111, 121	6
Total Credits	30

[1] Students who have not earned 6 credits of first-year English referred to above by the time they have completed 60 credits of coursework toward a B.Sc. degree will not be permitted to enrol in any courses other than first-year English until the English requirement is met.

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** CMPS **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person: Bernard Momer** **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering the program prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

Statistics

[16033] Major in Statistics

[…]

[16036]

First and Second Years	Credits
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
MATH 100, 101	6
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
PHYS 111 or 112; and PHYS 102, 121, or 122	6
COSC 111	3
DATA 101	3
MATH 200, 221[1]	6
STAT 230	3
Arts electives	6
2nd-Year Science Electives	6
Stream requirements[2]	9
Total Credits	60

[1] Math 221 may be taken in the second term of the first year.

[2] Stream requirements: Students must complete one of the following options. The program advisor maintains a list of suggested courses for which within-stream students will gain the pre-requisites for upper-level requirements.
[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,1292

Present Academic Calendar Entry:

Statistics

[16033] Major in Statistics

[…]

[16036]

First and Second Years	Credits
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
MATH 100, 101	6
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153	6
PHYS 111 or 112; and PHYS 102, 121, or 122	6
COSC 111	3
DATA 101	3
MATH 200, 221[1]	6
STAT 230	3
Arts electives	6
2nd-Year Science Electives	6
Stream requirements[2]	9
Total Credits	60

[1] Math 221 may be taken in the second term of the first year.

[2] Stream requirements: Students must complete one of the following options. The program advisor maintains a list of suggested courses for which within-stream students will gain the pre-requisites for upper-level requirements.

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Chemistry **Faculty/School Approval Date:** 20200131 **Effective Session: 2020W**	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

	Draft Academic Calendar URL: http://www.calendar.ubc.ca/okanagan/proof/edit/index.cfm?tree=18,282,858,1069
Proposed Academic Calendar Entry: Biochemistry and Molecular Biology […] [12218] Major in Biochemistry and Molecular Biology [12219] The Major is structured to meet the requirements of a major in Science and will normally take four years. [12220] First and Second Years Credits BIOL 116, 125 6 CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123 6 MATH 100, 101 6 PHYS 111 or 112 3 PHYS 102, 121 or 122 3 ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156** 6 BIOL 200 3 BIOL 228 3 BIOL 265 3 CHEM 203, 204 6 CHEM 201 3 Arts electives 6 […]	**Present Academic Calendar Entry:** Biochemistry and Molecular Biology […] [12218] Major in Biochemistry and Molecular Biology [12219] The Major is structured to meet the requirements of a major in Science and will normally take four years. [12220] First and Second Years Credits BIOL 116, 125 6 CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123 6 MATH 100, 101 6 PHYS 111 or 112 3 PHYS 102, 121 or 122 3 ~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153 6 BIOL 200 3 BIOL 228 3 BIOL 265 3 CHEM 203, 204 6 CHEM 201 3 Arts electives 6 […]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Biology **Faculty/School Approval Date:** 20200131 **Effective Session: 2020W**	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering prior to 2020.21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

[12223] Major in Biology

[…]

[12234] A minimum of 42 upper-level credits are required, which include at least 36 credits of Science courses (including at least 30 credits of Biology courses).

First Year	Credits
BIOL 116, 1251	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
MATH 100, 1011	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Total credits	30

[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,991

Present Academic Calendar Entry:

[12223] Major in Biology

[…]

[12234] A minimum of 42 upper-level credits are required, which include at least 36 credits of Science courses (including at least 30 credits of Biology courses).

First Year	Credits
BIOL 116, 1251	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153	6
MATH 100, 1011	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Total credits	30

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Chemistry **Faculty/School Approval Date:** 20200131 **Effective Session: 2020W**	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

[12248] Major in Chemistry

[…]

[12249]

First Year	Credits
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
MATH 100, 101	6
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Electives	6
Total Credits	30

[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/okanagan/proof/edit/index.cfm?tree=18,282,858,992

Present Academic Calendar Entry:

[12248] Major in Chemistry

[…]

[12249]

First Year	Credits
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
MATH 100, 101	6
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Electives	6
Total Credits	30

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**	
Faculty/School: IKBSAS **Dept./Unit:** CMPS **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:** bsascurriculum.ubco@ubc.ca
Type of Action: **Other:** Updating program requirements to include all English course options (students entering prior to 2020/21).	
Rationale: ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153. The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."	

Proposed Academic Calendar Entry:

Computer Science (B.Sc.)

[11902] B.Sc. Major in Computer Science

[…]

[11904]

First Year	Credits
COSC 111 or 123	3
COSC 121	3
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
MATH 100, 101	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Electives (COSC 101 recommended)	6
Total Credits	30

[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,993

Present Academic Calendar Entry:

Computer Science (B.Sc.)

[11902] B.Sc. Major in Computer Science

[…]

[11904]

First Year	Credits
COSC 111 or 123	3
COSC 121	3
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153	6
MATH 100, 101	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Electives (COSC 101 recommended)	6
Total Credits	30

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Data Science **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

<table>
<tr>
<td>Proposed Academic Calendar Entry:

Data Science

[17300] Major in Data Science

[…]

[17299]

<table>
<tr><td>First Year</td><td>Credits</td></tr>
<tr><td>CHEM 111 or 121;
and CHEM 113 or 123</td><td>6</td></tr>
<tr><td>MATH 100, 101</td><td>6</td></tr>
<tr><td>ENGL 109, or two of ENGL 112, 113, 114, 150,
151, 153, 154, 155, or 156</td><td>6</td></tr>
<tr><td>PHYS 111 or 112</td><td>3</td></tr>
<tr><td>PHYS 102, 121 or 122</td><td>3</td></tr>
<tr><td>COSC 111, 121</td><td>6</td></tr>
<tr><td>Total Credits</td><td>30</td></tr>
</table>
[…]</td>
<td>Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,1348

Present Academic Calendar Entry:

Data Science

[17300] Major in Data Science

[…]

[17299]

<table>
<tr><td>First Year</td><td>Credits</td></tr>
<tr><td>CHEM 111 or 121;
and CHEM 113 or 123</td><td>6</td></tr>
<tr><td>MATH 100, 101</td><td>6</td></tr>
<tr><td><s>Two of</s> ENGL 112 <s>or</s> 114, 113, 150, 151, 153</td><td>6</td></tr>
<tr><td>PHYS 111 or 112</td><td>3</td></tr>
<tr><td>PHYS 102, 121 or 122</td><td>3</td></tr>
<tr><td>COSC 111, 121</td><td>6</td></tr>
<tr><td>Total Credits</td><td>30</td></tr>
</table>
[…]</td>
</tr>
</table>

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** EPP **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

Economics (B.Sc.)

[15032] B.Sc. Major in Economics

[…]

[14210]

First and Second Years	Credits
ECON 101, 102	6
MATH 100, 101	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
Two of ASTR 110, 120, 111, 121; BIOL 116, 125; COSC 111, 121, 122, 123; EESC 111, 121; GEOG 108, 109	6
ECON 204, 205	6
MATH 200, 221	6
One of MATH 220, 225	3
STAT 230	3
Electives[1]	6
Total Credits	60

[1] In order to meet the degree requirements for the B.Sc., at least 42 of the 120 credits must be upper-level courses (numbered 300 or higher) and at least 18 of the 120 credits must be Arts course credits (including the 6 required credits of first-year English and at least 12 other credits in Arts courses).

[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,1224

Present Academic Calendar Entry:

Economics (B.Sc.)

[15032] B.Sc. Major in Economics

[…]

[14210]

First and Second Years	Credits
ECON 101, 102	6
MATH 100, 101	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153	6
Two of ASTR 110, 120, 111, 121; BIOL 116, 125; COSC 111, 121, 122, 123; EESC 111, 121; GEOG 108, 109	6
ECON 204, 205	6
MATH 200, 221	6
One of MATH 220, 225	3
STAT 230	3
Electives[1]	6
Total Credits	60

[1] In order to meet the degree requirements for the B.Sc., at least 42 of the 120 credits must be upper-level courses (numbered 300 or higher) and at least 18 of the 120 credits must be Arts course credits (including the 6 required credits of first-year English and at least 12 other credits in Arts courses).

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Biology **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

Ecology and Evolutionary Biology

[14418] Major in Ecology and Evolutionary Biology

[…]

[14420] A minimum of 42 upper-level credits are required, which include at least 36 credits of Science courses (including at least 30 credits of Biology courses).

First Year	Credits
BIOL 116, 125[1]	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
ENGL **109, or two of ENGL** 112[2]**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
MATH 100, 1011	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Total credits	30

[1] BIOL 116, 125; CHEM 111, 113 or 121, 123; and MATH 100, 101 should be taken in first year to ensure students have the prerequisites for second year.

[2] Strongly recommended.

[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,1240

Present Academic Calendar Entry:

Ecology and Evolutionary Biology

[14418] Major in Ecology and Evolutionary Biology

[…]

[14420] A minimum of 42 upper-level credits are required, which include at least 36 credits of Science courses (including at least 30 credits of Biology courses).

First Year	Credits
BIOL 116, 125[1]	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
~~**Two of**~~ ENGL 112[2] ~~**or**~~ 114, 113, 150, 151, 153	6
MATH 100, 1011	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Total credits	30

[1] BIOL 116, 125; CHEM 111, 113 or 121, 123; and MATH 100, 101 should be taken in first year to ensure students have the prerequisites for second year.

[2] Strongly recommended.

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** EEGS **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person: Bernard Momer** **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering the program prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

[12312] Major in Earth and Environmental Sciences

[…]

[12314]

First and Second Years	Credits
Two of EESC 101, 111, 121	6
Two of BIOL 116, 125, COSC 101, 111, 114, 121	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
MATH 100, 101	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
STAT 230 or equivalent course (e.g. BIOL 202; GEOG 271; PSYO 271; SOCI 271)	3
At least three 200-level EESC courses	9
Science Electives (200-level)	6
Electives	6
Total Credits	60

[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,1070

Present Academic Calendar Entry:

[12312] Major in Earth and Environmental Sciences

[…]

[12314]

First and Second Years	Credits
Two of EESC 101, 111, 121	6
Two of BIOL 116, 125, COSC 101, 111, 114, 121	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
MATH 100, 101	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153	6
STAT 230 or equivalent course (e.g. BIOL 202; GEOG 271; PSYO 271; SOCI 271)	3
At least three 200-level EESC courses	9
Science Electives (200-level)	6
Electives	6
Total Credits	60

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Chemistry **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering the program prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

Environmental Chemistry

[14619] Major in Environmental Chemistry

[…]

[14620] Students entering the Major in Environmental Chemistry program must complete Chemistry 11 (or equivalent) and Principles of Mathematics 12 or Pre-Calculus 12. Students are strongly advised to complete Chemistry 12.

First Year	Credits
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
MATH 100, 101	6
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
BIOL 116, 125; or two of EESC 101, 111, 121[1]	6
Total Credits	30

[1] Students must complete BIOL 116, 125, and two of EESC 101, 111, 121. The order in which these pairs of courses are completed in first and second year is optional.

[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,1256

Present Academic Calendar Entry:

Environmental Chemistry

[14619] Major in Environmental Chemistry

[…]

[14620] Students entering the Major in Environmental Chemistry program must complete Chemistry 11 (or equivalent) and Principles of Mathematics 12 or Pre-Calculus 12. Students are strongly advised to complete Chemistry 12.

First Year	Credits
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
MATH 100, 101	6
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
BIOL 116, 125; or two of EESC 101, 111, 121[1]	6
Total Credits	30

[1] Students must complete BIOL 116, 125, and two of EESC 101, 111, 121. The order in which these pairs of courses are completed in first and second year is optional.

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** EEGS **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:**bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering the program prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

Freshwater Science

[12375] Major in Freshwater Science

[…]

[12378]

Second Year	[Credits]
BIOL 201	3
BIOL 202, STAT 230, or equivalent course (e.g.: GEOG 271; PSYO 271; SOCI 271)	3
CHEM 201 or 210	3
CHEM 211	3
EESC 205, 222	6
ENGL **109, or two of ENGL** 112**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
Arts electives[1]	6
Total Credits	30

[1] At least 18 credits (including the 6 credits in first-year English) must be in Arts courses.

[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,1067

Present Academic Calendar Entry:

Freshwater Science

[12375] Major in Freshwater Science

[…]

[12378]

Second Year	[Credits]
BIOL 201	3
BIOL 202, STAT 230, or equivalent course (e.g.: GEOG 271; PSYO 271; SOCI 271)	3
CHEM 201 or 210	3
CHEM 211	3
EESC 205, 222	6
~~**Two of**~~ ENGL 112 ~~**or**~~ 114, 113, 150, 151, 153	6
Arts electives[1]	6
Total Credits	30

[1] At least 18 credits (including the 6 credits in first-year English) must be in Arts courses.

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Biology **Faculty/School Approval Date:** 20200131 **Effective Session:** 2020W	**Date:** 2019/09/23 **Contact Person:** Bernard Momer **Phone:** **Email:** bsascurriculum.ubco@ubc.ca

Type of Action:

Other: Updating program requirements to include all English course options (students entering the program prior to 2020/21).

Rationale:

ENGL 109 (6), ENGL 154 (3) Indigenous Narrative, ENGL 155 (3) Writing and Making Technology in the Humanities, and ENGL 156 (3) Environmental Literature have been added to the English program's first year options in the 2019-20 Academic Calendar, and thus they need to be included in the ENGL options list that appears as a feature of many BSC programs. Unless this list is revised, students may find that they have taken ENGL courses that do not satisfy a particular major's requirements, even though these courses have been designed to develop the same skills in writing and analysis as ENGL 112, 114, 113, 150, 151 and 153.

The language has been changed to align it with the proposed language for the BSC; in the BSC degree requirements, the language will be streamlined, eliminating the redundancy of stating that "students must complete two first-year English courses (6 credits)," and replacing it with the simpler "students must complete six credits of first-year English."

Proposed Academic Calendar Entry:

Zoology

[15049] Major in Zoology

[…]

[15050]

First Year	Credits
BIOL 116, 125[1]	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
ENGL **109, or two of ENGL** 112[2]**,** 113, 114, 150, 151, 153**, 154, 155, or 156**	6
MATH 100, 101[1]	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Total Credits	30

[1] BIOL 116, 125; CHEM 111, 113 or 121, 123; and MATH 100, 101 should be taken in first year to ensure students have the prerequisites for second year.

[2] Strongly recommended.
[…]

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/Okanagan/proof/edit/index.cfm?tree=18,282,858,1266

Present Academic Calendar Entry:

Zoology

[15049] Major in Zoology

[…]

[15050]

First Year	Credits
BIOL 116, 125[1]	6
CHEM 111 or CHEM 121; and CHEM 113 or CHEM 123	6
~~**Two of**~~ ENGL 112[2] ~~**or**~~ 114, 113, 150, 151, 153	6
MATH 100, 101[1]	6
PHYS 111 or 112	3
PHYS 102, 121 or 122	3
Total Credits	30

[1] BIOL 116, 125; CHEM 111, 113 or 121, 123; and MATH 100, 101 should be taken in first year to ensure students have the prerequisites for second year.

[2] Strongly recommended.

[…]

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit CCGS** **Faculty/School Approval Date:** 20200114 **Effective Session:** 2020/21 W	**Date:** 2019/10/13 **Contact Person:** Dr. Braden Te Hiwi **Phone:** 250.807.8038 **Email:** braden.tehiwi@ubc.ca

Type of Action:
New Course. INDG Indigenous Perspectives on Health and Physical Activity

Rationale: The School of Health and Exercise Science (HES) plans to enhance the Indigenous content for its students as part of its response to UBCO's commitments to the Truth and Reconciliation Commission; specifically, HES would like to respond to the need to enhance Indigenous curriculum at UBCO. In addition, HES would like to support the TRC recommendations directly, which includes a call for Canadian universities to enhance the Indigenization of its curriculum, and to improve the cultural competency in the training of health-care professionals. Furthermore, some professional graduate programs in health fields are beginning to ask applicants to have Indigenous courses in their undergraduate degrees. An important first step in the School of HES response to the growing centrality of Indigenous health to its field is the development of an Indigenous health course, and is working with the Indigenous Studies Program to offer the course proposed herein. The course will be administered within the Indigenous Studies Program, but registration into the course will be restricted to students in the Bachelor of Human Kinetics program.

The course prerequisite will be third-year standing and HEAL 200 (The Social Determinants of Health). The course will be tailored for students without Indigenous course prerequisites. One of the distinctive elements to this course is that it will provide background on Indigenous peoples' worldviews and perspectives broadly, as well as on health and physical activity specifically.

The course differs from INDG 309 (Indigenous perspectives on health) in two key regards: firstly, the emphasis placed on physical activity in the context of Indigenous health and thereby enhancing the specificity of content to the degree; and secondly because it is targeted to students in a discipline outside of Indigenous Studies, specifically, HES, who will not have completed Indigenous Studies prerequisites (INDG 100 or INDG 102), INDG 319 will provide integral background that is not covered in INDG 309.

This course will also be added as a prerequisite to INDG 309 (Indigenous perspectives on health), to allow Human Kinetics students to promote further opportunities for study of Indigenous peoples' health. Additionally, it will ensure students are prepared for INDG 309 with existing Indigenous content. Please note that INDG 319 will only count as a

prerequisite for INDG 309 for Human Kinetic students, and not any other INDG course at the 200 level or above (which usually requires INDG 100 or 102). This means Human Kinetics students will have two avenues to entry into INDG 309; students can have the prerequisite of INDG 100 or INDG 102 and have third year standing like all students, OR they can have INDG 319.	
Proposed Academic Calendar Entry: **INDG 319 (3) Indigenous Perspectives on Health and Physical Activity** **Focuses on Indigenous worldviews and perspectives to frame Indigenous peoples' health opportunities, issues, and challenges, with an emphasis on physical activity contexts. Restricted to students in the Bachelor of Human Kinetics program. [3-0-0]** ***Prerequisite*: HEAL 200. Third-year standing.**	**Academic Calendar URL:** N/A **Present Academic Calendar Entry:** none

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

<table>
<tr><td colspan="2">Category:1</td></tr>
<tr><td>Faculty/School: School of Education
Dept./Unit: N/A
Faculty/School Approval Date: 2020/01/30
Effective Session: 2020S</td><td>Date: 2019/11/19
Contact Person: Dr. Sabre Cherkowski
Phone: 250.807.9306
Email: sabre.cherkowski@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: Revision to credit assignment by removing the distinction between thematic and elective credit.</td></tr>
<tr><td colspan="2">Rationale: This revision in the Okanagan School of Education’s graduate programs will allow greater course flexibility for students without having to complete extra paperwork for graduation. The distinction between the “thematic course offerings” and “elective” was confusing for students so we would like to remove the distinction altogether and replace it with the equivalent course credit total. We also have been permitting MA students to take 3 credits at the 400-level and permitting MEd students 6 credits. The reason being is that MA students have less course flexibility due to the 6-credit thesis requirement. MEd students currently have a 3-credit elective, as the capstone project is only 3 credits. We would like to have this practice reflected in the Academic Calendar.</td></tr>
<tr><td></td><td>Draft Academic Calendar URL:
http://www.calendar.ubc.ca/okanagan/proof/edit/index.cfm?tree=18,285,897,1054</td></tr>
<tr><td>Proposed Academic Calendar Entry:

Homepage (draft) Faculties, Schools, and Colleges College of Graduate Studies Education
Program Requirements

[…]

[15071] M.Ed. Program Requirements

[16135] The M.Ed. is typically completed as a part-time program. Students are encouraged to complete the coursework over two academic years, including summer sessions.</td><td>Present Academic Calendar Entry:
Homepage (draft) Faculties, Schools, and Colleges College of Graduate Studies Education
Program Requirements

[…]

[15071] M.Ed. Program Requirements

[16135] The M.Ed. is typically completed as a part-time program. Students are encouraged to complete the coursework over two academic years,</td></tr>
</table>

Continuing fees will be assessed after three years. M.Ed. students are required to complete the degree within four years.	including summer sessions. Continuing fees will be assessed after three years. M.Ed. students are required to complete the degree within four years.
[16136] To be recommended for an M.Ed. degree, students must complete the following: **[12142]** • 9 credits of core courses: CUST 562, EDUC 500, and EDUC 521; • **18 credits from the Okanagan School of Education's course offerings (3 credits can be taken from a Faculty/Department other than the Okanagan School of Education with approval from the Director of Graduate Programs. S**ee Course Offerings); **and** • EDUC 598 (3 credits) **Note: A maximum of 6 credits can be taken at the 400-level with approval from the Director of Graduate Programs in Education.**	**[16136]** To be recommended for an M.Ed. degree, students must complete the following: **[12142]** • 9 credits of core courses: CUST 562, EDUC 500, and EDUC 521; • ~~**15 credits from one or more thematic areas which may also include EDUC 501**~~ **(**~~**s**~~ee Course Offerings); • EDUC 598 (3 credits)~~**; and**~~ • ~~**3 credits of an approved elective.**~~
[16140] M.A. Program Requirements	**[16140] M.A. Program Requirements**
[16137] The M.A. can be completed on either a part-time or full-time basis. Students are encouraged to complete the coursework over	**[16137]** The M.A. can be completed on either a part-time or full-time basis. Students are encouraged to complete the

two academic years, including summer sessions. Continuing fees will be assessed after three years. M.A. students are required to complete the degree within five years.	coursework over two academic years, including summer sessions. Continuing fees will be assessed after three years. M.A. students are required to complete the degree within five years.
[16138] To be recommended for an M.A. degree, students must complete the following:	**[16138]** To be recommended for an M.A. degree, students must complete the following:
[16139] • 9 credits of core courses: CUST 562, EDUC 500, and EDUC 521; • **15 credits from the Okanagan School of Education's course offerings (3 credits can be taken from a Faculty/Department other than the Okanagan School of Education with approval from the Director of Graduate Programs. S**ee Course Offerings); and • EDUC 599 (6 credits). **Note: A maximum of 3 credits can be taken at the 400-level with approval from the Director of Graduate Programs in Education.**	**[16139]** • 9 credits of core courses: CUST 562, EDUC 500, and EDUC 521; • ~~**15 credits from one or more thematic areas which may also include EDUC 501 (s**~~see Course Offerings); and • EDUC 599 (6 credits).

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: School of Education **Dept./Unit:** N/A **Faculty/School Approval Date:** 2020/01/30 **Effective Session: 2020S**	**Date:** 2019/11/19 **Contact Person:** Dr. Sabre Cherkowski **Phone:** 250.807.9306 **Email:** sabre.cherkowski@ubc.ca

Type of Action: Revision to credit assignment

Rationale: This revision in the Okanagan School of Education's graduate programs will allow greater course flexibility for students without having to complete extra paperwork for graduation. The distinction between the "thematic course offerings" and "elective" was confusing for students so we would like to remove the distinction altogether and replace it with the equivalent course credit total. We also have been permitting MA students to take 3 credits at the 400-level and permitting MEd students 6 credits. The reason being is that MA students have less course flexibility due to the 6-credit thesis requirement. MEd students currently have a 3-credit elective, as the capstone project is only 3 credits. We would like to have this practice reflected in the Academic Calendar.

Proposed Academic Calendar Entry:

Homepage (draft) Faculties, Schools, and Colleges College of Graduate Studies Education
Course Offerings

[12147] CORE COURSES

Core courses are required for all M.Ed. and M.A. students.

Core Courses
CUST 562 Curriculum Issues and Theories
EDUC 500 Research Methodology in Education Part 1
EDUC 521 Readings and Discourse in Education

Draft Academic Calendar URL:
http://www.calendar.ubc.ca/okanagan/proof/edit/index.cfm?tree=18,285,897,1056

Present Academic Calendar Entry:
Homepage (draft) Faculties, Schools, and Colleges College of Graduate Studies Education
Course Offerings

[12147] CORE COURSES

Core courses are required for all M.Ed. and M.A. students.

Core Courses
CUST 562 Curriculum Issues and Theories
EDUC 500 Research Methodology in Education Part 1
EDUC 521 Readings and Discourse in Education

[12148] To be recommended for the M.Ed./M.A. degrees, students must complete 15 credits (M.A.) or **18** credits (M.Ed.) from the **Okanagan School of Education's course offerings (3 credits can be taken from a Faculty/Department other than the Okanagan School of Education with approval from the Director of Graduate Programs** (see below). Course selection is done in consultation with a student's supervisor.	[12148] ~~**THEMATIC AREA COURSES**~~ To be recommended for the M.Ed./M.A. degrees, students must complete ~~**15**~~ credits from one or more thematic areas (see below). Course selection is done in consultation with a student's supervisor.
Studies in Diversity	~~**Thematic Area:**~~ **Studies in Diversity**
EDUC 524 Language Teaching and Learning	EDUC 524 Language Teaching and Learning
EDUC 526 Education and Diversity	EDUC 526 Education and Diversity
EDUC 527 Global Education, Citizenship, and Cross-Cultur Conceptions of Teaching and Learning	EDUC 527 Global Education, Citizenship, and Cross-C Conceptions of Teaching and Learning
EDUC 528 Theory and Practice in Inclusive Education	EDUC 528 Theory and Practice in Inclusive Education
EPSE 565 Special Topics in Inclusive Education	EPSE 565 Special Topics in Inclusive Education
Studies in Educational Leadership and Policy	~~**Thematic Area:**~~ **Studies in Educational Leadership a**
EADM 554 Policy and Education	EADM 554 Policy and Education
EADM 556 Conceptualizing Leadership	EADM 556 Conceptualizing Leadership
EADM 557 Leadership for Inclusion and Social Justice	EADM 557 Leadership for Inclusion and Social Justice
EADM 558 Leadership for Sustainability	EADM 558 Leadership for Sustainability
EADM 582 Leadership for Change: Systems, Innovation, ar	EADM 582 Leadership for Change: Systems, Innovatio
Studies in Digital Learning	~~**Thematic Area:**~~ **Studies in Digital Learning**
ETEC 511 Conceptualizing Educational Technology	ETEC 511 Conceptualizing Educational Technology
ETEC 550 Designing Instruction	ETEC 550 Designing Instruction
ETEC 553 Leading and Managing Educational Technology	ETEC 553 Leading and Managing Educational Technol
ETEC 557 Instructional Strategies for Digital Learning	ETEC 557 Instructional Strategies for Digital Learning
ETEC 559 Creating ICT-Enhanced Learning Environments	ETEC 559 Creating ICT-Enhanced Learning Environm
Studies in Curriculum	~~**Thematic Area:**~~ **Studies in Curriculum**
CUST 563 Conceptualizing Curriculum Studies: Theory and	CUST 563 Conceptualizing Curriculum Studies: Theory
CUST 564 Curriculum for Sustainability	CUST 564 Curriculum for Sustainability
CUST 565 Curriculum Studies in Diverse Settings	CUST 565 Curriculum Studies in Diverse Settings
EDST 592 Conceptions of Teaching and Learning	EDST 592 Conceptions of Teaching and Learning

[16401] **Note: A maximum of 6 credits for M.Ed. and 3 credits for M.A. can be taken at the 400-level with approval from the Director of Graduate Programs in the Okanagan School of Education.**	**~~[16401] EDUCATION ELECTIVES~~** **~~A course at the 400- or 500- level may stand as an elective or a thematic area course with approval from the student's supervisor and the Director of Graduate Programs within the Faculty of Education.~~**
Additional Course Offerings	**~~Education Electives~~**
EADM 555 Educational Finance	EADM 555 Educational Finance
EDST 588 Environmental Philosophy and Environmental E	EDST 588 Environmental Philosophy and Environment
EDUC 501 Research Methodology in Education Part II	EDUC 501 Research Methodology in Education Part II
EDUC 517 Contemporary Issues in Education	EDUC 517 Contemporary Issues in Education
EDUC 523 Assessment for Learning	EDUC 523 Assessment for Learning
EDUC 529 Building Communities: Education Beyond the C	EDUC 529 Building Communities: Education Beyond t
EDUC 530 Educating for Humanity: Citizenship through Se Learning	EDUC 530 Educating for Humanity: Citizenship throug Learning
EDUC 560 Directed Studies in Education	EDUC 531 Educational Governance
EDUC 562 Special Topics in Education	ETEC 556 Educational Technology and Converging M
ETEC 556 Educational Technology and Converging Media	
[16402] PROJECT/THESIS Students prepare only one depending on degree route (see Program Requirements)	[16402] PROJECT/THESIS Students prepare only one depending on degree route (see Program Requirements)
Project / Thesis	**Project / Thesis**
EDUC 598 M.Ed. Senior Seminar with Project OR EDUC 599 M.A. Senior Seminar with Thesis	EDUC 598 M.Ed. Senior Seminar with Project OR EDUC 599 M.A. Senior Seminar with Thesis
[15159] Note: not all courses are offered every year. Students should contact the **Okanagan School** of Education for current graduate courses.	**[15159] Note:** not all courses are offered every year. Students should contact the **~~Faculty~~** of Education for current graduate courses.

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: School of Education **Dept./Unit:** N/A **Faculty/School Approval Date:** 2020/01/30 **Effective Session: 2020S**	**Date:** 2020/01/16 **Contact Person:** Dr. Sabre Cherkowski **Phone:** 250.807.9306 **Email:** sabre.cherkowski@ubc.ca

Type of Action:
New Course

Rationale: This course will allow us to offer research and theory-informed courses that are topical and current in an area of high demand and interest. This course and course description is well suited for use with visiting scholars during our summer institute. It will also translate well to other institutions.

Proposed Academic Calendar Entry: **EDUC 562 (3-9) d Special Topics in Education**	**Draft Academic Calendar URL:** N/A **Present Academic Calendar Entry:** none

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: School of Education **Dept./Unit:** N/A **Faculty/School Approval Date:** 2020/01/30 **Effective Session: 2020S**	**Date:** 2019/11/04 **Contact Person:** Dr. Peter Arthur **Phone:** 250.807.9207 **Email:** peter.arthur@ubc.ca

Type of Action:
New Course

Rationale:

EPSE 407 is currently being offered as a special topics course (EPSE 470); however, given the frequency of its offering and the fact that it requires the pre-req EPSE 406, we would like to make it a separate course.

Proposed Academic Calendar Entry: **EPSE 407 (3) Developmental Disabilities** **Development of Individualized Program Plans for children with mild, moderate, and severe intellectual delays. Topics covered include the diagnostic process for determining the severity of an intellectual delay, the interpretation of diagnostic information, and how to construct appropriate educational programs for children. Credit will be granted for only one of EPSE 407 and 470J when the subject matter is of the same nature. Pass/Fail. [3-0-0]** ***Prerequisite: EPSE 406***	**Draft Academic Calendar URL:** N/A **Present Academic Calendar Entry:** none

Curriculum Proposal Form
New Course – Okanagan campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>School of Engineering
Applied Science
Faculty/School Approval Date: 2020.01.21
Effective Session: 2020W</td><td>Date: 2020.01.09
Contact Person: Dr. Yang Cao
Phone: 250.807.9643
Email: yang.cao@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New Course</td></tr>
<tr><td colspan="2">Rationale: With the sun radiating more energy onto the earth’s surface each day than the entire human population uses in one year, solar energy has been identified as a key energy source for combatting climate change. Solar energy is now one of the fastest growing sources of electricity in the world and in Canada, making it a research topic of great significance for future generations.

Despite the topical nature of green energy today, there is currently no designated course on solar energy, solar cells, or photovoltaics. A new course entitled “Solar Cell Engineering” is proposed to fill this gap. With over 10 years of experience in photovoltaic research, Dr. Uhl brings new related expertise to this campus to develop and deliver this course. The course will cover topics including climate change and renewable energy sources, operational principals of solar cells and review of leading technologies, deposition and characterization tools for thin film layers, environmental and economic considerations of solar energy, and latest developments in academic research.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

<u>APSC 504 (3) Solar Cell Engineering</u>
<u>Climate change and renewable energy sources, operational principles of solar cells and review of leading technologies, deposition and characterization tools for thin film layers, environmental and economic considerations of solar energy, and latest developments in academic research.</u></td><td>Draft Academic Calendar URL: N/A

Present Academic Calendar Entry:

None</td></tr>
</table>

Curriculum Proposal Form
New Course – Okanagan campus

Category: 1	
School of Engineering **Applied Science** **Faculty/School Approval Date:** 2020.01.21 **Effective Session:** 2020W	**Date:** 2019.12.09 **Contact Person:** Dr. Yang Cao **Phone:** 250.807.9643 **Email:** yang.cao@ubc.ca
Type of Action: New Course	

Rationale: This course is designed to familiarize undergraduate engineering students with the process of starting a technology-based company. The course is entirely project-based. Students will work in teams to gain an experience-based introduction to the processes of launching a technology-based company. Students will have to evaluate viable market opportunities, build profitable business models, produce a business plan, understand how to raise capital, and present their concept to others. Key topics to be covered during in-class discussions include business planning, business finance, intellectual property, product development, customer validation, and marketing.

This course differs from management or MBA courses on entrepreneurship because it is tailored to expose engineering students to fundamental concepts in technology-related businesses and to help them develop basic skills necessary to start a technology-related business. This course differs from the proposed 5XX version of this course because the 5XX version requires that the students prepare a written business plan.

There is currently no such course available to undergraduate engineering students at the School of Engineering. Similar courses available at UBC include:

MGMT 425 Strategies in Entrepreneurial Technology: MGMT 425 is offered by the Faculty of Management at UBCO and examines entrepreneurship from the perspective of information technology platforms and entrepreneurial behaviours in larger organizations. The proposed course is different from MNGT 425 because the proposed course focuses on earlier stages of the startup process and is specific to technology-related businesses relevant to engineers.

APSC 541 Technology Entrepreneurship: APSC 541 is offered by the Sauder School of Business and Applied Science at UBC Vancouver. APSC 541 is similar to the proposed course, but is only offered in Vancouver. The proposed course is different from APSC 541 because the proposed will be available to undergraduate students and will be taught by an engineering professor.

	Draft Academic Calendar URL: N/A
Proposed Academic Calendar Entry: **ENGR 411 (3) Technology Entrepreneurship for Engineers** **Engineering and innovation, business models, customer development, intellectual property, product development, customer validation, hypothesis testing, company positioning. Credit will be granted for only one of ENGR 411 or ENGR 511. [3-0-0] Prerequisites: Fourth-year standing in the B.A.Sc. program.**	**Present Academic Calendar Entry:** None

Proposed Academic Calendar Entry: **ENGR 511 (3) Technology Entrepreneurship for Engineers [3-0-0] Engineering and innovation, business models, customer development, intellectual property, product development, customer validation, hypothesis testing, company positioning. Credit will be granted for only one of ENGR 511 or ENGR 411**	**Draft Academic Calendar URL:** http://www.calendar.ubc.ca/okanagan/courses.cfm?go=code&code=ENGR **Present Academic Calendar Entry:**

Curriculum Proposal Form
New Course – Okanagan Campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>School of Engineering
Applied Science
Faculty Approval Date: 2020.01.21
Effective Session: 2020W</td><td>Date: 2020.01.13
Contact Person: Dr. Yang Cao
Phone: 250.807.9643
Email: yang.cao@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New course</td></tr>
<tr><td colspan="2">Rationale: Signals, Systems and Inference is a new course that builds on introductory courses in time- and frequency-domain analysis of signals and systems, and in probability. Directed primarily to upper-level undergraduates and beginning graduate students in engineering and applied science branches, this new course aims to create a study track for a transitional course instead of the usual leap from broad introductory subjects to highly specialized advanced subjects. The course introduces and interprets correlation functions and power spectral densities for describing and processing random signals. Application contexts include pulse amplitude modulation, observer-based feedback control, optimum linear filters for minimum mean-square-error estimation, and matched filtering for signal detection. Model-based approaches to inference are emphasized, in particular for state estimation, signal estimation, and signal detection. This course is particularly useful for students who wish to study signal processing, control, communication, time-series analysis, financial engineering, and biomedicine.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

<u>ENGR 412 (3) Signals, Systems, and Inference</u>

<u>Review of signals and systems basics; LTI state-space methods; probabilistic models and estimation of random variable; hypothesis testing rules; random processes and power spectral density; signal estimation based on linear minimum mean square error principle; signal detection in i.i.d. Gaussian noise and coloured noise. Credit will be granted for only one of ENGR 412 or ENGR 512. [3-0-0]</u>
<u>Pre-requisites: ENGR 360, 361, 362 and fourth-year standing in Electrical Engineering</u></td><td>Draft Academic Calendar URL:
N/A

Present Academic Calendar Entry:

none</td></tr>
</table>

Curriculum Proposal Form
New Course – Okanagan Campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>School of Engineering
Applied Science
Faculty Approval Date: 2020.01.21
Effective Session: 2020W</td><td>Date: 2020.01.13
Contact Person: Dr. Yang Cao
Phone: 250.807.9643
Email: yang.cao@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New course</td></tr>
<tr><td colspan="2">Rationale: Signals, Systems and Inference is a new course that builds on introductory courses in time- and frequency-domain analysis of signals and systems, and in probability. Directed primarily to upper-level undergraduates and beginning graduate students in engineering and applied science branches, this new course aims to create a study track for a transitional course instead of the usual leap from broad introductory subjects to highly specialized advanced subjects. The course introduces and interprets correlation functions and power spectral densities for describing and processing random signals. Application contexts include pulse amplitude modulation, observer-based feedback control, optimum linear filters for minimum mean-square-error estimation, and matched filtering for signal detection. Model-based approaches to inference are emphasized, in particular for state estimation, signal estimation, and signal detection. This course is particularly useful for students who wish to study signal processing, control, communication, time-series analysis, financial engineering, and biomedicine.
This course will be offered to MEng students.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

ENGR 512 (3) Signals, Systems, and Inference

Review of signals and systems basics; LTI state-space methods; probabilistic models and estimation of random variable; hypothesis testing rules; random processes and power spectral density; signal estimation based on linear minimum mean square error principle; signal detection in i.i.d. Gaussian noise and coloured noise. Credit will be granted for only one of ENGR 412 or ENGR 512</td><td>Draft Academic Calendar URL:
N/A

Present Academic Calendar Entry:

none</td></tr>
</table>

Curriculum Proposal Form
New Course – Okanagan Campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>School of Engineering
Applied Science
Faculty Approval Date: 2020.01.21
Effective Session: 2020W</td><td>Date: 2020.01.13
Contact Person: Dr. Yang Cao
Phone: 250.807.9643
Email: yang.cao@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New course</td></tr>
<tr><td colspan="2">Rationale: Machine Learning is one of the hottest fields in technology right now. From electrical, mechanical, civil to manufacturing engineering, industries are leveraging these technologies to get ahead. The demand for engineers with machine learning knowledge has already far surpassed the current supply. This course is created in view of the current industry demands.

This course will cover applications of machine learning in engineering disciplines and provide students with much needed skills that industries are looking for.

This course will also expand the options of elective course for mechatronics option.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

<u>ENGR 418 (3) Applied Machine Learning for Engineers</u>

<u>Fundamentals of machine learning, toolboxes in machine learning, supervised learning, unsupervised learning, applications of machine learning in various engineering disciplines. Credit will be granted for only one of ENGR 418 or ENGR 518. [3-0-0]
Prerequisite: Fourth-year standing in the B.A.Sc. program</u></td><td>Draft Academic Calendar URL:
N/A

Present Academic Calendar Entry:

None</td></tr>
</table>

Curriculum Proposal Form
New Course – Okanagan Campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>School of Engineering
Applied Science
Faculty Approval Date: 2020.01.21
Effective Session: 2020W</td><td>Date: 2020.01.13
Contact Person: Dr. Yang Cao
Phone: 250.807.9643
Email: yang.cao@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New course</td></tr>
<tr><td colspan="2">Rationale: Machine Learning is one of the hottest fields in technology right now. From electrical, mechanical, civil to manufacturing engineering, industries and researchers are leveraging these technologies to get ahead. The demand for engineers with machine learning knowledge has already far surpassed the current supply. This course is created in view of the current industry and research needs.

This course will cover applications of machine learning in engineering disciplines and provide students with much needed skills for their research and career advancement.</td></tr>
<tr><td></td><td>Draft Academic Calendar URL:
N/A</td></tr>
<tr><td>Proposed Academic Calendar Entry:

<u>ENGR 518 (3) Applied Machine Learning for Engineers</u>

<u>Fundamentals of machine learning, toolboxes in machine learning, supervised learning, unsupervised learning, applications of machine learning in various engineering disciplines. Credit will be granted for only one of ENGR 518 or ENGR 418.</u></td><td>Present Academic Calendar Entry:

None</td></tr>
</table>

Curriculum Proposal Form
New Course – Okanagan campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>School of Engineering
Applied Science
Faculty/School Approval Date: 2020.01.21
Effective Session: 2020W</td><td>Date: 2020.01.13
Contact Person: Dr. Yang Cao
Phone: 250.807.9643
Email: yang.cao@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New Course</td></tr>
<tr><td colspan="2">Rationale: The course provides undergraduate students in Mechanical and Manufacturing Engineering exposure to special materials and manufacturing processes used in the aerospace industry.</td></tr>
<tr><td></td><td>Draft Academic Calendar URL: N/A</td></tr>
<tr><td>Proposed Academic Calendar Entry:

<u>ENGR 496 – Aerospace Materials and Manufacturing Processes</u>

<u>Properties, behaviour, manufacturing, and advanced processes for materials used in aerospace applications. Materials include alloys, elastomers, composites, polymers, and ceramics. Special processes in the aerospace industry. Introduction to aerospace quality systems, inspection, and testing. [3-0-0]</u>
<u>Prerequisites: ENGR 376 and ENGR 377.</u></td><td>Present Academic Calendar Entry:

None</td></tr>
</table>

Curriculum Proposal Form
New Course – Okanagan Campus

Category: 1

School of Engineering **Applied Science** **Faculty Approval Date:** 2020.01.21 **Effective Session:** 2020W	**Date:** 2019.12.10 **Contact Person:** Dr. Yang Cao **Phone:** 250.807.9643 **Email:** yang.cao@ubc.ca

Type of Action: New course

Rationale: University of British Columbia Okanagan has taken great strides towards becoming an interdisciplinary hub for materials and manufacturing. One materials-related topic that spans several disciplines is the fundamentals of coatings and, in general, the interactions between different surfaces. Graduate students working on microfluidics (bonding surfaces together), polymer composites (fibre-matrix adhesion), biology (cell and bacteria attachment), solar cell development (joining different layers), textile modification (adhering a coating to a fabric), electronic thin films (deposition of one material onto another), or building materials (adhesion between masonry components) all need a strong background in the coatings and surface modification.

This course will discuss how the interactions between solids and liquids arise, can be controlled, and are affected by both chemical and physical parameters of the interfaces separating the two phases. The objective is for students to understand the properties of surfaces and how they interact when in contact with either liquids or solids. Topics include surface energies and why surfaces are different from bulk material properties; wetting, capillarity, and the interactions between solids and liquids; adhesion, texture, and the mechanics of interfacial separation for two bonded solids; modification of surfaces to enable new materials properties; and recent developments in surface engineering including superhydrophobic surfaces, icephobic surfaces, low friction materials, and anti-fouling coatings.

	Draft Academic Calendar URL: N/A
Proposed Academic Calendar Entry: **ENGR 500 (3) Advanced Coatings** **Wettability, capillarity, surface energy and surface tension, interfacial mechanics, adhesion, surface texturing and roughness, surface modification, recent developments in adhesion and surface engineering.**	**Present Academic Calendar Entry:** None

Curriculum Proposal Form
New Course – Okanagan Campus

Category: 1

School of Engineering **Applied Science** **Faculty Approval Date:** 2020.01.21 **Effective Session:** 2020W	**Date:** 2020.01.13 **Contact Person:** Dr. Yang Cao **Phone:** 250.807.9643 **Email:** yang.cao@ubc.ca

Type of Action: New course

Rationale: Deep learning and reinforcement learning have received an increasing attention in recent years, due in large part to the increasing availability of data and corresponding programming/computational resources and its widespread success in numerous disciplines. When deep learning meets the reinforcement learning, a more powerful tool can be produced to handle the real-world problems. This course will provide the students with a fundamental understanding of the deep learning, reinforcement learning and their union (deep reinforcement learning). Moreover, several practical applications such as the speech recognition and image processing by deep reinforcement learning will also be reviewed.

This course will be offered to both MASC and MEng students. It will satisfy research needs for several research groups.

Draft Academic Calendar URL: N/A

Proposed Academic Calendar Entry:

ENGR 501 (3) Deep and Reinforcement Learning for Engineers

Foundations of neural networks and deep learning; techniques to improve neural networks; convolutional neural networks recurrent neural networks and their applications; reinforcement learning: basics, Q-learning, actor-critic algorithm; practical engineering applications of deep and reinforcement learning

Present Academic Calendar Entry:

None

Curriculum Proposal Form
New Course – Okanagan campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>School of Engineering
Applied Science
Faculty Approval Date: 2020.01.22
Effective Session: 2020W</td><td>Date: 2020.01.13
Contact Person: Dr. Yang Cao
Phone: 250.807.9643
Email: yang.cao@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New course</td></tr>
<tr><td colspan="2">Rationale: Both artificial intelligence and robotics have received an exponentially increasing amount of attention in recent years, as we are in the beginning phase of new industrial revolution, smart home and factory, abundant civilian and military applications of robots with machine intelligence. Robotics is the engineering science and technology of robots and their design, production and application. Today we see wireless robots all around us in manufacturing, transportation, space exploration, surgery, and laboratory applications. New developments of wireless technologies such as cloud computing and ultra-reliable low-latency communication network bring these networked intelligent robots together to perform tasks there are previously believed to be impossible. This timely and much needed new course will provide the students with a fundamental understanding of artificial intelligence, robotics, localization, computer vision and robot planning. Moreover, several practical applications such as service robot and autonomous vehicles by artificial intelligence algorithms will also be reviewed. This course looks at wireless robotics and artificial intelligence from a variety of angles. Students will explore various areas of this fascinating field. They will study the basics of essential probability theory and linear algebra, and how to program a robot and implement some sophisticated algorithms.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

ENGR 509 (3) Intelligent Wireless Robotics

Basic artificial intelligence and machine learning, statistical decision processes, state estimation, localization, computer vision and multi-modal fusion, robot planning, multi-agent systems and distributed computing, networked multi-agent systems, security, ultra-reliable and low-latency mobile machine-to-machine networking</td><td>Draft Academic Calendar URL:
N/A

Present Academic Calendar Entry:

None</td></tr>
</table>

Curriculum Proposal Form
New Course – Okanagan Campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>School of Engineering
Applied Science
Faculty/School Approval Date: 2020.01.21
Effective Session: 2020W</td><td>Date: 2020.01.13
Contact Person: Dr. Yang Cao
Phone: 250.807.9643
Email: yang.cao@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New course</td></tr>
<tr><td colspan="2">Rationale: This is a new graduate course for the Electrical and Mechanical programs at the School of Engineering, Faculty of Applied Science. This course focuses on the essential aspects of distributed generation and smart grid technologies. This course aims to facilitate graduate student research related to the integration of renewable energy resources to the electrical power system. This course will support the research needs in areas related to renewable energy, Smart Grids, power electronics, and power systems.</td></tr>
<tr><td></td><td>Draft Academic Calendar URL: N/A</td></tr>
<tr><td>Proposed Academic Calendar Entry:

<u>APSC 541 (3) Distributed Power Generation</u>

<u>Overview of distributed power generation technologies; impacts of distributed generation on power system operation and planning; wind and PV resources in the electrical grid; energy storage technologies in the electrical grid; demand response and advanced metering infrastructure.</u></td><td>Present Academic Calendar Entry:

None</td></tr>
</table>

THE UNIVERSITY OF BRITISH COLUMBIA

Office of the Senate
University Centre | UNC 322
3333 University Way
Kelowna, BC Canada V1V 1V7

Phone 250.807.9619
Fax 250.807.8007
www.senate.ubc.ca

3 March 2020

To: Okanagan Senate

From: Curriculum Committee

Re: Bachelor of Sustainability (information)

At the 30 January 2020 Senate meeting, the proposed Bachelor of Sustainability program was refereed back to the Senate Curriculum Committee for review of the required 123-credits.

The Curriculum Committee reviewed the new degree program brought forward by the Faculty of Arts and Sciences at both the 11 February 2020 and 3 March 2020 Committee meetings and recommends to Senate the Bachelor of Sustainability program remain at 123-credits.

The rationale provided by the Faculty of Arts and Sciences for the required 123-credits is set out in the enclosed memorandum.

For the Committee,

Dr. Peter Arthur
Chair, Curriculum Committee

THE UNIVERSITY OF BRITISH COLUMBIA
Irving K. Barber School of Arts and Sciences
Okanagan Campus

Dean's Office
Irving K. Barber School of Arts and Sciences
3187 University Way, Kelowna, BC
Canada, V1V 1V7
1.250.807-9406

February 24, 2020

Dear Senate Members,

Thank you for giving us the opportunity to provide further details regarding the Bachelor of Sustainability (B.Sust.) proposal. The proponents and its advisory committee (see appendix) carefully designed each concentration of the degree taking into account UBC's strategic plan, existing academic degree structures, student workload, flexibility of elective courses, and the labour market.

The total number of credits was also carefully considered when the B.Sust was designed. We faced several constraints, namely offering a robust program that would be able to compete nationally and internationally, leaving enough room for electives while allowing students some flexibility in their timetables, and integrating a community service experience that would not only advantage the graduates of this program, but provide an experiential learning component in collaboration with community partners, both important parts of the UBC Strategic plan.

The 123 credits required to complete the degree are a direct result of our decision to include a community service learning component as an integral part of the student's experience. As such, these additional credits do not require students to complete a six course semester at any time during their degree. The additional three credits are divided into three one-credit courses (SUST 202, 302, 402) providing community learning-based opportunities that are completed in each of years 2, 3 and 4. To successfully complete each of these courses, students will have to complete a maximum of 39 hours of work in a community organisation and produce a short reflective piece of academic work at the end of their experience. Students registered in each of these three one-credit courses may complete the course requirements at any time during the winter session (Terms 1 and 2), as long as they complete their placement and their reflective report by the end of Term 2.

We appreciate the concerns that were raised regarding the workload the extra three credits could potentially generate. The committee deliberated on the structure of the degree and the total number of credits required to graduate. It came to the conclusion that the addition of the three credits of experiential learning will not create unreasonable expectations or an excessive burden. The BFA degree, offered by FCCS, requires the completion of 126 credits and is apparently quite manageable. Any reduction of credits in the B. Sust. program would require either removal of this community service learning component, or removal of an upper level elective, neither of which are desirable options from a pedagogical standpoint.

We would like to point out that the number of credits in a degree is a very poor measure of student workload. Students in the B.A. and B.Sc. degrees complete the same number of credits; however, the total workload over the four years of their degrees is very different. The following examples are based on two students that graduated last April, one with a B.A. in History, the other with a B.Sc. in Chemistry. The History student received 1,489 hours of instruction in the classroom, 52 hours in lab sessions to complete the mandatory six credits of science, and 58 hours in tutorials or seminars (Table 1). For the same 120 credits, the Chemistry student received 1,404 hours of instruction in the classroom, completed 702 hours in lab sessions and 52 hours in tutorials or seminars (Table 1)[1]. The science student therefore spent an additional 558 hours in a classroom or lab room than the Arts student over the four years it took to complete their degrees. Upon graduation, both had completed 120 credits.

In comparison, students in all B.Sust. concentrations will complete a number of hours that falls between those of the B.A. and the B.Sc. (Table 2), except for the Green Chemistry concentration that requires a similar number of hours as the B.Sc. in Chemistry.

Table 1: B.A. and B.Sc. Total Number of Hours over a Four Year Degree (Sample Students)

Degree (major)	Class Hours	Lab Hours	Seminar/Tutorial Hours	Community Service Learning Hours	Total
B.A. (Hist)	1,489	52	59	0	1,600
B.Sc. (Chem)	1,404	702	52	0	2,158

Table 2: B.Sust. Total Number of Hours over Four Year Degree

Concentration	Class Hours	Lab Hours	Seminar/Tutorial Hours	Community Service Learning Hours	Total
Environmental Humanities	1,547	36	13	39	1,635
Environmental Analytics	1,547	247	13	39	1,846
Environmental Conservation Management	1,531	312	13	39	1,895
Green Chemistry	1,471	624	39	39	2,173

The workload for students completing the 123 credits of the B.Sust. is therefore no more onerous than that of the other degree programs presently offered in Arts and Sciences.

Regarding the concerns pertaining to the additional costs of a 123 credit degree, we do acknowledge that educational costs are constantly increasing and we certainly do not want to unduly add to the financial burden of our students. The revenue generated by the additional three credits is needed to

[1] These figures are for two students selected at random in SISC. These figures will vary slightly as some elective courses require different requirements. The total number of hours were calculated using the values provided by the vectors for the courses the students completed and multiplied by a 13 week semester (i.e. ANTH [3,0,0] meaning three hours of instruction per week for a 13 week semester = 39 hours of classroom instruction).

cover the costs associated with the coordination of the experiential learning component. The one credit Community Service Learning course in each of years two, three and four of the degree will cost students $183.56 per year based on the 2020/21 tuition. By assigning a credit value to these experiential learning courses, we are being transparent and upfront with the total tuition and workload for this degree. Assigning a zero credit value to these courses would not acknowledge the work student completed in these courses and would not decrease tuition as University policy dictates that tuition for any course with a zero credit value will be assessed at one credit at the applicable course-level fee (http://www.calendar.ubc.ca/okanagan/index.cfm?tree=14,339,1031,0).

Thank you once again for the opportunity to address the concerns related to the number of credits in the B.Sust. degree. Please do not hesitate to contact us ahead of the Senate meeting if you have any further questions.

Bernard Momer
Associate Dean, Teaching Learning and Curriculum
Associate Professor, Geography

Lael Parrot, Associate Dean Strategic Personnel Planning and Development
Director, Okanagan Institute for Biodiversity, Resilience, and Ecosystem Services (BRAES)
Professor, Sustainability

APPENDIX

B.Sust. Advisory Committee Members

Dr. Greg Garrard, Associate Dean of Research and Graduate Studies, FCCS
Dr. Kevin Hanna, Associate Professor, Geography
Dr. Nathan Pelletier, Assistant Professor, Biology and Faculty of Management
Dr. Donna Senese, Associate Professor, Geography
Dr. Kevin Smith, Professor, Chemistry

THE UNIVERSITY OF BRITISH COLUMBIA

Office of the Senate
University Centre | UNC 322
3333 University Way
Kelowna, BC Canada V1V 1V7

Phone 250 807 9619
Fax 250 807 8007
www.senate.ubc.ca/okanagan

26 March 2020

To: **Okanagan Senate**

From: **Curriculum Committee and Admissions and Awards Committee**

Re: **Joint Report Curriculum and Admissions Proposals**
- **Bachelor of Sustainability (new program)(approval)**

The Curriculum Committee and the Admissions & Awards Committee have reviewed the material forwarded to it by the Faculties and encloses those proposals it deems ready for approval.

Therefore, the following is recommended to Senate:

Motion: *That Senate approve the Bachelor of Sustainability program and related new courses brought forward from the Faculty of Arts and Sciences.*

a. From the Faculty of Arts and Sciences
   i. New Degree
   ii. Program Overview
   iii. Admission Requirements
   iv. Academic Regulations
   v. Degree Requirements
   vi. CHEM 334 (3) Green Organic Chemistry
   vii. DATA 315 (3) Applied Time Series and Forecasting
   viii. SUST 200 (3) Application, Practice and Management Approaches
   ix. SUST 202 (1) Community Service Learning
   x. SUST 205 (3) Sustainability Economics
   xi. SUST 300 (3) Achieving Sustainability at the Regional Scale
   xii. SUST 301 (3) Methods in Solving Wicked Problems
   xiii. SUST 302 (1) Community Service Learning
   xiv. SUST 400 (6) Capstone Project in Sustainability
   xv. SUST 402 (1) Community Service Learning

For the Committees,

Dr. Peter Arthur Chair, Curriculum Committee

THE UNIVERSITY OF BRITISH COLUMBIA

Irving K. Barber School of Arts and Sciences
Okanagan Campus

New Undergraduate Degree Program Proposal

Bachelor of Sustainability

December 2019

Contents

Executive Summary

> *UBC embraces sustainability as a societal conversation about the kind of world we live in, informed by an understanding of the ecological, social, and economic consequences of our individual and collective actions* (UBC's *20-Year Sustainability Strategy*, p. 3).[1]

Education for sustainable development has been supported and promoted over the last decades by global frameworks such as the United Nations' Decade of Education for Sustainable Development (2005–2014)[2] and the Global Action Programme on Education for Sustainable Development (post-2014)[3] led by the United Nations Educational, Scientific and Cultural Organization (UNESCO). In 2015, world leaders adopted the 17 UNESCO-identified sustainable development goals with the hope of achieving a better and more sustainable future for all.[4] At the national level, the Council of Ministers of Education Canada (CMEC) have identified global citizenship and sustainability as one of the competencies necessary to prepare students for a complex and unpredictable future with rapidly changing political, social, economic, technological, and ecological landscapes.[5] Additionally, sustainability is identified as a strategic direction for the UBC Okanagan campus in the *Aspire: Envisioning our Future*[6] report as part of its research excellence, community engagement, and place commitments.

In its desire to embrace innovation and support a sustainable world, the Irving K. Barber School of Arts and Sciences (Faculty of Arts and Sciences) at the University of British Columbia, Okanagan Campus (UBCO) is proposing to offer a distinct undergraduate degree program in sustainability that encompasses the humanities, social sciences, and natural sciences. The proposed Bachelor of Sustainability (B.Sust.) will provide an interdisciplinary approach, with an in-depth focus on select concentrations, allowing students to achieve the necessary breadth to become well versed in sustainability matters on a local to global scale. While most post-secondary institutions offer courses that have sustainability learning outcomes and several institutions offer environmental studies degrees, the proposed program will be the only dedicated degree in sustainability in Canada.

There are several reasons a degree in sustainability is being proposed instead of a major. Our goal was to develop a wholly integrative program of study that transcends the traditional disciplinary barriers of courses that sit in the arts or the sciences. A major in sustainability within the academic confines of a B.A. or a B.Sc. degree at UBCO would not achieve this goal. Students that major in a discipline complete 48 credits in that discipline with the balance of credits often taken in disciplines unrelated to their course of study. Students that graduate with a Bachelor of Sustainability will complete up to 81 credits of coursework covering topics in, or related to, sustainability. The integration of sustainability in all core and concentration courses ensures that this degree bridges the social sciences, the humanities, and the natural sciences to offer an authentic interdisciplinary education. A degree, rather than a major, also

[1] https://sustain.ubc.ca/about-us/strategic-plans-policies-reports/sustainability-plans
[2] https://en.unesco.org/themes/education-sustainable-development/what-is-esd/un-decade-of-esd
[3] https://en.unesco.org/gap
[4] https://www.un.org/sustainabledevelopment/sustainable-development-goals/
[5] https://www.cmec.ca/682/Global_Competencies.html
[6] https://aspire.ok.ubc.ca/

facilitates direct entry into the program and creates a cohort that will benefit from community building and networking opportunities, which is essential for addressing sustainability challenges.

The overall objective of the program is to provide students with appropriate breadth and rigour to critically assess and propose solutions to contemporary sustainability challenges, such as climate challenges[7], environmental degradation, pollution, energy use, policy, human well-being, and social and economic inequality in British Columbia and the world.

The program features:

- A four-year direct-entry interdisciplinary program at UBCO;
- A set of core integrative courses drawing on faculty from arts, humanities, and social and natural sciences, including Indigenous studies;
- Advanced courses in a relevant concentration designed to prepare students for careers in a variety of sectors;
- Electives from a wide range of relevant disciplines, including Indigenous studies;
- Three one-credit community service learning (CSL) experiences;
- A capstone research-based project ;
- Electronic media and e-learning tools that support traditional lecture and tutorial formats, as appropriate;
- Experiential learning such as field trips, CSL, capstone (refer to Appendix A); and,
- Co-op opportunities.

Students enrolled in the Bachelor of Sustainability program will participate in experiential learning activities that are unique to UBCO's campus, a location that provides ready-made access to urban, agricultural, and natural environments that can be used as living labs. Additionally, students will learn from award-winning faculty and benefit from being part of world-class research taking place on campus. The program will challenge students to become more socially aware global citizens, within various private and public sectors, who will positively and significantly contribute to a growing societal imperative.

Institutional Overview

The University of British Columbia (UBC) is a comprehensive research-intensive institution, consistently ranked among the 40 best universities in the world. It creates an exceptional learning environment that fosters global citizenship, advances a civil and sustainable society, and supports outstanding research to serve the people of British Columbia, Canada, and the world. Since 1915, UBC has embraced innovation and challenged the status quo. Its entrepreneurial perspective encourages students, staff, and faculty to challenge convention, lead discovery, and explore new ways of learning.

The Irving K. Barber School of Arts and Sciences (established in 2005) is the largest faculty at UBCO. It offers eight graduate programs (M.A., M.Sc., Ph.D.) and over 30 disciplinary and interdisciplinary

[7] Refer to the CleanBC Climate Plan recently introduced by the government https://news.gov.bc.ca/releases/2018ENV0087-002364

undergraduate programs (B.A., B.Sc., B.M.S.) that are delivered by eight academic departments across the humanities, social sciences, and natural sciences. In 2017/18, 204 faculty members offered courses to over 4,100 students.

The Faculty of Arts and Sciences has offered a first-year course in sustainability (SUST 100) since 2005 which has attracted between 140 and 220 students during the winter session. Student feedback tells us that many of those taking the course would continue in a sustainability program, if it existed. Furthermore, a June 2019 survey of 432 current UBCO Arts and Sciences students showed that 47% of respondents would have considered the Bachelor of Sustanability program if they had had the option. The Faculty of Arts and Sciences is proposing to offer a four-year, 123 credit (minimum), Bachelor of Sustainability undergraduate program.

Contribution to the institution's mandate and strategic plan

The Bachelor of Sustainability program is a bold initiative to realize UBC's vision of inspiring people, ideas, and actions for a better world and fulfil its commitment to advance sustainability across teaching, learning, and research. The proposed Bachelor of Sustainability is an interdisciplinary degree focused on sustainability, which aligns well with both UBC's strategic plan, *Shaping UBC's Next Century 2018-2028*[8] and *UBC Okanagan's Aspire: Envisioning our Future*[9].

UBC's strategic plan delineates its overarching purpose is to "pursue excellence in research, learning, and engagement to foster global citizenship and advance a sustainable and just society across British Columbia, Canada, and the world" (p. 11). Additionally, the strategic plan highlights that "UBC will focus on enhanced support for program redesign around competencies; the development of problem-solving experiences; technology-enabled learning; and continued growth in work-integrated and professional education" (p. 56). The proposed Bachelor of Sustainability program aligns with multiple strategies within the strategic plan, for example:

- Strategy 2: Inspiring Spaces – students will access spaces, indoor and outdoor, that provide forums for interdisciplinary interaction and interaction with the broader community.
- Strategy 3: Thriving Communities – students will utilize the campus as a living laboratory and will apply their knowledge and skills to address social and environmental issues beyond the campus.
- Strategy 12: Program Redesign – program focuses on learning outcomes aligned to broader competencies, such as critical thinking and problem solving.
- Strategy 14: Interdisciplinary Education – core courses embed interdisciplinarity and students have opportunity to work with professors and students across disciplines to integrate concepts and tackle new, larger issues, and problems.

Similarly, UBC Okanagan's Aspire report outlines "a consensus that the campus should aspire to be a model for innovative and interdisciplinary programing within the UBC system, and a place that has an

[8] https://strategicplan.ubc.ca/
[9] https://aspire.ok.ubc.ca/

impact on communities both local and global" (p. 3). Specifically, the Bachelor of Sustainability program supports:

- Transformative Student Learning – promotes collaboration and interdisciplinary opportunities.
- Community Engagement – students have opportunities for learning and research collaboration with Indigenous communities.
- Place – provides program delivery methods that facilitate student/faculty collaboration and identifies opportunities for exploring living labs using the campus and/or region as focus for social, economic, and environmental sustainability.

Credential

Bachelor of Sustainability (B.Sust.)

Location

The University of British Columbia, Okanagan Campus

Faculty offering the program

The Faculty of Arts and Sciences[10].

Anticipated program start date

September 2021.

Anticipated completion time

Students will be eligible for graduation after successfully completing all of the requirements of the four-year, full-time program.

Delivery methods

The Bachelor of Sustainability program will be delivered through traditional lectures, laboratory assignments, tutorials, community service learning experiences, field trips, and a capstone research-based project. Delivery methods will employ flexible teaching and learning strategies[11] as appropriate.

Summary of the proposed program

Through integrative, synthesis-level courses and disciplinary concentrations, the proposed Bachelor of Sustainability program will provide students with competencies (knowledge, skills, and attitudes[12]), enabling them to successfully perform tasks and solve problems related to the unique sustainability challenges and opportunities faced by society. These unique challenges include sustainable

[10] As of July 1, 2020, the Faculty of Arts and Sciences will be split into the Faculty of Arts and Social Sciences and the Faculty of Science. After this date, the Bachelor of Sustainability will be offered by these two new Faculties.
[11] http://flexible.learning.ubc.ca/our-approach/pillar-1-transformed-teaching-learning/
[12] For the purpose of this paper, competence is defined as "functionally linked complex of knowledge, skills, and attitudes that enable successful task performance and problem solving" (Wiek, Withycombe, Redman, 2011).

development of new and established natural resource sectors; social and behavioural change; food systems; policy and governance; educating for sustainability; and, planning of urban regions to name a few. The program will also provide an excellent foundation for admission to the proposed M.A. and M.Sc. Interdisciplinary Graduate Studies Theme in Sustainability at UBCO (anticipated start: September 2019). Additionally, graduates of the program will be prepared to participate in other institution's advanced professional/graduate programs in planning, business or management, resource management, and sustainability management (e.g., UBCV's Master of Science in Resources, Environment, and Sustainability; University of Toronto's Master of Science in Sustainability Management; Brock University's Master of Sustainability; and, University of Waterloo's a Masters of Environment Studies). Additionally, hands-on experiential learning opportunities and community service learning projects will ensure that students who complete the program will be well positioned to meet the growing need for sustainability experts across multiple sectors (refer to section 7) for many of the predicted new job openings found in the British Columbia Labour Market Outlook: 2018 Edition[13].

Aims, goals and/or objectives of the proposed program

The objectives of the Bachelor of Sustainability program are to:

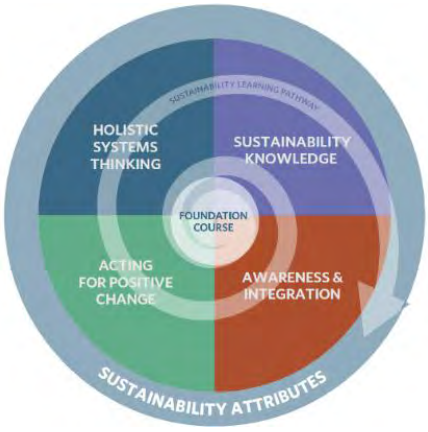
- Provide students with a systems-level understanding of human-environment interactions along with the competencies (knowledge, skills, and attitudes) to help solve contemporary sustainability issues facing society.
- Foster educational collaboration and partnerships among UBCO and the region's communities, First Nations, natural resource sectors, and civil society through community service learning opportunities.
- Equip graduates with the key competencies[14] and motivation to engage others in order to implement and contribute to positive change.
- Provide students with an in-depth understanding of the sustainability challenges and opportunities relevant to their concentration.
- Prepare students to work in interdisciplinary team environments to find solutions that allow human life to thrive over time within the biophysical limits of the planet.

[13] https://www.welcomebc.ca/Choose-B-C/Why-Choose-British-Columbia-Canada/B-C-Labour-Market-Outlook

[14] Key competencies in sustainability: systems thinking; future thinking (anticipatory); values thinking (normative) strategic thinking; and, interpersonal (collaboration), as recognized by Wiek, Withycombe, and Redman and slightly modified by Arizona State University (ASU key competencies).

Program learning outcomes

UBC believes in sustainability because "the ecological and human consequences of unsustainability are devastating; it is the right thing to do ethically and in terms of distributive justice; and, it is desirable in itself, offering the possibility of a better life for people and the planet" (UBC's 20-Year Sustainability Strategy, p. 3).[15]



Students graduating with a sustainability background from UBC should have a firm grounding in, and be able to demonstrate, the following four key attributes: Holistic Systems Thinking, Sustainability Knowledge, Acting for Positive Change, and Awareness and Integration.[16]

The Bachelor of Sustainability program will build students' competence and experience through community learning, along with interactive and stimulating course content. The program learning outcomes are aligned with the four key sustainability attributes introduced by UBC Vancouver to support academic units in developing sustainability pathways[17] (refer to Appendix B).

Students who have completed the program will be able to:

Sustainability Knowledge:

- examine, appraise, and propose solutions to contemporary sustainability issues.
- describe and employ sustainability models and paradigms related to their area of concentration.
- apply their knowledge of the challenges associated with sustainability to shape and inform policy, planning, management, and social, cultural, and institutional change.

Awareness and Integration:

- integrate information from multiple disciplines with awareness of personal impacts, behavioural patterns, and processes of constructing knowledge.
- promote the argument that sustainability demands and requires participation and knowledge from all disciplines and sectors of society.
- design and conduct research in an area of sustainability practice both independently and collaboratively.

Acting for Positive Change:

- use communication tools effectively to engage others in reflection, critical thought, and positive and effective action.
- discuss and debate various perspectives on sustainability with diverse stakeholders.

[15] https://sustain.ubc.ca/about-us/strategic-plans-policies-reports/sustainability-plans
[16] https://sustain.ubc.ca/sites/default/files/resources/UBC%20Sustainability%20Education%20Framework-Sustainability%20Attributes%20March%202013.pdf
[17] Embedding sustainability learning pathways across the university. Marcus, J., Coops, N.C., Ellis, S., & Robinson, J., 2015. https://www.sciencedirect.com/science/article/pii/S1877343515000767?via%3Dihub

- formulate, propose, and realize the positive changes needed to sustain natural and social systems in collaboration with others.

Holistic Systems Thinking:

- describe and analyze the interconnectedness and interdependency of social, ecological, and economic systems from local to global scales.
- examine complex sustainability concerns from a holistic, systems perspective that integrates concepts from the arts, humanities, and applied social and natural sciences.

Program structure[18]

The program will be distinctive in its ability to provide students the opportunity to assess social, economic, and environmental facets of sustainability education and training across the humanities, social sciences, and natural sciences.

The Bachelor of Sustainability program requires students to complete a minimum of 123 credits (refer to Appendix C):

- 39 credits of integrative core courses in sustainability
- A minimum of 42 additional credits (at least 21 of these credits completed at the upper-level) from one on the following concentrations[19]:
  - Environmental Analytics (refer to Appendix D)
  - Environmental Conservation and Management (refer to Appendix E)
  - Environmental Humanities (refer to Appendix F)
  - Green Chemistry (refer to Appendix G)
- Remaining credits will be from a broad range of electives recommended for the Bachelor of Sustainability program (refer to Appendix H). Overall, students must complete 48 credits in upper-level courses to fulfill degree requirements.
  Note: recommended electives may also occur in a concentration. Course credit can only be used once toward concentration or elective requirements. Double-counting of course credit will not be granted.

Upon admission, students will be required to declare one of these areas of concentration:

Environmental Analytics

As our society becomes more digital, there is an abundance of data available. Such data requires careful analysis to understand the underlying phenomena. Because environmental data describe complex intricate systems, students require a solid understanding of how data is collected, what that data means, and how to leverage it for predictions. The environmental analytics concentration supplements core knowledge of sustainability with modern techniques from several disciplines. Powerful modeling and simulation techniques that exploit geographical data will allow students to understand, model, simulate, explain, and extrapolate the behaviour of complex environmental systems. The concentration interdisciplinary tools come from

[18] Refer to Appendix C for B.Sust. program structure details.
[19] Currently, there are four concentrations developed. Other concentrations will be considered in the near future.

mathematics, computer science, statistics, and data science but also from economics, geography, and philosophy. Environmental analytics graduates will be well equipped to tackle sustainability challenges through evidence-based data analysis.

Environmental Conservation and Management

A sustainable world requires that the Earth's ecosystems continue to support biodiversity and all of the ecological services that are essential to maintaining human life and well-being. This concentration provides students with an understanding of the challenges of sustainably managing and preserving terrestrial and freshwater environments and resources. Students gain a strong foundation in the science of environmental management, land use and ecosystem services assessment, resource economics, environmental impact assessments, and relevant Canadian and international policy. Students also learn the key methods and tools in geographic information science that are essential to working in the discipline.

Environmental Humanities

Environmental Humanities is a new configuration of humanities disciplines (principally literary studies, history, philosophy, Indigenous studies, cultural geography, and cultural anthropology) that understands environmental issues as inseparable from the specific cultural contexts in which they appear. For example, environmental humanists have shown how soot and smoke from coal combustion, once promoted as a sign of progress, was reconceptualised by artists, writers, and philanthropists as 'pollution' in late 19c London. Later, this pollution became the object of scientific studies and remediation campaigns. It is clear, too, that variations in the perception of environmental risk must be understood in the light of cultural history: France gets 76% of its electricity from nuclear power, whereas Germany is aiming to phase out nuclear altogether by 2022, yet it cannot be assumed that either nation is more or less rational. Cultural considerations infiltrate spheres that might be considered primarily in scientific and technical terms, such as ecological restoration projects and campaigns to extirpate 'alien' species. At the broadest scale, the idea of clearly demarcated spheres of 'nature' and 'culture' is at once scientifically questionable and culturally resilient. The disciplines of the Environmental Humanities enter into constructive dialogue with other subject areas to analyse and address a wide range of issues in sustainability, and thereby optimise the cultural and ecological impact of academic research.

Green Chemistry

Modern society relies implicitly on an affordable supply of materials, textiles, fertilizers, and medicines, all of which must be synthesized from other substances by chemical reactions. A sustainable society is impossible without the creation of improved production methods for these commodities—methods that must consume fewer and locally-generated resources, demand less energy, produce less waste, and employ fewer hazardous reagents—thereby embodying the 12 Principles of Green Chemistry[20]. Such efforts will require the development of new synthetic procedures with an increased reliance on innocuous solvents, renewable and

[20] Refer to Appendix I, "The 12 Principles of Green Chemistry".

benign reagents, and efficient catalysts.

Linkages between learning outcomes and curriculum design

The proposed Bachelor of Sustainability is an interdisciplinary program that includes learning outcomes from sustainability core course content, concentration course content, and elective course content. Thus, the curriculum design takes into account the need for students to have foundational knowledge in sustainability through core content along with deeper knowledge in specific concentrations. The program also provides flexibility for students to choose electives that align with their personal educational goals. Additionally, a competency-focus was applied to the curriculum design to ensure students that graduate from the program have the knowledge base along with the key competencies required to apply that knowledge in complex, dynamic, real-world sustainability scenarios.

While a work experience/work place term is not required for degree completion, the curriculum design is structured to include hands-on and community based learning opportunities that will help students build important networks and workplace skills.

Labour market

The Bachelor of Sustainability program is designed to prepare students for employment and/or further study in a variety of sectors. Most occupational areas have, or will have in the future, sustainability content and objectives. Employment opportunities for graduates will also be dependent on students' chosen area of concentration. Examples of potential sectors of employment include: natural resources management; provincial/federal/local government; environmental monitoring and consultation; urban/community and regional planning; creative and cultural industries; community leadership; environmental impact assessment; project management; and education. Graduates of the program may also pursue graduate studies (M.A. or M.Sc.) in sustainability or related fields as indicated above.

Research published by ECO Canada[21] in 2014 shows that 18% of the 658 Canadian organisations surveyed had at least one or more sustainability professional[22] on staff, which represented 50,659 jobs, while 37% had at least one employee working in environmental, social or economic sustainability. Twenty-seven percent of those professionals were hired by government agencies (municipal to federal), followed by 24% in research institutions/not for profit organisations, and 20% in the business sector. British Columbia was the third largest employer of sustainability professionals in Canada, after Ontario and Quebec.

The following top competencies of sustainability professionals were identified in the ECO research:

- Interpreting, enforcing and complying with environmental regulations and standards
- Implementing and monitoring sustainable development strategies and programs

[21] ECO Canada (2014). *Careers In Sustainability: Current Job Trends and Future Growth.* *https://www.eco.ca/reports/careers-in-sustainability-current-job-trends-and-future-growth/*

[22] A Sustainability Professional is defined as a practitioner who spend at least 50% of their time performing activities related to environmental, economic or social sustainability.

- Partnering with stakeholders
- Developing corporate environmental sustainability policies and procedure
- Building sustainable development indicators, plans and strategies.

These align with the broad and key competencies graduates of the proposed Bachelor of Sustainability will acquire.

The study also shows that the salary of sustainability professionals range between $40,649 for entry level positions to $105,119 for experienced professionals.

Jobs in sustainability are available across many of the broad occupational categories[23] (e.g., management occupations (0); business, finance, and administration occupations (1); natural and applied sciences and related occupations (2); occupations in education, law and social, community, and government services (4); occupations in art, culture, recreation and sport (5); natural resources, agriculture and related production occupations (8); and, occupations in manufacturing and utilities (9). In May and June 2019, the following jobs were located online that may be suitable for a B.Sust. graduate (see Appendix J for detailed job postings):

- Advisor, Sustainability Reporting (AB)
- Climate Action Analyst (BC)
- Coordinator 2, Environmental (YT)
- Data Analyst & Client Advisor (BC)
- Environmental Assessment Specialist (BC)
- Environmental Technician – Environmental Sustainability Specalist (BC)
- Impact Assessment Analyst (NT)
- Junior Environmental Analyst (BC)
- Junior Environmental Technician (BC)
- Market Intelligence Specialist (BC)
- Planner 1 – Environmental Sustainability (BC)
- Sustainability Analyst (ON)
- Sustainability Consultant (ON)
- Sustainability Office Associate (ON)
- Sustainability Reporting Specialist (ON)
- Sustainability Specialist (ON)

Student interest

A survey administered to UBC Okanagan students in June and July 2019 reveal a strong interest for a degree in sustainability. Of the 432 responses gathered, 86% believed that there is a moderate to high job demand for graduates with a sustainability degree while 46.9% indicated that they would consider registering for the B.Sust. program if they started their degree over again. Of the respondent who would not consider a degree in sustainability, only 35.7% where not interested in a career in sustainability,

[23] References National Occupational Classification (NOC) 2016 Version 1.2

while 16% had an interest in sustainability but were worried about credential recognition. The top three reasons why students would pursue a B.Sust. are: a demand for the skills and training to address future sustainability challenges (26.8%), that sustainability is a growing field with many career opportunities (19%), and personal preference for a career in sustainability (18.9%). The survey also indicated that the Environmental Humanities and Green Chemistry woud attract about 25% of the students with an interest in the B.Sust, while Environmental Conservation and Management, and Environmental Analytics would attract 35.2% and 14.11% of interested students respectively.

These results, combined with the market research from ECO Canada discussed above, indicate that the proposed degree would not only attract students but they would have a good chance of finding employment upon graduation.

Enrolment plan

We hope to admit 15 students in each of the four concentrations in the first year. We anticipate this number to increase to 30 per concentration within five years which should result in a steady state enrolment of 367 students taking into consideration a decreasing attrition rate between 23% and 7% from year two to year four respectively.

Admission requirements/targeted students

The Bachelor of Sustainability degree is a four-year direct-entry interdisciplinary program. The main target audience will therefore be students from highschool or students who have completed one year of university in a B.A. or B.Sc. program. The B.Sust. is designed for both domestic and international students interested in pursuing a degree that prepares them to work in a cross-disciplinary environment where they can contribute solutions to a wide range of contemporary sustainability challenges. Ideally, the program would target a minimum of 10% international students since diversity (of cultural experiences and perspectives) is essential for finding solutions to sustainability challenges.

Student will normally be admitted to the Bachelor of Sustainability program for the Winter Session (September start). In some circumstances, students may be able to begin the program in January, however, this is not recommended as it may limit course options and lengthen the time to degree completion.

Admission from Secondary School

In addition to UBC's minimum admission requirements, students seeking admission to the Bachelor of Sustainability directly from secondary school should have completed one Grade 12 science course.

Admission from Post-Secondary Study

Individuals who have completed courses through an alternate post-secondary institution can apply for entry to year one of the Bachelor of Sustainability program and must meet competitive admission requirements for entry. Transfer credit will be assessed after admission has been achieved. Once admitted, applicants may be considered for admission to year two of the program if they have already substantially completed first year core and concentration course requirements.

Transfer from another UBC Program

Students may not apply for transfer into the Bachelor of Sustainability program from other UBC programs. Instead, they must apply for entry to year one of the program and meet the competitive admission requirements. Once admitted, applicants may be considered for admission to year two of the program only if they are recognized as having already substantially completed year one core and concentration course requirements.

Admission is not available into years three and four of the program.

Program resources

The Faculty of Arts and Social Sciences, the Faculty of Science and the Faculty of Creative and Critical Studies have already hired faculty members with a background in sustainability and have committed to future hires in the field. Additionally, many current faculty members have research and teaching overlap with the proposed program and will contribute to teaching new and existing courses that have been integrated into sustainability concentrations or electives.

Faculty of Arts and Sciences[24]	
Dr. Adam Ford, Assistant Professor; CRC Tier 2 Chair in Restoration Ecology	Department of Biology
Dr. Robert Godin, Assistant Professor, Chemistry	Department of Chemistry
Dr. Kevin Hanna, Associate Professor, Sustainability; Director, UBC Centre for Environmental Assessment Research (CEAR)	Department of Community, Culture and Global Studies; Department of Earth, Environmental and Geographic Sciences
Dr. John Janmaat, Associate Professor of Economics; RIC Chair in Water Resources and Ecosystem Sustainability	Department of Economics, Philosophy and Political Sciences
Dr. Lael Parrott, Professor, Sustainability	Departments of Earth, Environmental and Geographic Sciences; Department of Biology
Dr. Tim Paulson, Assistant Professor, History	Department of History and Sociology
Dr. Nathan Pelletier, Assistant Professor; NSERC Industrial Chair in Biology and Management	Department of Biology (cross-appointed with Faculty of Management)
Dr. Donna Senese, Associate Professor, Geography	Department of Community, Culture and Global Studies
Dr. Kevin M. Smith, Professor, Chemistry	Department of Chemistry
Faculty of Creative and Critical Studies	
Dr. Greg Garrard, Associate Dean of Research and Graduate Studies; Associate Professor, Sustainability	Department of English and Cultural Studies

[24] Please see Faculty offering program above.

Program strengths and benefits

Strengths:

- The program is distinctive, as there is no other degree in sustainability offered in British Columbia.
- The concentrations in the humanities, social sciences, and natural sciences will appeal to a broad audience.
- Interdisciplinary and multidisciplinary structure supports both the breadth and depth of a student's learning experience.
- Students have the opportunity to follow their passions and enhance their future career aspirations.
- Students develop a broad range of competencies that are required to navigate a complex and unpredictable future.
- Students develop key competencies specific to sustainability that are required to address real-world sustainability challenges and opportunities.

Social benefits:

- Provision of knowledgeable and experienced graduates who understand how to account for and balance economic, social, and cultural needs in assessing opportunities for sustainable growth and development.
- Contribution of key competencies and expertise in managing environmental resources and advancing sustainable growth.
- Wider social understanding and acceptance of the roles of diverse academic disciplines in addressing complex environmental sustainability problems.
- Through work in the private and public sectors, graduates will help reconcile diverse social demands and sustainability of the natural environment, while advancing the sustainable development of the province's renewable and non-renewable resources to contribute to the quality of life of all people living in British Columbia.

Economic Benefits:

- There is an increasing demand for university graduates who can contribute a broad understanding to the sustainable development of natural resources; who can communicate multiple options for development; and, who can help account for benefits and impacts on the economy, society, and the natural environment. Many large organizations (e.g., Royal Bank, Canadian National Railway (CN), Canada Post, and Coca-Cola Canada) are implementing sustainability frameworks to bring their staff and facilities in alignment with best practices. This requires individuals with training and experience to design, implement, and manage such frameworks.
- Provincial policies and programs (e.g., BC's updated *Environmental Assessment Act*, BC's clean growth strategy[25]) emphasize the sound development of BC's natural resources for present and future generations. This requires training and exposure to a range of disciplines, multisectorial

[25] https://engage.gov.bc.ca/cleangrowthfuture/. The provincial government is working on a clean growth strategy to integrate the province's goals for climate action, clean energy, and sustainable economic growth.

knowledge, an understanding of the importance of BC's Aboriginal cultures and community rights, and an awareness of the need to balance growth with environmental sustainability.

- Graduates will help achieve economic goals of the province by providing a strong foundation for understanding sustainability along with additional training in related and specialized fields.

Related programs

Sustainability-themed programming is becoming popular across post-secondary institutions nationally and internationally. An environmental scan[26] of 14 post-secondary institutions across Canada and five institutions at the international level has revealed that most institutions have made sustainability a priority at both the organizational level, where reducing the ecological and energetic footprint of operations is being implemented, and at the program level, where courses and programs directly related to sustainability are being identified and marketed. Several large institutions have created hubs of sustainability through which educational services and sustainability policies are developed and supported. For example, UBC Vancouver has created an Institute for Resources, Environment, and Sustainability to foster sustainable futures through integrated research and learning opportunities. Other large universities have established colleges or schools of sustainability (e.g., Dalhousie University; Arizona State University; Princeton University) that provide environments for collaborative teaching, learning, and research to address local and global sustainability challenges. A few international institutions in Australia offer undergraduate degrees in sustainability (e.g., Edith Cowan University; University of New England).

Many post-secondary institutions across Canada are opening up opportunities for degrees related to sustainability[27]. For example, Memorial University in Newfoundland has implemented a new Bachelor of Environment and Sustainability this year. Additionally, McGill University in Quebec offers a combined Bachelor of Arts and Bachelor of Science (B.A.B.Sc.) in Sustainability, Science, and Society, along with a Bachelor of Commerce, Managing for Sustainability. The University of Waterloo offers seven Bachelor of Environment Studies (BES) options (e.g., BES Environment and Business; BES Environment, Resources, and Sustainability; BES International Development).

At the provincial level, Simon Fraser University offers a Bachelor of Environment (BEnv) with three majors (e.g., BEnv in Sustainable Business) that provide training in subject areas related to environmental sustainability. Other institutions, such as the University of Victoria and Thompson Rivers University, offer disciplinary programs in geography and environmental sciences that have sustainability learning outcomes. The UBC Vancouver Geography Department offers a Bachelor of Arts in Environment and Sustainability. Additionally, the institution encourages integration of sustainability curriculum in the form of collections of sustainability-oriented courses and experiences that students pursue alongside their disciplinary major (a learning pathway). Okanagan College offers two credentials related to sustainability: a Sustainable Construction Management Technology Diploma and a Post-Diploma Sustainability Studies Certificate.

[26] Refer to Appendix K – Environmental Scan.
[27] Refer to Appendix L – Program Comparison

Additionally, along with the typical Bachelor of Arts and/or Bachelor of Science programs with environmental majors and minors, several institutions offer students the opportunity to earn supplementary credentials directly related to sustainability. For example, both the University of Alberta and the University of Calgary offer embedded Certificates of Sustainability to students in some undergraduate programs (e.g., Education, Business, Arts, and Science). Thompson Rivers University in BC offers students a Leadership in Environmental Sustainability credential that can be earned in tandem with any undergraduate or graduate program.

The growth of sustainability-related programming indicates a national demand for admission to such programs, and UBCO is well-positioned to meet this growing need. The proposed Bachelor of Sustainability, with its multiple concentrations, will appeal to students looking to undertake a comprehensive and robust degree program in sustainability. It is complementary to related programs offered at the UBC Vancouver campus (i.e., B.A. in Environment and Sustainability) and at other institutions across Canada.

The proposed Bachelor of Sustainability is distinctive from other programs:

- Degree structure that promotes a sense of community, facilitates collaboration and provides networking opportunities.
- Dedicated sustainability courses fulfilling communication, Indigenous content and methodology requirements.
- Exposes students to a broad range of disciplinary perspectives (e.g., humanities, economics, social sciences and sciences) than programs currently offered in other institutions.
- Systems-thinking embedded within core sustainability courses.
- Includes a community service learning component in years 2, 3 and 4.
- The program capitalizes on interdisciplinary teaching strengths and opportunities within the Faculty of Arts and Social Sciences, the Faculty of Sciences and the Faculty of Creative and Critical Studies.
- Offer areas of specialisations outside the environment as traditionally defined (e.g., Green Chemistry, Environmental Humanities).

Program governance and assessment

While the overall degree program will be administered by the Faculty of Arts and Social Sciences or the Faculty of Science, the individual concentrations will be supervised by individual departments as follows:

- Environmental Humanities – Department of English and Cultural Studies
- Environmental Conservation and Management – Department of Earth, Environment and Geographic Sciences
- Environmental Analytics – Department of Computer Science, Physics and Statistics
- Green Chemistry – Department of Chemistry

The Bachelor of Sustainability will be governed by a steering committee composed of one faculty member from each concentration that will be chaired by a degree coordinator reporting to his/her

Dean. The degree coordinator will be responsible for ensuring that all required courses are offered when needed, for approving course substitutions when appropriate and for the day to day operations of the degree. The committee will be responsible for approving, reviewing or developing new curriculum in consultation with the various departments offering courses in the Bachelor of Sustainability. Curriculum changes to the degree will be approved by the curriculum committees of all faculties offering concentrations while changes to a concentration will be approved by the curriculum committee of the faculty hosting the department offering the concentration.

The Bachelor of Sustainability program will be reviewed as per university regulations. The degree and its concentrations will be externally reviewed every five years. The Associate Dean responsible for curriculum will oversee and support the external review process of this degree and associated concentrations as per Faculty policy.

Potential challenges

Establishing a new degree program, especially one that is interdisciplinary, has its challenges. Recruitment of students can potentially be challenging, however, the unique nature of the Bachelor of Sustainability degree will attract students who are interested in an interdisciplinary learning environment. Strategic marketing and recruitment efforts should attract enough students to ensure degree viability. Another challenge faced by new programs is ensuring that appropriate resources are in place to support both faculty and students. The departments offering concentrations have already hired professors that can support the program and the Faculties will continue to recruit faculty members with interests in sustainability as as the program grows.

Institutional contacts

Bernard Momer
Associate Dean, Teaching, Learning and Curriculum
Associate Professor, Geography
Irving K. Barber School of Arts and Sciences
bsascurriculum.ubco@ubc.ca

Lael Parrott
Associate Dean, Strategic Personel Planning and Development
Professor of Sustainability
Director, Okanagan Institute for Biodiversity, Resilience, and Ecosystem Services (BRAES)
Irving K. Barber School of Arts and Sciences
lael.parrot@ubc.ca

Appendices table of contents

Experiential Learning

UBC Okanagan's operational definition of experiential learning (EL) includes opportunities that have a practical or applied experience at their core; are intentionally linked to a learner's academic degree program, personal development, and/or career goals; and, integrate reflection. Reflection associated with EL prompts learners to analyze and think critically about their experiences, and express how the experiences help them make sense of their past or create a path for their future.

EL opportunities at UBC Okanagan span multiple contexts, and may be included within a course or program (curricular), complement academic outcomes (co-curricular), or independent of a learner's course of study (extra-curricular). Some opportunities are work-integrated (situated in an employment or similar context) whereas others are not. The University supports, monitors, and recognizes these experiential learning opportunities as a transformative pathway that enables students to further enhance their knowledge, professional skills, and values.

Potential experiential learning opportunities[1] within the Bachelor of Sustainability program:

Core courses in Sustainability	
Community Service Learning (CSL): SUST 202 (1), SUST 302 (1), SUST 402 (1) Example CSL projects: • habitat restoration • wetland and riparian zone protection • data management • production and communication of public outreach materials • public education (e.g., at BC Parks) • active participation in community stewardship efforts	Capstone Project in Sustainability: SUST 400 (6) • groups of 3–5 students undertake an applied project that resolves an issue related to achieving sustainability in the local community or beyond • project may follow a traditional academic research model or may be community-based • project may be undertaken in partnership with external organizations as relevant

Non-academic organizations with which faculty already have relationships and with which students could gain experiential learning opportunities.[1]				
Agriculture and Agri- Food Canada	BC Tree Fruits Cooperative	Friends of Knox Mountain Society	Okanagan Collaborative Conservation Program	The Fresh Outlook Foundation
BC Ministry of Agriculture	Central Okanagan Community Gardens	Friends of Mission Creek Society	Okanagan Heritage Museum	Water Stewardship Council
BC Ministry of Forests, Lands and Natural Resource Operations	City of Kelowna, West Kelowna, Vernon, Penticton	Kelowna Art Gallery	Regional Districts of South, Central and North Okanagan	

BC Nature Trust	EcoScape Consulting	Kelowna Naturalist's Society	School District #23	
BC Parks	Environment Canada	Natural Resources Canada	South Okanagan Similkameen Conservation Program	
BC Tree Fruits Cooperative	First Nation's councils	Okanagan Basin Water Board	Summit Environmental	

[1]This list is not inclusive.

Bachelor of Sustainability Program Objectives and Program Learning Outcomes

***UBC embraces sustainability as a societal conversation about the kind of world we live in, informed by an understanding of the ecological, social, and economic consequences of our individual and collective actions* (UBC's *20-Year Sustainability Strategy*, p. 3).[1]**

UBC's Strategic Plan*:* People and Places; Research Excellence; Transformative Learning[2]; and, Local and Global Engagement *Aspire:* Research Excellence; Transformative Learning[3]; Community Engagement; and, Place
UBC Okanagan Bachelor of Sustainability
UBC's Attributes of Sustainability[4]
Sustainability Knowledge | Holistic Thinking | Awareness and Integration | Acting for Positive Change
Broad Competencies: Global Citizenship and Sustainability; Critical Thinking and Problem Solving; Innovation, Creativity, and Entrepreneurship; Learning to Learn/Self-Awareness and Self-Direction; Collaboration; and, Communication (CMEC global competencies)
Key Competencies[5]: systems thinking; future thinking (anticipatory); values thinking (normative) strategic thinking; and, interpersonal (collaboration).

Bachelor of Sustainability Program Objectives	**Bachelor of Sustainability Program Learning Outcomes**
Sustainability Knowledge: A student's area of academic inquiry informs their interests and values as it relates to sustainability. A working knowledge of sustainability depends on fundamental, overarching concepts central to its themes.	
1. Provide students with a systems-level understanding of human-environment interactions along with the competencies (knowledge, skills, and attitudes) to help solve contemporary sustainability issues facing society.	Students will be able to – PLO 1: examine, appraise and propose solutions to contemporary sustainability issues. – PLO 2: describe and employ sustainability models and paradigms related to their area of concentration. – PLO 3: apply their knowledge of the challenges associated with sustainability to shape and inform policy, planning, management, and social, cultural, and institutional change.

[1] https://sustain.ubc.ca/about-us/strategic-plans-policies-reports/sustainability-plans
[2] Strategy 12: Program Redesign - Reframe undergraduate academic program design in terms of learning outcomes and competencies.
[3] Graduates who are experienced in practice; interculturally aware and respectful of difference; creative and critical thinkers; resilient; resourceful; leaders and change agents.
[4] https://sustain.ubc.ca/sites/default/files/resources/UBC%20Sustainability%20Education%20Framework-Sustainability%20Attributes%20March%202013.pdf
[5] As recognized by Wiek, A., Withycombe, L., & Redman, C. L. Key competencies in sustainability: a reference framework for academic program development. *Sustain Science* (2011) 6:203–218 DOI 10.1007/s11625-011-0132-6, and slightly modified by Arizona State University (ASU key competencies).

Bachelor of Sustainability Program Objectives	Bachelor of Sustainability Program Learning Outcomes
Awareness & Integration: Recognizing the limitation of the current fragmentation of knowledge and acknowledging the large, complex problems associated with sustainability that require holistic solutions, students need to communicate and work across disciplines.	
2. Foster educational collaboration and partnerships among UBCO and the region's communities, First Nations, natural resource sectors, and civil society through community service learning opportunities.	Students will be able to – PLO 4: integrate information from multiple disciplines with awareness of personal impacts, behavioural patterns, and processes of constructing knowledge. – PLO 5: promote the argument that sustainability demands and requires participation and knowledge from all disciplines and sectors of society. – PLO 6: design and conduct research in environmental sustainability both independently and collaboratively.
Acting for Positive Change: To be an effective and successful graduate a student must be able to engage others and implement or contribute to positive change. The integration and application of a holistic approach, core sustainability knowledge, and the ability to connect across intellectual constructs must be intertwined with a personal value system that inspires action.	
3. Equip graduates with the key competencies and motivation to engage others in order to implement and contribute to positive change.	Students will be able to – PLO 7: use communication tools effectively to engage others in reflection, critical thought, and positive and effective action. – PLO 8: discuss and debate various perspectives of sustainability with diverse stakeholders. – PLO 9: formulate, propose, and realize the positive changes needed to sustain natural and social systems in collaboration with others.
Holistic Thinking: Holistic Systems Thinking considers the interdependent, inter-relational, and contextual aspects of phenomena and applies an integrated, inclusive mindset to problem solving. Holistic approaches are concerned with the assumptions, knowledge, methods, and implications of various disciplines and treats them as an integrated whole, or system.	
4. Provide students with an in-depth understanding of the sustainability challenges and opportunities relevant to their concentration. 5. Prepare students to work in interdisciplinary team environments to find solutions that allow human life to thrive over time within the biophysical limits of the planet.	Students will be able to – PLO 10: describe and analyze the interconnectedness and interdependency of social, ecological, and economic systems from local to global scales. – PLO 11: examine complex sustainability concerns from a holistic, systems perspective that integrates concepts from the arts, humanities, and applied social and natural sciences.

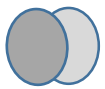
Bachelor of Sustainability: 39 core + xx concentration + xx elective course credits = min. 123 credits

Year/Term							
Year 4	Term 2	SUST 402 (1)[2] Community Service Learning	SUST 400 (6)[2] Capstone Project in Sustainability				
	Term 1						
Year 3	Term 2	SUST 302 (1)[2] Community Service Learning	SUST 301 (3)[2] Methods in Solving Wicked Problems				
	Term 1		SUST 300 (3)[2] Achieving Sustainability at the Regional Scale				
Year 2	Term 2	SUST 202 (1)[2] Community Service Learning	SUST 205 (3)[2] Sustainability Economics				
	Term 1		SUST 200 (3)[2] Application, Practice and Management Approaches	SUST 204 (3)[2] Creative Communication and Engagement	BIOL 202 (3)[1] Introduction to Biostatistics STAT 230 (3)[1] Introductory Statistics SUST 201 (3)[1, 2] Introduction to Research in Sustainability		
Year 1	Term 2		INDG 102 (3) Introduction to Indigeneity: Ways of Knowing	SUST 104 (3)[2] Introduction to Environmental Humanities			
	Term 1		SUST 100 (3) Sustainability: People, Place and Process	ENGL 112 (3) Studies in Composition: Sustainability Focus			

Integrative core courses in Sustainability:
25LL + 14UL = 39 credits

[1] Concentration determines if students take BIOL 202, STAT 230, or SUST 201.

[2] Denotes new courses.



Advanced concentration courses in Sustainability:
Students choose an area of concentration and will complete a minimum of 42 additional credits of advanced concentration courses, 21 of which must be upper-level.

Elective courses from relevant disciplines
Students need to complete enough upper-level credits to achieve the required 48 minimum (not including the 2 from SUST 302 and SUST 402) to fulfill degree requirements. Please consult with program advisor(s) for the selection of electives recommended for the B.Sust. program.

Bachelor of Sustainability		
Course Code	**Prerequisites/Corequisites**	**Credits**
First Year		
ENGL 112		3
INDG 102		3
SUST 100		3
SUST 104[1]	SUST 100 recommended	3
Concentration courses	will vary	12–18
Electives[2]	will vary	0–6
Total Credits		***30***
Second Year		
One of BIOL 202, STAT 230, SUST 201[3]		3
SUST 200[1]	SUST 100	3
SUST 202[1]		1
SUST 204[1]	SUST 104 recommended	3
SUST 205[1]	SUST 200 recommended	3
Concentration courses	will vary	9–12
Electives[2]	will vary	6–9
Total Credits		***31***
Third Year		
SUST 300[1]	SUST 200	3
SUST 301[1]	SUST 300	3
SUST 302[1]	SUST 202	1
Concentration courses	will vary	9–15
Electives[2]	will vary	9–15
Total Credits		***31***
Fourth Year		
SUST 400[1]	SUST 301	6
SUST 402[1]	SUST 302	1
Concentration courses	will vary	9–18
Electives[2]	will vary	6–15
Total Credits		***31***
Minimum credits for degree		**123**
Indicates core sustainability courses that all students must take.		
[1] Denotes new courses.		
[2] Electives vary based on the concentration. Consult with program advisor(s) for selection of electives recommended for the program and for upper level credit requirements.		
[3] Concentration determines if students take BIOL 202, STAT 230, or SUST 201.		

Core Courses: Alignment with Bachelor of Sustainability Program Learning Outcomes (PLOs)[1]
D=direct alignment; I=indirect alignment; left blank=no alignment (refer to notes)

Course Code	Course Name	Sustainability Knowledge			Awareness & Integration			Acting for Change			Holistic Thinking		Notes:
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	
BIOL 202[2]	Introduction to Biostatistics												Prerequisite
ENGL 112[3]	Studies in Composition: Sustainability Focus	I	I	I		I	D	D	D			I	Focus on cultural aspects of environmental issues and communication.
INDG 102	Introduction to Indigeneity: Ways of Knowing	D		D	D	I		I	D	D	I	I	
STAT 230[2]	Introductory Statistics												Prerequisite
SUST 100	Sustainability: People, Place and Process	D		D	D	D		I			D	D	
SUST 104[3]	Introduction to Environmental Humanities	D	D	D	I	D	D	D	D		D	D	Focus on contribution of hums perspective to environmental remediation
SUST 201[2,3]	Introduction to Research in Sustainability	D	D	I	D	D	D	D	I	I	I	I	Course will be cross-listed with GEOG 201
SUST 202[3]	Community Service Learning (1 cr)	I	I	I			I	D	D	D			
SUST 200[3]	Application, Practice and Management Approaches	D		D	I	D		I	I		D	D	
SUST 204[3]	Creative Communication and Engagement	I	D	I	D	D	I	D	D		I	D	Focus on arts-based practices in sustainability and creative communications strategies
SUST 205[3]	Sustainability Economics	D	D	D	I	I		I			I	I	

[1] Refer to page 2 of this document for PLO descriptions and Appendix B for more information regarding program objective and sustainability attributes.
[2] BIOL 202, STAT 230, and SUST 201 are core courses; however, concentration determines which course(s) students must take.
[3] Denotes a new course (refer to Appendices M and N for detailed information)

Course Code	Course Name	Sustainability Knowledge			Awareness & Integration			Acting for Change			Holistic Thinking		Notes:
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	
SUST 300[3]	Achieving Sustainability at the Regional Scale	D		D	D	D		I	I	I	D	D	
SUST 301[3]	Methods in Solving Wicked Problems	D	I	I			D	I	I	I	D	D	
SUST 302[3]	Community Service Learning (1 cr)	I	I	I			I	D	D	D			
SUST 400[3]	Capstone Project in Sustainability (6 cr)	I	D	I	I	I	D	I	I	D	I	D	
SUST 402[3]	Community Service Learning (1 cr)	I	I	I			I	D	D	D			

Upon completion of the Bachelor of Sustainability program, students will be able to

- PLO 1: examine, appraise and propose solutions to contemporary sustainability issues.
- PLO 2: describe and employ sustainability models and paradigms related to their area of concentration.
- PLO 3: apply their knowledge of the challenges associated with sustainability to shape and inform policy, planning, management, and social, cultural, and institutional change.
- PLO 4: integrate information from multiple disciplines with awareness of personal impacts, behavioural patterns, and processes of constructing knowledge.
- PLO 5: promote the argument that sustainability demands and requires participation and knowledge from all disciplines and sectors of society.
- PLO 6: design and conduct research in an area of sustainability practice both independently and collaboratively.
- PLO 7: use communication tools effectively to engage others in reflection, critical thought, and positive and effective action.
- PLO 8: discuss and debate various perspectives of sustainability with diverse stakeholders.
- PLO 9: formulate, propose, and realize the positive changes needed to sustain natural and social systems in collaboration with others.
- PLO 10: describe and analyze the interconnectedness and interdependency of social, ecological, and economic systems from local to global scales.
- PLO 11: examine complex sustainability concerns from a holistic, systems perspective that integrates concepts from the arts, humanities, and applied social and natural sciences.

Bachelor of Sustainability – Environmental Analytics: 39 core + 60 concentration + 24 elective course credits = min. 123 credits

Year/Term							
Year 4	Term 2	SUST 402 (1) Community Service Learning	SUST 400 (6) Capstone Project in Sustainability	PHIL 435 (3) Environmental Ethics	GEOG 431 (3) Resource Management Policy and Practice		
	Term 1			DATA 410 (3) Regression and Generalized Linear Models	DATA 407 (3) Sampling Design	STAT 406 (3) Environmetrics	BIOL 401 (3)[2] Spatial Ecology
Year 3	Term 2	SUST 302 (1) Community Service Learning	SUST 301 (3) Methods in Solving Wicked Problems	GISC 380 (3) Fundamentals of Geographic Information Sciences I	ECON 371 (3) Economics of the Environment		
	Term 1		SUST 300 (3) Achieving Sustainability at the Regional Scale	DATA 311 (3) Machine Learning	COSC 304 (3) Introduction to Databases	DATA 315 (3) Applied Time Series and Forecasting	
Year 2	Term 2	SUST 202 (1) Community Service Learning	SUST 205 (3) Sustainability Economics	DATA 301 (3) Introduction to Data Analytics			
	Term 1		SUST 200 (3) Application, Practice and Management Approaches	SUST 204 (3) Creative Communication and Engagement	STAT 230 (3)[1] Introductory Statistics	PHIL 125 (3) Introduction to Scientific Reasoning	GEOG 128 (3) Human Geography: Space, Place, and Community
Year 1	Term 2		INDG 102 (3) Introduction to Indigeneity: Ways of Knowing	SUST 104 (3) Introduction to Environmental Humanities	MATH 101 (3) Integral Calculus with Applications to Physical Sciences and Engineering	COSC 111 (3) Computer Programming I	ECON 102 (3) Principles of Macroeconomics
	Term 1		SUST 100 (3) Sustainability: People, Place and Process	ENGL 112 (3) Studies in Composition: Sustainability Focus	MATH 100 (3) Differential Calculus with Applications to Physical Sciences and Engineering	DATA 101 (3) Basic Predictive Modelling	ECON 101 (3) Principles of Microeconomics

Integrative core courses in Sustainability:
25LL + 14UL = 39 credits

[1] Concentration determines if students take BIOL 202, STAT 230, or SUST 201.

Advanced concentration courses in Environmental Analytics:
24LL + 36UL = credits

[2] BIOL 401 may not be offered each year; in this case, students may complete another approved upper-year BIOL course. Consult with program advisors.

Elective courses from relevant disciplines:
Consult with program advisor(s) for the selection of electives recommended for the B.Sust. program.

Bachelor of Sustainability – Environmental Analytics Courses and Prerequisites		
Course Code	**Prerequisites/Corequisites**	**Credits**
First Year		
ENGL 112		3
INDG 102		3
SUST 100		3
SUST 104[1]	SUST 100 recommended	3
COSC 111		3
DATA 101		3
ECON 101		3
ECON 102		3
MATH 100		3
MATH 101	MATH 100	3
Total Credits		***30***
Second Year		
STAT 230[2]	MATH 101	3
SUST 200[1]	SUST 100	3
SUST 202[1]		1
SUST 204[1]	SUST 104 recommended	3
SUST 205[1]	SUST 200 recommended	3
DATA 301	COSC 111	3
GEOG 128		3
PHIL 125		3
Electives[3]		9
Total Credits		***31***
Third Year		
SUST 300[1]	SUST 200	3
SUST 301[1]	SUST 300 and one of BIOL 202, STAT 230, or SUST 201[3]	3
SUST 302[1]	SUST 202	1
DATA 311	STAT 230	3
COSC 304	COSC 111	3
DATA 315[1]	STAT 230	3
ECON 371	ECON 101 and ECON 102	3
GISC 380	3rd-year standing	3
Electives[3]		9
Total Credits		***31***

Bachelor of Sustainability – Environmental Analytics Courses and Prerequisites		
Course Code	**Prerequisites/Corequisites**	**Credits**
Fourth Year		
SUST 400[1]	SUST 301	6
SUST 402[1]	SUST 302	1
DATA 410	DATA 311	3
DATA 407	STAT 230	3
STAT 406	STAT 230	3
BIOL 401[4]	STAT 230	3
PHIL 435	3rd-year standing and 3 credits of PHIL	3
GEOG 431	GEOG 128	3
Electives[3]		6
Total Credits		***31***
Minimum credits for degree		**123**

Indicates core sustainability courses that all students must take.

[1] Denotes new courses.

[2] Concentration determines if students take BIOL 202, STAT 230, or SUST 201.

[3] Electives vary based on the concentration. Consult with program advisor(s) for selection of electives recommended for the program and for upper level credit requirements.

[4] Biology 401 may not be offered each year; in this case, students may complete another approved upper-level BIOL course. Consult with program advisor(s).

Environmental Analytics concentration courses: Alignment with Bachelor of Sustainability Program Learning Outcomes (PLOs)[1]
D=direct alignment; I=indirect alignment; Blank=no alignment (refer to notes)

Course Code	Course Name	Sustainability Knowledge			Awareness & Integration			Acting for Change			Holistic Thinking		Notes:
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	
MATH 100	Differential Calculus with Applications to Physical Sciences and Engineering												Prerequisite course
DATA 101	Basic Predictive Modelling	D											Prerequisite course
ECON 101	Principles of Microeconomics												Prerequisite course
MATH 101	Integral Calculus with Applications to Physical Sciences and Engineering												Prerequisite course
COSC 111	Computer Programming I												Prerequisite course
ECON 102	Principles of Macroeconomics												Prerequisite course
PHIL 125	Introduction to Scientific Reasoning				D	D							
GEOG 128	Human Geography: Space, Place, and Community	D			D	I				D	I	I	
COSC 304	Introduction to Databases	D	D				I					I	
DATA 311	Machine Learning	D	D				D			I	I	I	
DATA 301	Introduction to Data Analytics	D	D				D	D			I	D	
DATA 315[2]	Applied Time Series and Forecasting	D	D							I		I	

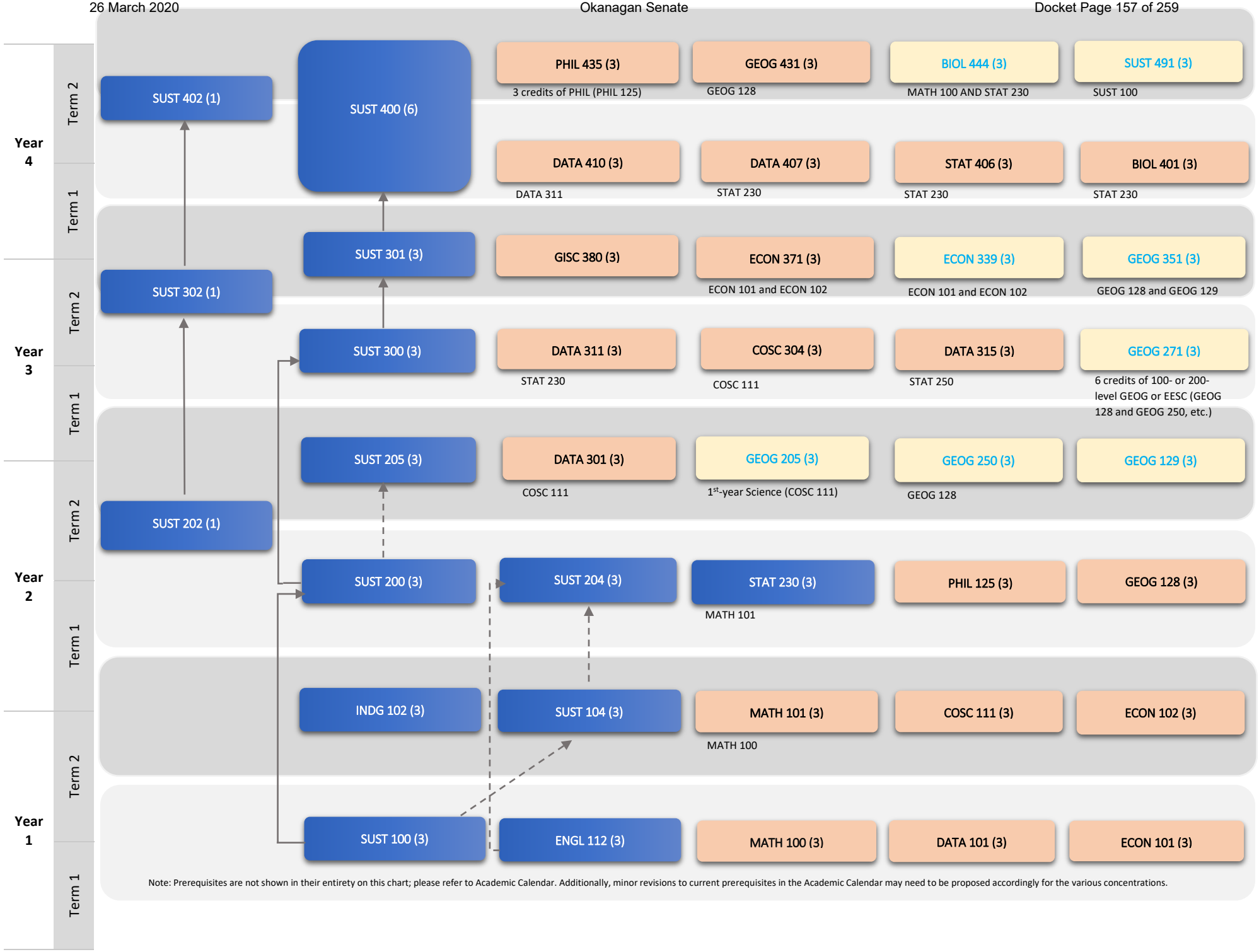
[1] Refer to page 2 of this document for PLO descriptions and Appendix B for more information regarding program objective and sustainability attributes.
[2] Denotes new course developed for the B.Sust. program.

Course Code	Course Name	Sustainability Knowledge			Awareness & Integration			Acting for Change			Holistic Thinking		Notes:
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	
GISC 381	Fundamentals of Geographic Information Sciences I				D		D			I			
ECON 371	Economics of the Environment			D	D	D				I	I		
DATA 410	Regression and Generalized Linear Models	D	D						I			I	
DATA 407	Sampling Design	D	D						I			I	
STAT 406	Environmetrics	D	D			I	D	D		I	I		
BIOL 401	Spatial Ecology		D		D	I	D	D		I	I		
PHIL 435	Environmental Ethics			D		I	D		D				
GEOG 431	Resource Management Policy and Practice			D	D					D	D	D	

Upon completion of the Bachelor of Sustainability program, students will be able to

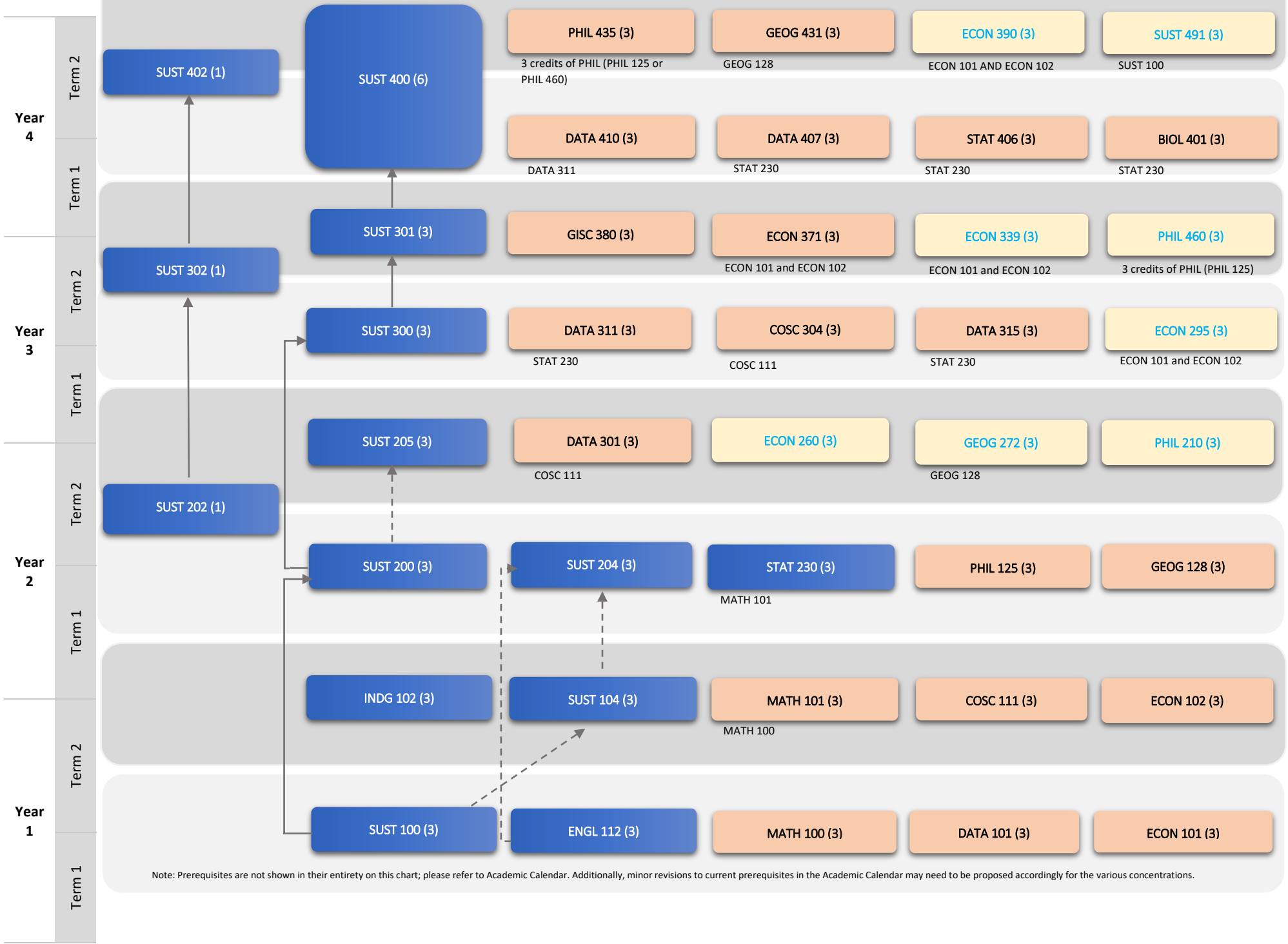
- PLO 1: examine, appraise and propose solutions to contemporary sustainability issues.
- PLO 2: describe and employ sustainability models and paradigms related to their area of concentration.
- PLO 3: apply their knowledge of the challenges associated with sustainability to shape and inform policy, planning, management, and social, cultural, and institutional change.
- PLO 4: integrate information from multiple disciplines with awareness of personal impacts, behavioural patterns, and processes of constructing knowledge.
- PLO 5: promote the argument that sustainability demands and requires participation and knowledge from all disciplines and sectors of society.
- PLO 6: design and conduct research in an area of sustainability practice both independently and collaboratively.
- PLO 7: use communication tools effectively to engage others in reflection, critical thought, and positive and effective action.
- PLO 8: discuss and debate various perspectives of sustainability with diverse stakeholders.
- PLO 9: formulate, propose, and realize the positive changes needed to sustain natural and social systems in collaboration with others.
- PLO 10: describe and analyze the interconnectedness and interdependency of social, ecological, and economic systems from local to global scales.
- PLO 11: examine complex sustainability concerns from a holistic, systems perspective that integrates concepts from the arts, humanities, and applied social and natural sciences.

Bachelor of Sustainability - Environmental Analytics with Electives Example 1



Note: Prerequisites are not shown in their entirety on this chart; please refer to Academic Calendar. Additionally, minor revisions to current prerequisites in the Academic Calendar may need to be proposed accordingly for the various concentrations.

Bachelor of Sustainability - Environmental Analytics with Electives Example 2



Note: Prerequisites are not shown in their entirety on this chart; please refer to Academic Calendar. Additionally, minor revisions to current prerequisites in the Academic Calendar may need to be proposed accordingly for the various concentrations.

Bachelor of Sustainability – Environmental Conservation & Management: 39 core + 45 concentration + 39 elective course credits = 123 credits

Year/Term							
Year 4	Term 2	SUST 402 (1) Community Service Learning	SUST 400 (6) Capstone Project in Sustainability	EESC 402 (3) Freshwater Resources	EESC 456 (3) Soil Science		
	Term 1			EESC 444 (3) Dynamic Modelling of Human-Environment Systems			
Year 3	Term 2	SUST 302 (1) Community Service Learning	SUST 301 (3) Methods in Solving Wicked Problems	EESC 315 (3) Environmental Impact Assessment: Techniques and Practice	GISC 381 (3) Fundamentals of Geographic Information Science II		
	Term 1		SUST 300 (3) Achieving Sustainability at the Regional Scale	EESC/GEOG 314 (3) Environmental Impact Assessment: Process, Regulation and Administration	GISC 380 (3) Fundamentals of Geographic Information Science I		
Year 2	Term 2	SUST 202 (1) Community Service Learning	SUST 205 (3) Sustainability Economics	EESC 213 (3) Introductory Forest Science and Management	BIOL 202 (3) Introduction to Biostatistics		
	Term 1		SUST 200 (3) Application, Practice and Management Approaches	SUST 204 (3) Writing and Communication	SUST 201 (3)[1] Introduction to Research in Sustainability	GEOG 272 (3) Cartography and Remote Sensing	
Year 1	Term 2		INDG 102 (3) Introduction to Indigeneity: Ways of Knowing	SUST 104 (3) Introduction to Environmental Humanities	EESC 111 (3) Earth Science	GEOG 129 (3) Human Geography: Resources, Development, and Society	
	Term 1		SUST 100 (3) Sustainability: People, Place and Process	ENGL 112 (3) Studies in Composition: Sustainability Focus	MATH 100 (3) Differential Calculus with Applications to Physical Sciences and Engineering	GEOG 109 (3) Introduction to Physical Geography II	ECON 101 (3) Principles of Microeconomics

Integrative core courses in Sustainability:
25LL + 14UL = 39 credits
[1] Concentration determines if students take SUST 201, BIOL 202, STAT 230, or SUST 201.

Advanced concentration courses in Envir. Cons. & Mgmt:
24LL + 21UL = 45 credits

Elective courses from relevant disciplines
At least 15 credits of the electives must be upper-level. Consult with program advisor(s) for the selection of electives recommended for the B.Sust. program.

Bachelor of Sustainability – Environmental Conservation and Management Courses and Prerequisites		
Course Code	**Prerequisites/Corequisites**	**Credits**
First Year		
ENGL 112		3
INDG 102		3
SUST 100		3
SUST 104[1]	SUST 100 recommended	3
ECON 101		3
EESC 111		3
GEOG 109		3
GEOG 129		3
MATH 100		3
Electives[2]		3
Total Credits		***30***
Second Year		
SUST 200[1]	SUST 100	3
SUST 201[1, 3]		3
SUST 204[1]	SUST 104 recommended	3
SUST 205[1]	SUST 200 recommended	3
SUST 202[1]		1
BIOL 202	MATH 100 and 2nd-year standing	3
EESC 213	EESC 111	3
GEOG 272	GEOG 109	3
Electives[2]		9
Total Credits		***31***
Third Year		
SUST 300[1]	SUST 200	3
SUST 301[1]	SUST 300 and one of BIOL 202, STAT 230, or SUST 201	3
SUST 302[1]	SUST 202	1
EESC/GEOG 314	Either (a) 6 credits of EESC or (b) 6 credits of GEOG; 3rd-year standing	3
EESC 315	6 credits of GEOG or EESC and 3rd-year standing	3
GISC 380	3rd-year standing	3
GISC 381	GISC 380	3
Electives[2]		12
Total Credits		***31***

Bachelor of Sustainability – Environmental Conservation and Management Courses and Prerequisites		
Course Code	**Prerequisites/Corequisites**	**Credits**
Fourth Year		
SUST 400[1]	SUST 301	6
SUST 402[1]	SUST 302	1
EESC 402	3 credits of 200-level BIOL, EESC, or GEOG and 3rd-year standing	3
EESC 444	MATH 100 and BIOL 202	3
EESC 456	3rd-year standing; one of GEOG 109 or EESC 111	3
Electives[2]		15
Total Credits		***31***
Minimum credits for degree		**123**
Indicates core sustainability courses that all students must take.		
[1] Denotes new courses.		
[2] Electives vary based on the concentration. Consult with program advisor(s) for selection of electives recommended for the program and for upper level credit requirements.		
[3] Concentration determines if students take BIOL 202, STAT 230, or SUST 201.		

Environmental Conservation and Management concentration courses: Alignment with Bachelor of Sustainability Program Learning Outcomes (PLOs)
D=direct alignment; I=indirect alignment; Blank=no alignment (refer to notes)[1]

Course Code	Course Name	Sustainability Knowledge			Awareness & Integration			Acting for Change			Holistic Thinking		Notes:
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	
BIOL 202	Introduction to Biostatistics												Prerequisite
ECON 101	Principles of Microeconomics			D			I				I		
EESC 111	Earth Science	I	D								D		
EESC 213	Introductory Forest Science and Management	I	D	D		I			I		I	I	
EESC/ GEOG 314	Environmental Impact Assessment: Process, Regulation and Administration	D	D	D		I			I		I	D	
EESC 315	Environmental Impact Assessment: Techniques and Practice	D	D	D		I			I		I	D	
EESC 402	Freshwater Resources		D	I	I						I		
EESC/ GEOG 444	Dynamic Modelling of Human-Environment Systems	I	I	D			I			I	I		
EESC 456	Soil Science		D	I									
GEOG 109	Introduction to Physical Geography II	I	D								I		
GEOG 129	Human Geography: Resources, Development, and Society	D	D	I	I	I					I	D	

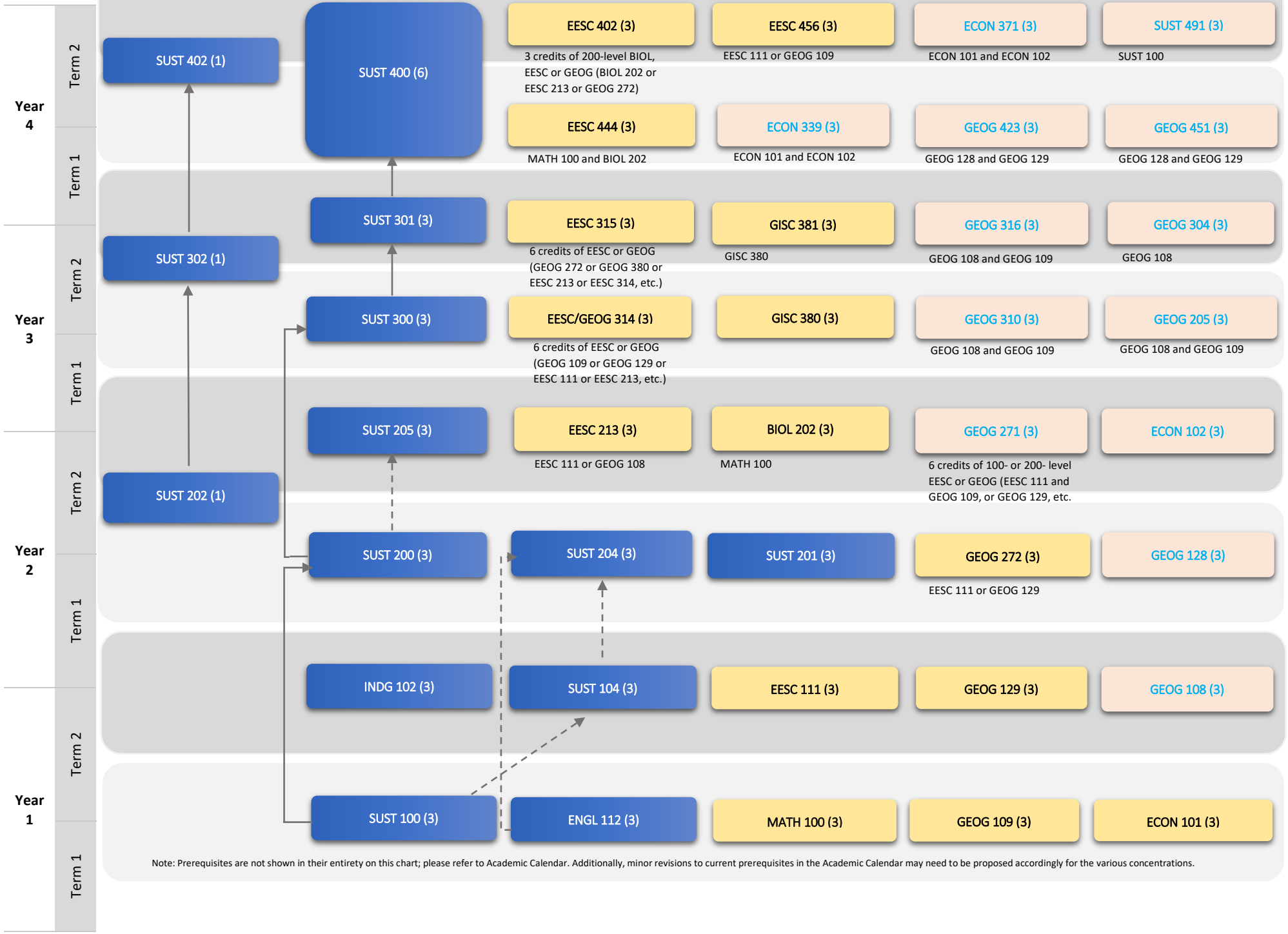
[1] Refer to page 2 of this document for PLO descriptions and Appendix B for more information regarding program objective and sustainability attributes.

Course Code	Course Name	Sustainability Knowledge			Awareness & Integration			Acting for Change			Holistic Thinking		Notes:
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	
GEOG 272	Cartography and Remote Sensing	I	I	D			I						
GISC 380	Fundamentals of Geographic Information Science I	I	I	D			I						
GISC 381	Fundamentals of Geographic Information Science II	I	I	D			I						
MATH 100	Differential Calculus with Applications to Physical Sciences and Engineering												Prerequisite

Upon completion of the Bachelor of Sustainability program, students will be able to

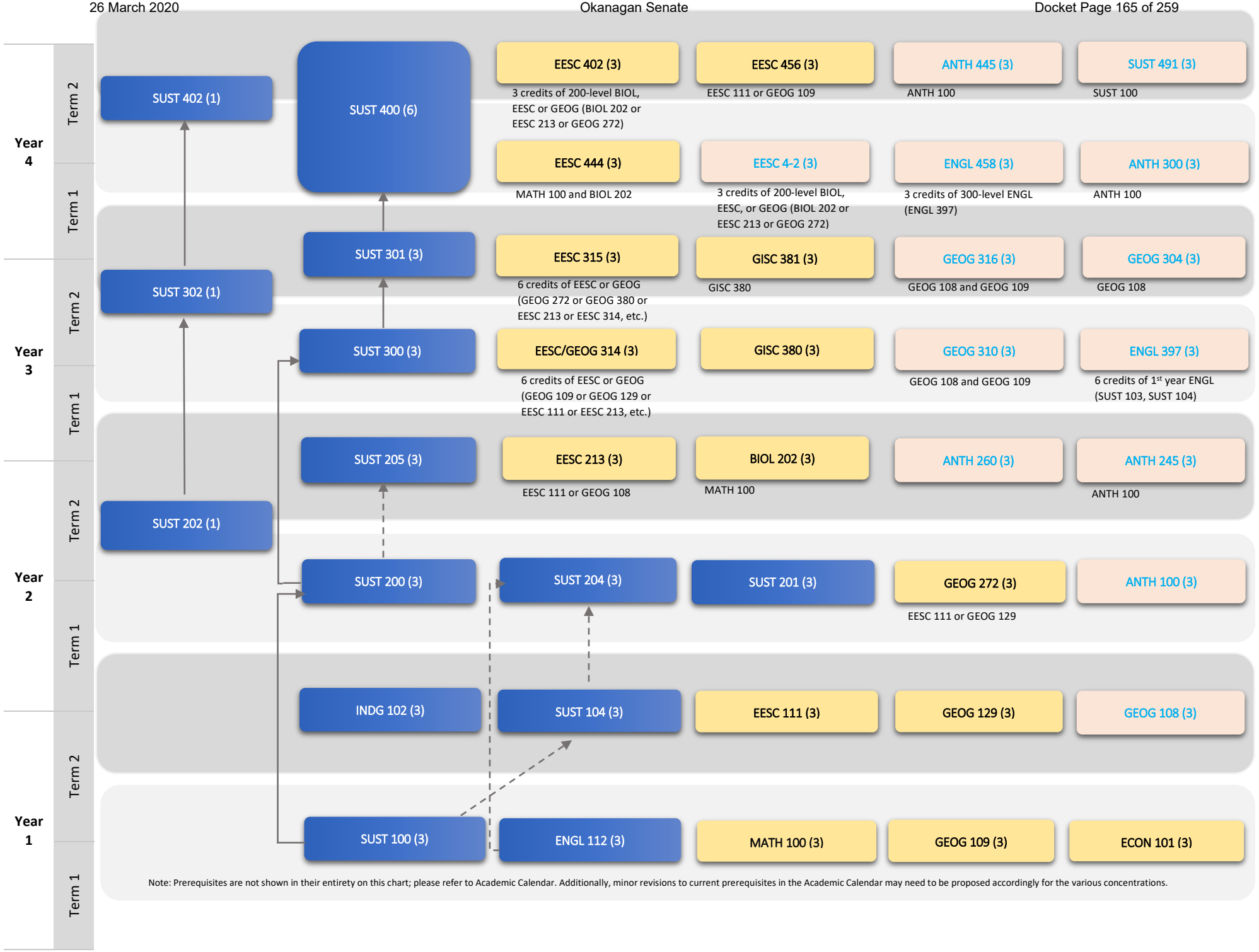
- PLO 1: examine, appraise and propose solutions to contemporary sustainability issues.
- PLO 2: describe and employ sustainability models and paradigms related to their area of concentration.
- PLO 3: apply their knowledge of the challenges associated with sustainability to shape and inform policy, planning, management, and social, cultural, and institutional change.
- PLO 4: integrate information from multiple disciplines with awareness of personal impacts, behavioural patterns, and processes of constructing knowledge.
- PLO 5: promote the argument that sustainability demands and requires participation and knowledge from all disciplines and sectors of society.
- PLO 6: design and conduct research in an area of sustainability practice both independently and collaboratively.
- PLO 7: use communication tools effectively to engage others in reflection, critical thought, and positive and effective action.
- PLO 8: discuss and debate various perspectives of sustainability with diverse stakeholders.
- PLO 9: formulate, propose, and realize the positive changes needed to sustain natural and social systems in collaboration with others.
- PLO 10: describe and analyze the interconnectedness and interdependency of social, ecological, and economic systems from local to global scales.
- PLO 11: examine complex sustainability concerns from a holistic, systems perspective that integrates concepts from the arts, humanities, and applied social and natural sciences.

Bachelor of Sustainability - Environmental Conservation Management with Electives Example 1



Note: Prerequisites are not shown in their entirety on this chart; please refer to Academic Calendar. Additionally, minor revisions to current prerequisites in the Academic Calendar may need to be proposed accordingly for the various concentrations.

Bachelor of Sustainability - Environmental Conservation Management with Electives Example 2



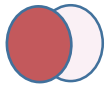
Note: Prerequisites are not shown in their entirety on this chart; please refer to Academic Calendar. Additionally, minor revisions to current prerequisites in the Academic Calendar may need to be proposed accordingly for the various concentrations.

Bachelor of Sustainability – Environmental Humanities: 39 core + 42 concentration + 42 elective course credits = min. 123 credits

Year/Term							
Year 4	Term 2	SUST 402 (1) Community Service Learning	SUST 400 (6) Capstone Project in Sustainability	One of: ANTH 445, GEOG 423, INDG 420 (3) [2]	One of: ENGL 457, ENGL 458, GWST 440 (3) [2]		
	Term 1			PHIL 435 (3) Environmental Ethics			
Year 3	Term 2	SUST 302 (1) Community Service Learning	SUST 301 (3) Methods in Solving Wicked Problems	One of: HIST 300/301/309/395 (3)[2]	INDG 307 (3) Traditional Ecological Knowledge		
	Term 1		SUST 300 (3) Achieving Sustainability at the Regional Scale	One of: GEOG 304/358/365 (3) [2]	One of: CULT 317, ENGL 387/388/397 (3) [2]		
Year 2	Term 2	SUST 202 (1) Community Service Learning	SUST 205 (3) Sustainability Economics	INDG 202 (3) Okanagan Concepts and Frameworks	One of: ANTH 245, ENGL 234, ENGL 297, INDG 201, INDG 203 (3) [2]		
	Term 1		SUST 200 (3) Application, Practice and Management Approaches	SUST 204 (3) Creative Communication and Engagement	SUST 201 (3)[1] Introduction to Research in Sustainability	HIST 215 (3) Technology in History	
Year 1	Term 2		INDG 102 (3) Introduction to Indigeneity: Ways of Knowing	SUST 104 (3) Introduction to Environmental Humanities	HIST 106 (3) Global Environmental History	GEOG 108 (3) Earth Systems: Weather, Climate, Life	
	Term 1		SUST 100 (3) Sustainability: People, Place and Process	ENGL 112 (3) Studies in Composition: Sustainability Focus	ENGL 156 (3) Environmental Literature: Anthropocene Culture	INDG 100 (3) Introduction to Decolonization	

Integrative core courses in Sustainability:
25LL + 14UL = 39 credits

[1] Concentration determines if students take BIOL 202, STAT 230, or SUST 201.



Advanced concentration courses in Environmental Humanities:
21LL + 21UL = 42 credits

[2] Refer to pages 2 and 3 for course titles.

Elective courses from relevant disciplines

At least 15 credits of the electives must be upper-level. Consult with program advisor(s) for the selection of electives recommended for the B.Sust. program.

Note: Potential for students to take two field courses at the Bamfield Marine Science Centre during summer terms: (SUST 2XX (3) Exploring EH: Tongues in Trees and ENGL 477 (3) In Pursuit of the Whale.

Environmental Humanities – Concentration Course Options

Code/Credit Value	Course Name
ANTH 245 (3)	Culture and Environment
ANTH 445 (3)	Political Ecology
CULT 317 (3)	Digital Documentary Production
ENGL 234 (3)	Foundations: Indigenous Literature
ENGL 297 (3)	Reading Animals
ENGL 387 (3)	Indigenous Literature: Intellectual Traditions
ENGL 388 (3)	Beyond Anthropocentrism
ENGL 397 (3)	Contemporary Environmental Writing
ENGL 457 (3)	Posthumanism and Critical Animal Studies
ENGL 458 (3)	Canadian Environmental Writing
GEOG 304 (3)	Anthropogenic Climate Change
GEOG 358 (3)	Gender, Place, and Culture
GEOG 365 (3)	Parks and Outdoor Recreation
GEOG 423 (3)	Development of Environmental Thought
GWST 440 (3)	Politics of Reproduction
HIST 300 (3)	History of Indigenous Peoples of Canada to 1876
HIST 301 (3)	History of Indigenous Peoples of Canada from 1876
HIST 309 (3)	The Rise of Modern Science
HIST 395 (3)	Environmental History of North America
INDG 201 (3)	Okanagan Indigenous Peoples' Historical Perspectives

Code/Credit Value	Course Name
INDG 203 (3)	Indigenous Peoples' Historical Perspectives
INDG 420 (3)	Indigenous Perspectives on Food, Place, Identity, and Biodiversity

Bachelor of Sustainability – Environmental Humanities Courses and Prerequisites		
Course Code	**Prerequisites/Corequisites**	**Credits**
First Year		
ENGL 112		3
INDG 102		3
SUST 100		3
SUST 104[1]	SUST 100 recommended	3
ENGL 156		3
GEOG 108		3
HIST 106		3
INDG 100		3
Electives[2]		6
Total Credits		***30***
Second Year		
SUST 200[1]	SUST 100	3
SUST 201[3]		3
SUST 204[1]	SUST 104 recommended	3
SUST 205[1]	SUST 200 recommended	3
SUST 202[1]		1
One of ANTH 245, ENGL 234, ENGL 297, INDG 201, INDG 203	ANTH100/INDG 100; 6 credits of 100-level ENGL; INDG 100; INDG 100	3
HIST 215	3 credits of HIST	3
INDG 202	INDG 100	3
Electives[2]		9
Total Credits		***31***
Third Year		
SUST 300[1]	SUST 200	3
SUST 301[1]	SUST 300 and one of BIOL 202, STAT 230, or SUST 201	3
SUST 302[1]	SUST 202	1
One of CULT 317, ENGL 387, ENGL 388, ENGL 397	Two of ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153 and 3rd-year standing; 3rd-year standing	3
One of GEOG 304, GEOG 358, GEOG 365	GEOG 108 and 3rd-year standing; all of GEOG 128 and GEOG 129 and 3rd-year standing or SUST 201 and 3rd-year standing	3

Bachelor of Sustainability – Environmental Humanities Courses and Prerequisites		
Course Code	**Prerequisites/Corequisites**	**Credits**
One of HIST 300, HIST 301, HIST 309, HIST 395	6 credits of HIST and 3rd-year standing or HIST 112, INDG 100, and 3rd-year standing; 6 credits of HIST; 3 credits of HIST and 3rd-year standing	3
INDG 307	INDG 100 and 3rd-year standing	3
Electives[2]		12
Total Credits		***31***
Fourth Year		
SUST 400[1]	SUST 301	6
SUST 402[1]	SUST 302	1
PHIL 435	3 credits of PHIL and 3rd-year standing or SUST 104 and 3rd-year standing	3
One of ANTH 445, GEOG 423, INDG 420	ANTH 100 and 3rd-year standing or INDG 100 and 3rd-year standing; All of GEOG 128 and GEOG 129 and 3rd-year standing or SUST 201 and 3rd-year standing; INDG 100 and 3rd-year standing	3
One of ENGL 457, ENGL 458, GWST 440	A 300-level ENGL; 3rd-year standing	3
Electives[2]		15
Total Credits		***31***
Minimum credits for degree		**123**
Indicates core sustainability courses that all students must take.		
[1] Denotes new courses.		
[2] Electives vary based on the concentration. Consult with program advisor(s) for selection of electives recommended for the program and for upper level credit requirements.		
[3] Concentration determines if students take BIOL 202, STAT 230, or SUST 201.		

Red text denotes prerequisite changes that are being requested.

Environmental Humanities concentration courses (required and optional): Alignment with Bachelor of Sustainability Program Learning Outcomes (PLOs)[1]
D=direct alignment; I=indirect alignment; Blank=no alignment (refer to notes)

Course Code	Course Name	Sustainability Knowledge			Awareness & Integration			Acting for Change			Holistic Thinking		Notes:
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	
Concentration Required Courses: all students in the EH concentration must take these courses													
ENGL 156	Environmental Literature: Anthropocene Culture	I	D	I	I	**D**	D	**D**	I		D	D	
GEOG 108	Earth Systems: Weather, Climate, Life	**D**	D	I	I	I		I	I	D	**D**	I	
HIST 106	Global Environmental History	**D**	D	I	I	D	D	I	I		D	**D**	
HIST 215	Technology in History	I	I	I	D	**D**	I	I	I	D	I	D	Course not sustainability-focused, but vital background of impact of tech.
INDG 100	Introduction to Decolonization	I		I				I	D	D	I	I	Prerequisite for upper level INDG.
INDG 202	Introduction to Indigeneity: Ways of Knowing	I	I	I	**D**	D		I	D	D	**D**	I	
INDG 307	Traditional Ecological Knowledge	**D**	I	D	D	D	D	I	**D**	D	D	D	
PHIL 435	Environmental Ethics	**D**	D	D	D	D	D	I	**D**	I	I	D	
Concentration Required Optional Courses: students in the EH concentration can choose from the optional courses as per the curriculum structure[2]													
ANTH 245	Culture and Environment	**D**	D	I	I	D	D	I	D	I	D	D	
ANTH 445	Political Ecology	**D**	D	I	I	D	D	I	**D**	I	D	D	
CULT 317	Digital Documentary Production	I	I	I		D	I	**D**	I	D		I	Course not itself sustainability-focused, but offers essential communication skills.

[1] Refer to page 3 of this document for PLO descriptions and Appendix B for more information regarding program objective and sustainability attributes.
[2] Refer to B.Sust. Degree Structure – Environmental Humanities Concentration

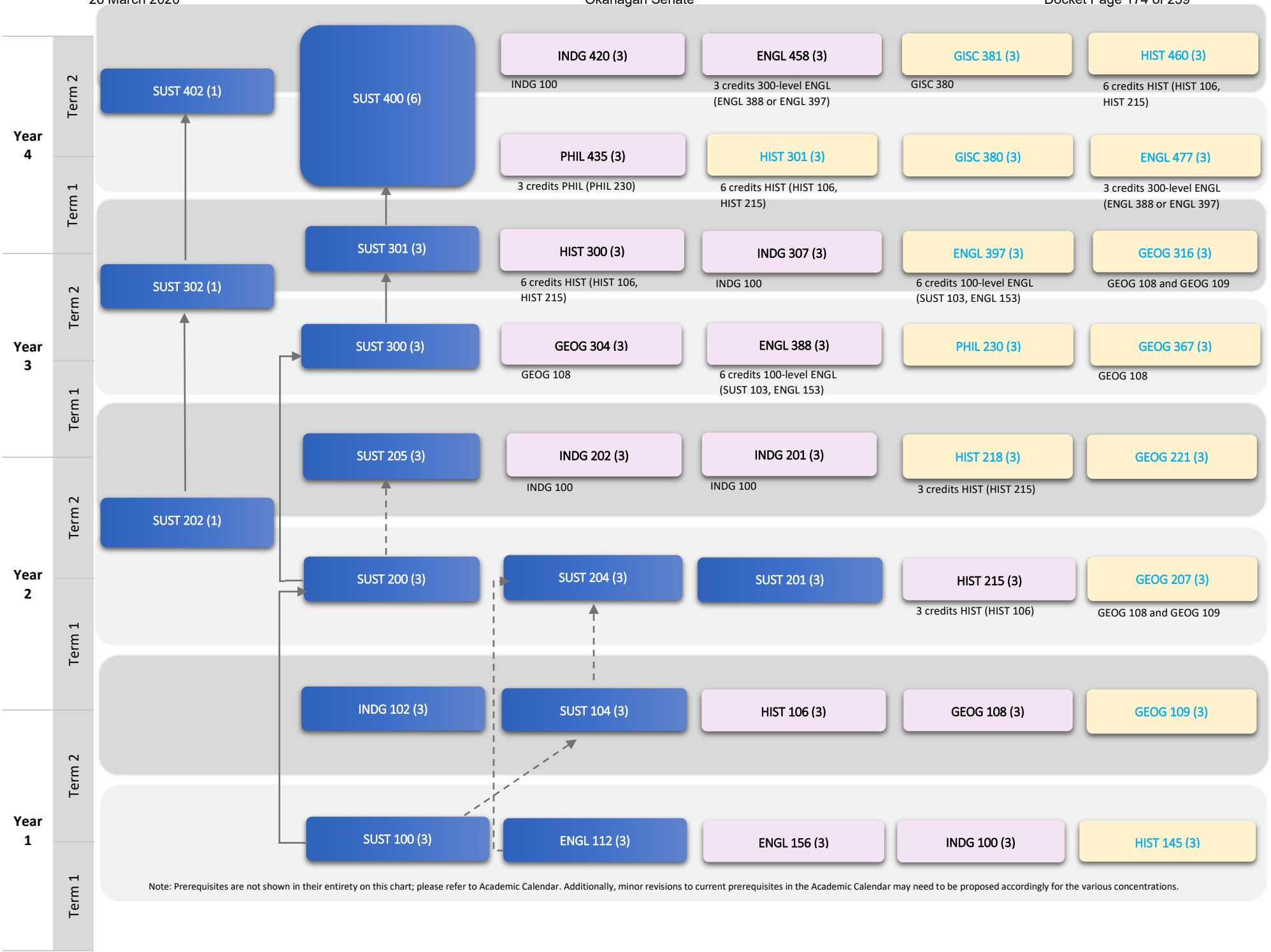
Course Code	Course Name	Sustainability Knowledge			Awareness & Integration			Acting for Change			Holistic Thinking		Notes:
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	
ENGL 234	Foundations: Indigenous Literature	I	I		I	I	I	D	**D**		D	**D**	Course not sustainability-focused, but strong on PLOs 8 and 11.
ENGL 297	Reading Animals	I	**D**	I	**D**	D	D	D	D		I	D	
ENGL 387	Indigenous Literature: Intellectual Traditions	I	I		I	I	I	D	**D**		D	**D**	Course not sustainability-focused, but strong on PLOs 8 and 11.
ENGL 388	Beyond Anthropocentrism	I	D	I	I	D	D	D	D		I	D	
ENGL 397	Contemporary Environmental Writing	I	D	**D**	D	D	D	**D**	I	I	I	D	
ENGL 457	Posthumanism and Critical Animal Studies	I	D	**D**	D	D	D	**D**	I	I	I	D	
ENG 458	Canadian Environmental Writing	I	D	I	I	D	**D**	**D**	I		D	D	
GEOG 304	Anthropogenic Climate Change	**D**	I	D	I	I	D	I	I	D	**D**	I	
GEOG 358	Gender, Place, and Culture	I	I		I	I	D	I	**D**		I	I	Course critiques ‘nature’ as concept rather than sustainability, but strong on PLO 8.
GEOG 365	Parks and Outdoor Recreation	D	D	**D**	I	I	D	I	D	**D**	I	D	
GEOG 423	Development of Environmental Thought	D	**D**	I	D	D	D	I	**D**	I	D	D	
GWST 440	Politics of Reproduction	I	**I**		I	I	D	I	**D**		I	I	Course not sustainability-focused, but relevant to population debate within sustainability.
HIST 300	History of Indigenous Peoples of Canada to 1876	I	I	I	D	D	I	I	D		I	D	Course not sustainability-focused, but relevant knowledge of historical context in Canada.
HIST 301	History of Indigenous Peoples of Canada from 1876	I	I	I	D	D	I	I	D		I	D	Course not sustainability-focused, but relevant knowledge of historical context in Canada.
HIST 309	The Rise of Modern Science	**D**	I	I	**D**	D	I	I	I		I	D	Course not sustainability-focused, but crucial historical context.

Course Code	Course Name	Sustainability Knowledge			Awareness & Integration			Acting for Change			Holistic Thinking		Notes:
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	
HIST 395	Environmental History of North American	**D**	D	I	I	D	**D**	I	I		D	D	
INDG 201	Okanagan Indigenous Peoples' Historical Perspectives	I	D	I	I	D	I	I	**D**		D	**D**	
INDG 203	Indigenous Peoples' Historical Perspectives	I	D	I	I	D	I	I	**D**		D	**D**	
INDG 420	Indigenous Perspectives on Food, Place, Identity, and Biodiversity	**D**	I	D	D	D	D	I	**D**	D	D	**D**	

Upon completion of the Bachelor of Sustainability program, students will be able to

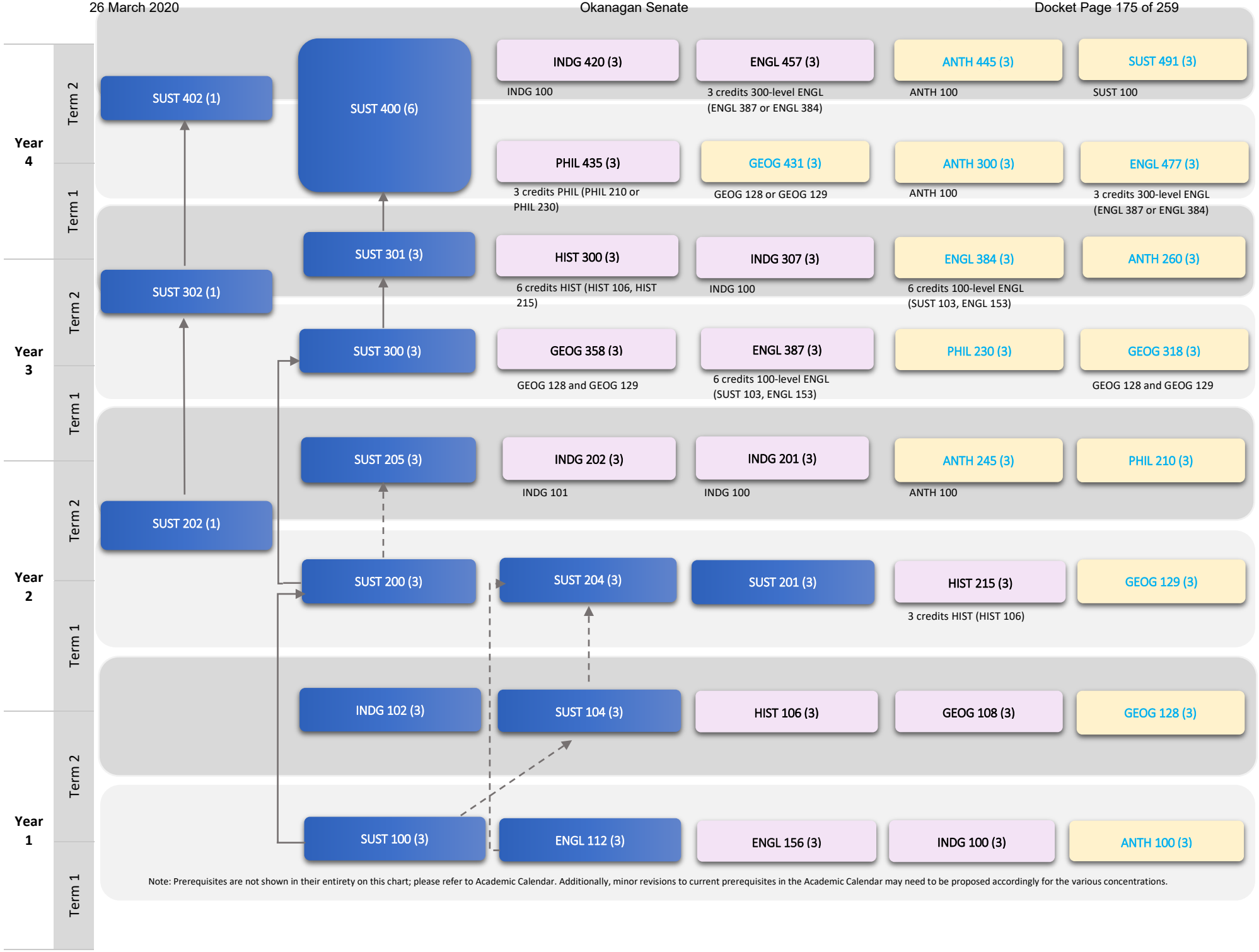
- PLO 1: examine, appraise and propose solutions to contemporary sustainability issues.
- PLO 2: describe and employ sustainability models and paradigms related to their area of concentration.
- PLO 3: apply their knowledge of the challenges associated with sustainability to shape and inform policy, planning, management, and social, cultural, and institutional change.
- PLO 4: integrate information from multiple disciplines with awareness of personal impacts, behavioural patterns, and processes of constructing knowledge.
- PLO 5: promote the argument that sustainability demands and requires participation and knowledge from all disciplines and sectors of society.
- PLO 6: design and conduct research in an area of sustainability practice both independently and collaboratively.
- PLO 7: use communication tools effectively to engage others in reflection, critical thought, and positive and effective action.
- PLO 8: discuss and debate various perspectives of sustainability with diverse stakeholders.
- PLO 9: formulate, propose, and realize the positive changes needed to sustain natural and social systems in collaboration with others.
- PLO 10: describe and analyze the interconnectedness and interdependency of social, ecological, and economic systems from local to global scales.
- PLO 11: examine complex sustainability concerns from a holistic, systems perspective that integrates concepts from the arts, humanities, and applied social and natural sciences.

Bachelor of Sustainability - Environmental Humanities with Electives Example 1



Note: Prerequisites are not shown in their entirety on this chart; please refer to Academic Calendar. Additionally, minor revisions to current prerequisites in the Academic Calendar may need to be proposed accordingly for the various concentrations.

Bachelor of Sustainability - Environmental Humanities with Electives Example 2



Note: Prerequisites are not shown in their entirety on this chart; please refer to Academic Calendar. Additionally, minor revisions to current prerequisites in the Academic Calendar may need to be proposed accordingly for the various concentrations.

Bachelor of Sustainability – Green Chemistry: 39 core + 51 concentration + 33 elective course credits = 123 credits

Year/Term							
Year 4	Term 2	SUST 402 (1) Community Service Learning	SUST 400 (6) Capstone Project in Sustainability	CHEM 463 (3) Advanced Organic Chemistry Lab, or CHEM 448 (3) Directed Studies	CHEM 334 (3) Green Organic Chemistry		
	Term 1			CHEM 462 (3) Advanced Inorganic Chemistry Lab, or CHEM 448 (3) Directed Studies	CHEM 333 (3) Spectroscopic Techniques in Organic Chemistry		
Year 3	Term 2	SUST 302 (1) Community Service Learning	SUST 301 (3) Methods in Solving Wicked Problems	CHEM 336 (3) Green Inorganic Chemistry			
	Term 1		SUST 300 (3) Achieving Sustainability at the Regional Scale	CHEM 330 (3) Advanced Organic Chemistry	CHEM 338 (3) Organometallic Chemistry		
Year 2	Term 2	SUST 202 (1) Community Service Learning	SUST 205 (3) Sustainability Economics	CHEM 204 (3) Organic Chemistry	CHEM 201 (3) Introduction to Physical Chemistry		
	Term 1		SUST 200 (3) Application, Practice and Management Approaches	SUST 204 (3) Creative Communication and Engagement	BIOL 202 (3)[1] Introduction to Biostatistics	CHEM 203 (3) Introduction to Organic Chemistry	CHEM 220 (3) Atomic Structure and Molecular Bonding
Year 1	Term 2		INDG 102 (3) Introduction to Indigeneity: Ways of Knowing	SUST 104 (3) Introduction to Environmental Humanities	MATH 101 (3) Integral Calculus with Applications to Physical Sciences and Engineering	CHEM 123 (3) Physical and Organic Chemistry	PHYS 121 (3) Introductory Physics for the Physical Sciences II
	Term 1		SUST 100 (3) Sustainability: People, Place and Process	ENGL 112 (3) Studies in Composition: Sustainability Focus	MATH 100 (3) Differential Calculus with Applications to Physical Sciences and Engineering	CHEM 121 (3) Atomic and Molecular Chemistry	PHYS 111 (3) Introductory Physics for the Physical Sciences I

Integrative core courses in Sustainability:
25LL + 14UL = 39 credits

Advanced concentration courses in Green Chemistry:
30LL + 21UL = 51 credits

Elective courses from relevant disciplines
At least 15 credits of the electives must be upper-level. Consult with program advisor(s) for the selection of electives recommended for the B.Sust. program.

[1] Concentration determines if students take BIOL 202, STAT 230, or SUST 201.

Bachelor of Sustainability – Green Chemistry Concentration		
Course Code	**Prerequisites/Corequisites**	**Credits**
First Year		
ENGL 112		3
INDG 102		3
SUST 100		3
SUST 104[1]	SUST 100 recommended	3
CHEM 121		3
CHEM 123	CHEM 121	3
MATH 100		3
MATH 101	MATH 100	3
PHYS 111		3
PHYS 121	PHYS 111/MATH 101 (Co)	3
Total Credits		***30***
Second Year		
BIOL 202[3]	MATH 100	3
SUST 200[1]	SUST 100	3
SUST 202[1]		1
SUST 204[1]	SUST 104 recommended	3
SUST 205[1]	SUST 200 recommended	3
CHEM 201	MATH 101 and CHEM 123	3
CHEM 203	CHEM 123	3
CHEM 204	CHEM 203	3
CHEM 220	CHEM 123	3
Electives[2]		6
Total Credits		***31***
Third Year		
SUST 300[1]	SUST 200	3
SUST 301[1]	SUST 300 and one of BIOL 202, STAT 230, or SUST 201	3
SUST 302[1]	SUST 202	1
CHEM 330	CHEM 204	3
CHEM 336	CHEM 220 and CHEM 204	3
CHEM 338	CHEM 220 and CHEM 204	3
Electives[2]		15
Total Credits		***31***

Bachelor of Sustainability – Green Chemistry Concentration		
Course Code	**Prerequisites/Corequisites**	**Credits**
Fourth Year		
SUST 400[1]	SUST 301	6
SUST 402[1]	SUST 302	1
CHEM 333	CHEM 204	3
CHEM 334[1]	CHEM 204	3
One of CHEM 462 or CHEM 448	CHEM 336 and CHEM 338 or 4th-yr standing with 72% avg. and approval	3
One of CHEM 463 or CHEM 448	CHEM 330 and CHEM 333 or 4th-yr standing with 72% avg. and approval	3
Electives[2]		12
Total Credits		***31***
Minimum credits for degree		**123**
Indicates core sustainability courses that all students must take.		
[1] Denotes new courses.		
[2] Electives vary based on the concentration. Consult with program advisor(s) for selection of electives recommended for the program and for upper level credit requirements.		
[3] Concentration determines if students take BIOL 202, STAT 230, or SUST 201.		

Green Chemistry concentration courses: Alignment with Bachelor of Sustainability Program Learning Outcomes (PLOs)
D=direct alignment; I=indirect alignment; Blank=no alignment (refer to notes)[1]

Course Code	Course Name	Sustainability Knowledge			Awareness & Integration			Acting for Change			Holistic Thinking		Notes:
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	
MATH 100	Differential Calculus with Application to Physical Sciences and Engineering												Prerequisite
Math 101	Integral Calculus with Applications to Physical Sciences and Engineering												Prerequisite
CHEM 121	Atomic and Molecular Chemistry	D	D						I				
CHEM 123	Physical and Organic Chemistry	D	D						I				
PHYS 111	Introductory Physics for the Physical Sciences I												Prerequisite
PHYS 121	Introductory Physics for the Physical Sciences II												Prerequisite
CHEM 201	Introduction to Physical Chemistry												Prerequisite
CHEM 203	Introduction to Organic Chemistry	I	D										
CHEM 204	Organic Chemistry	I	D										
CHEM 220	Atomic Structure and Molecular Bonding												Prerequisite
CHEM 330	Advanced Organic Chemistry	D	D										
CHEM 333	Spectroscopic Techniques in Organic Chemistry												Prerequisite

[1] Refer to page 2 of this document for PLO descriptions and Appendix B for more information regarding program objective and sustainability attributes.

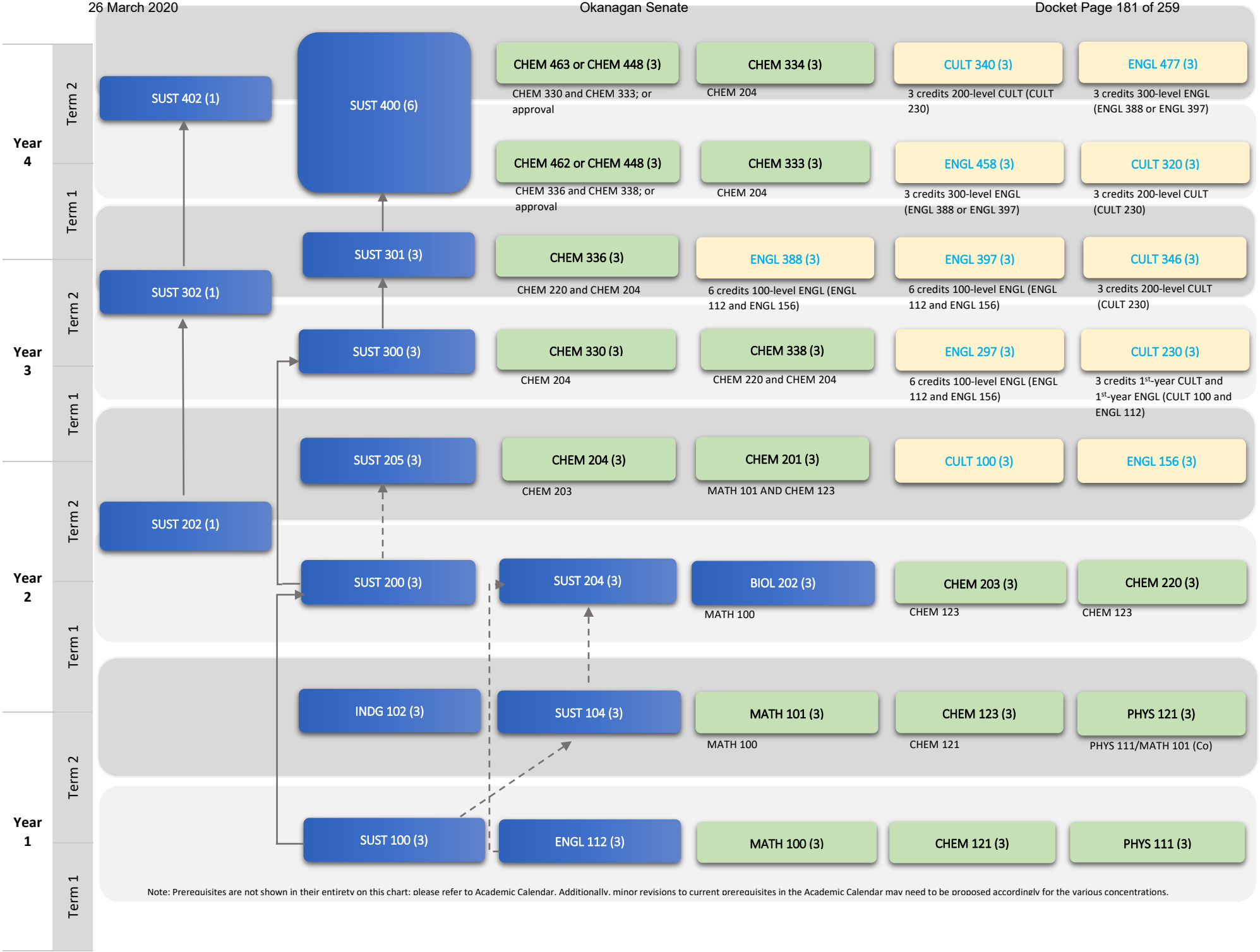
Course Code	Course Name	Sustainability Knowledge			Awareness & Integration			Acting for Change			Holistic Thinking		Notes:
		PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	
CHEM 334[2]	Green Organic Chemistry	D	D										
CHEM 336	Green Inorganic Chemistry	D	D										
CHEM 338	Organometallic Chemistry	I	I										
CHEM 462	Advanced Inorganic Chemistry Lab, or	D	D										
CHEM 448	Directed Studies in Chemistry (3/6 cr)	D	D				D						
CHEM 463	Advanced Organic Chemistry Lab (or CHEM 448)	D	D										

Upon completion of the Bachelor of Sustainability program, students will be able to

- PLO 1: examine, appraise and propose solutions to contemporary sustainability issues.
- PLO 2: describe and employ sustainability models and paradigms related to their area of concentration.
- PLO 3: apply their knowledge of the challenges associated with sustainability to shape and inform policy, planning, management, and social, cultural, and institutional change.
- PLO 4: integrate information from multiple disciplines with awareness of personal impacts, behavioural patterns, and processes of constructing knowledge.
- PLO 5: promote the argument that sustainability demands and requires participation and knowledge from all disciplines and sectors of society.
- PLO 6: design and conduct research in an area of sustainability practice both independently and collaboratively.
- PLO 7: use communication tools effectively to engage others in reflection, critical thought, and positive and effective action.
- PLO 8: discuss and debate various perspectives of sustainability with diverse stakeholders.
- PLO 9: formulate, propose, and realize the positive changes needed to sustain natural and social systems in collaboration with others.
- PLO 10: describe and analyze the interconnectedness and interdependency of social, ecological, and economic systems from local to global scales.
- PLO 11: examine complex sustainability concerns from a holistic, systems perspective that integrates concepts from the arts, humanities, and applied social and natural sciences.

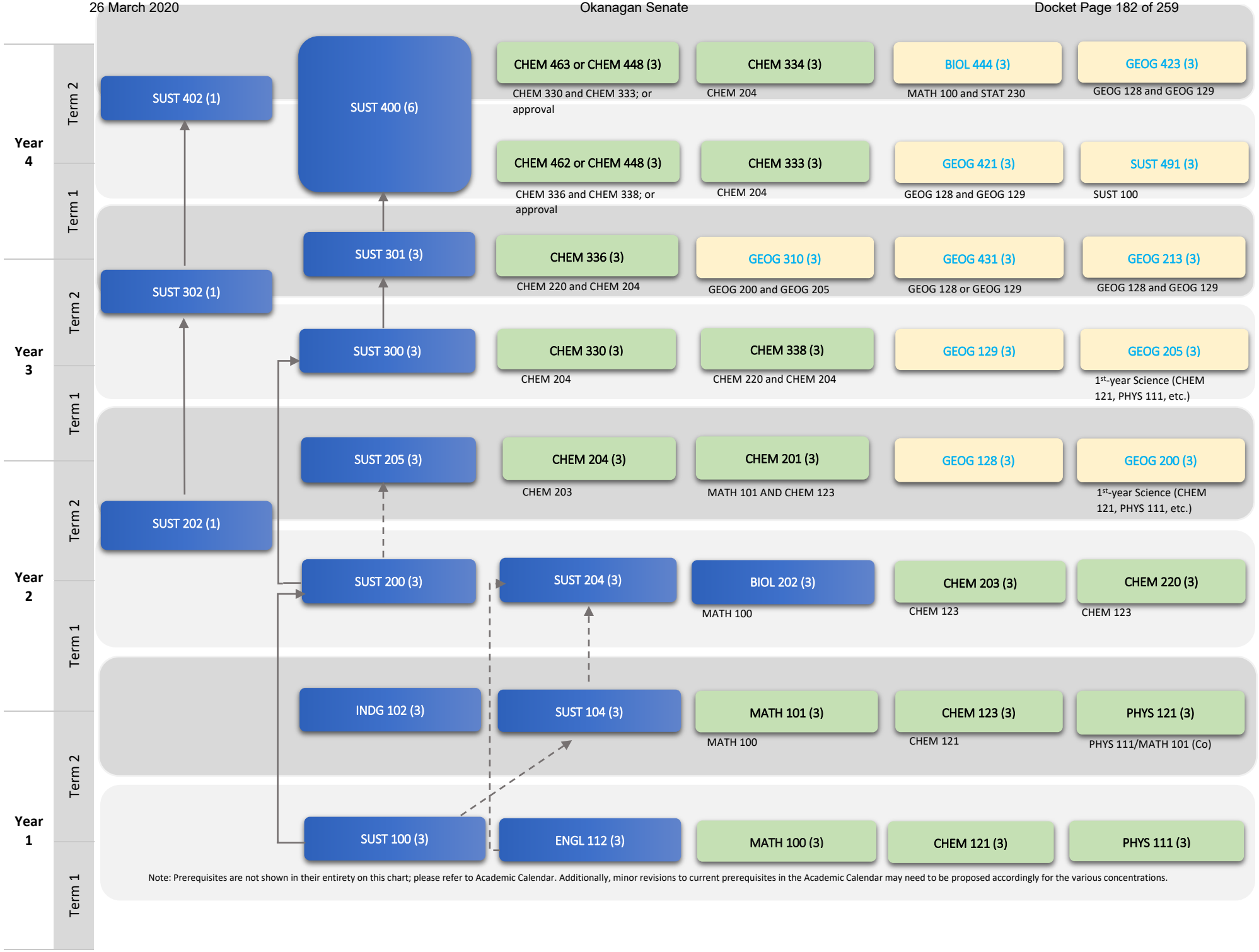
[2] Denotes a new course developed for the B.Sust. program.

Bachelor of Sustainability – Green Chemistry with Electives Example 1



Note: Prerequisites are not shown in their entirety on this chart; please refer to Academic Calendar. Additionally, minor revisions to current prerequisites in the Academic Calendar may need to be proposed accordingly for the various concentrations.

Bachelor of Sustainability – Green Chemistry with Electives Example 2



Note: Prerequisites are not shown in their entirety on this chart; please refer to Academic Calendar. Additionally, minor revisions to current prerequisites in the Academic Calendar may need to be proposed accordingly for the various concentrations.

Bachelor of Sustainability – Electives

The following electives are complementary to the sustainability program, including the four concentrations. Courses may also occur in a concentration. Course credit can only be used once toward concentration or elective requirements. Double-counting of course credit will not be granted. Students will need to consult with a program advisor for selection of electives to ensure they meet degree requirements. This list is not inclusive.

ANTH 100 (3) Introduction to Anthropology	GEOG 128 (3) Human Geography: Space, Place, and Community
ANTH 103 (3) Introduction to World Archeology	GEOG 129 (3) Human Geography: Resources, Development, and Society
ANTH 111 (3) Introduction to Biological Anthropology	GEOG 207 (3) Introduction to Biogeography
ANTH 218 (3) Tourism, Desire and Difference	GEOG 250 (3) Introduction to Urban Geography
ANTH 245 (3) Culture and Environment	GEOG 255 (3) Space and Culture
ANTH 260 (3) Ethnobotany: Plants and People	GEOG 261 (3) Economic Geography
ANTH 300 (3) Contemporary Theory in Anthropology	GEOG 271 (3) Geographic Data Analysis
ANTH 304 Decolonizing the Pacific Northwest	GEOG 272 (3) Cartography and Remote Sensing
ANTH 310 (3) Theory in Archaeology	GEOG 301 (3) Mechanisms of Global Change
ANTH 319 (3) Settling Down: An Archaeology of Early State Societies	GEOG 310 (3) Environment and Resources
ANTH 445 (3) Political Ecology	GEOG 316 (3) Geography of Natural Hazards
ARTH 101 (3) Art and Visual Cultures of the World I	GEOG 317 (3) The Physical Environment of British Columbia
ARTH 102 (3) Art and Visual Cultures of the World II	GEOG 318 (3) Rural Geographies
ARTH 201 (3) Art and Visual Culture through Film	GEOG 351 (3) Urban Social Geography
ARTH 202 (3) The Critical Viewer	GEOG 354 (3) Urban Canada: Growth, Form, and Structure
ARTH 301 (3) Critical Viewing - Advanced Studies	GEOG 358 (3) Gender, Place, and Culture
ARTH 323/CULT 320 (3) Creative Activism: Art, Media, and Social Justice	GEOG 359 (3) Culture, Space, and Politics
ARTH 390 (3) Indigenous Art and Visual Culture	GEOG 365 (3) Parks and Outdoor Recreation
BIOL 117 (3) Evolution and Ecology/BIOL 122 (3) Physiology of Multicellular Organisms	GEOG 421 (3) Geography of Food Systems

BIOL 202 (3) Introduction to Biostatistics	GEOG 423 (3) Development of Environmental Thought
BIOL 401 (3) Spatial Ecology	GEOG 431 (3) Resource Management Policy and Practice
BIOL 444/EESC 444 (3) Dynamic Modelling of Human-Environment Systems	GEOG 451 (3) Urban Planning
CHEM 111 (3) Principles of Chemistry I	GISC 380 (3) Fundamentals of Geographic Information Science I
CHEM 113 (3) Principles of Chemistry II	GISC 381 381 (3) Fundamentals of Geographic Information Science II
CHEM 121 (3) Atomic and Molecular Chemistry	GWST 100 (3) Gender, Race, Sexuality, and Power I: An Introduction
CHEM 123 (3) Physical and Organic Chemistry	GWST 110 (3) Gender, Race, Sexuality, and Power II: Everyday Life
CHEM 201 (3) Introduction to Physical Chemistry	GWST 335 (3) Feminist Theory in the Humanities
CHEM 203 (3) Introduction to Organic Chemistry	GWST 440 (3) Politics of Reproduction
CHEM 204 (3) Organic Chemistry	HEAL 100 (3) Introduction and Principles of Heath and Wellbeing
CHEM 220 (3) Atomic Structure and Molecular Bonding	HEAL 200 (3) Determinants of Health
CHEM 333 (3) Spectroscopic Techniques in Organic Chemistry	HEAL 304 (3) Healthy and Sustainable Communities
CHEM 334 (3) Green Organic Chemistry	HIST 106 (3) Global Environmental History
CHEM 448 (3/6) d Directed Studies in Chemistry	HIST 112 (3) Canada to 1867
CHEM 462 (3) Advanced Inorganic Chemistry Laboratory	HIST 122 (3) Canada since 1867
CHEM 464 (3) Advanced Physical and Biophysical Chemistry Laboratory	HIST 145 (3) Contemporary Work History
COSC 101 (3) Digital Citizenship	HIST 215 (3) Technology in History
COSC 111 (3) Computer Programming I	HIST 218 (3) History of Science
COSC 121 (3) Computer Programming II	HIST 300 (3) History of Indigenous Peoples of Canada to1867
COSC 122 (3) Computer Fluency	HIST 301 (3) History of Indigenous Peoples of Canada Since 1867
COSC 123 (3) Computer Creativity	HIST 309 (3) The Rise of Modern Science
COSC 301/DATA 301 (3) Introduction to Data Analytics	HIST 395 (3) Environmental History of North America
COSC 304 (3) Introduction to Databases	HIST 406 (3) British Columbia to 1900
COSC 341 (3) Human Computer Interaction	HIST 407 (3) British Columbia since 1900
CULT 100 (3) Media and Popular Culture in Global Context	HIST 460 (3) d Topics in Technology and Society in History

CULT 101 (3) Cultural Studies Practices	HIST 497 (3) Digital Media and History
CULT 215 (3) Cultural Industries	INDG 100 (3) Introduction to Decolonization: Indigenous Studies
CULT 230/ENGL 224 (3) Foundations: Reading Across Borders	INDG 102 (3) Introduction to Indigeneity: Ways of Knowing
CULT 250/ENGL 234 (3) Foundations: Indigenous Literature	INDG 201 (3) Okanagan Indigenous Peoples' Historical Perspectives
CULT 275/ENGL 250 (3) Foundations: Interdisciplinary Theory and Method in Literary Research	INDG 202 (3) Okanagan Concepts and Frameworks
CULT 316/FILM 303 (3) Narrative Film Production	INDG 203 (3) Indigenous Peoples' Historical Perspectives
CULT 340/ENGL 379 (3) Postcolonial Literary and Cultural Studies	INDG 210 (3) Indigenous Peoples of the Americas
CULT 341/ENGL 341 (3) Globalization, Literature, and Culture	INDG 307 (3) Traditional Ecological Knowledge
CULT 346/ENGL 384 (3) Human Rights, Literature, and Culture	INDG 405 (3) Indigenous Education: History and Revitalization
CULT 350/ENGL 387 (3) Indigenous Literature: Intellectual Traditions	INDG 420 (3) Indigenous Perspectives on Food, Place, Identity, and Biodiversity
CULT 371/ENGL 309 (3/6) d Modern Critical Theory and Interdisciplinary Methods	MATH 100 (3) Differential Calculus with Applications to Physical Sciences and Engineering
CULT 450/ENGL 473 (3) Studies in Indigenous Literature and Criticism	MATH 101 (3) Integral Calculus with Applications to Physical Sciences and Engineering
CULT 460/ENGL 457 (3) Posthumanism and Critical Animal Studies	MATH 221 (3) Matrix Algebra
DATA 101 (3) Making Predictions with Data	MATH 225 (3) Introduction to Differential Equations
DATA 311 (3) Machine Learning	MGMT 100 (3) Introduction to Business
DATA 315 (3) Applied Time Series and Forecasting	MGMT 110/MGMT 200 (3) Introduction to Management Thought and Social Responsibility
DATA 407 (3) Sampling and Design	MGMT 260/MGMT 360 (3) Business Conditions Analysis
DATA 410 (3) Regression and Generalized Linear Models	MGMT 290/MGMT 390 (3) Industry Analysis Project
DIHU 200/ENGL 200 (3) Introduction to the Digital Humanities	MGMT 410 (3) Leadership in Complex Environments
ECON 101 (3) Principles of Microeconomics	MGMT 422 (3) Project Management
ECON 102 (3) Principles of Macroeconomics	PERF 403 (3) Art and Social Practice

ECON 112 (3) Introduction to the Canadian Economy	PHIL 111 (3) Introduction to Philosophy I
ECON 122 (3) Introduction to Economic History and Thought	PHIL 120 (3) Introduction to Logic and Critical Thinking
ECON 232 (3) History of Economic Thought	PHIL 121 (3) Introduction to Philosophy II
ECON 257 (3) Topics in International Economic Policy	PHIL 125 (3) Introduction to Scientific Reasoning
ECON 260 (3) Poverty and Inequality	PHIL 210 (3) Introduction to Social and Political Philosophy
ECON 261 (3) Economics of Developing Countries	PHIL 230 (3) Ethics
ECON 295 (3) Managerial Economics	PHIL 235 (3) Contemporary Moral Issues
ECON 330 (3) World Economy to 1800	PHIL 338 (3) Philosophy of Law
ECON 331 (3) World Economy since 1800	PHIL 434 (3) Business Ethics
ECON 332 (3) Canadian Economy to 1929	PHIL 435 (3) Environmental Ethics
ECON 333 (3) Canadian Economy since 1929	PHIL 460 (3) Philosophy of Science
ECON 339 (3) Economics of Technological Change	PHYS 111 (3) Introductory Physics for the Physical Sciences I
ECON 340 (3) Financial Economics	PHYS 121 (3) Introductory Physics for the Physical Science II
ECON 351 (3) Women in the Economy	POLI 101 (3) The Government of Canada
ECON 352 (3) Public Sector Economics	POLI 220 (3) Introduction to Comparative Politics
ECON 356 (3) International Finance	POLI 222 (3) International Politics II
ECON 371 (3) Economics of the Environment	POLI 223 (3) Introduction to Philosophy, Politics and Economics (PPE)
ECON 372 (3) Natural Resource Economics	POLI 240 (3) Currents of Political Thought
EESC 111 (3) Earth Science	POLI 303 (3) Federalism in Canada
EESC 121 (3) Earth History	POLI 334 (3) Government and Politics of the United States of America
EESC 205/GEOG 205 (3) Introduction to Hydrology	POLI 336 (3) Government and Politics of the United States of America II
EESC 212/GEOG 200 (3) Atmospheric Environments	POLI 352 (3) Comparative Politics of Public Policy
EESC 213 (3) Introductory Forest Science and Management	POLI 363 (3) Canadian Foreign Policy
EESC 222/GOEG 222 (3) Geomorphology	POLI 364 (3) International Organizations
EESC 304/GEOG 304 (3) Anthropogenic Climate Change	POLI 366 (3) International Political Economy

EESC 314/GEOG 314 (3) Environmental Impact Assessment: Process, Regulation and Administration	POLI 432 (3) Contemporary Issues in Law
EESC 315 (3) Environmental Impact Assessment: Techniques and Practice	SOCI 111 (3) Introduction to Sociology I
EESC 367/GEOG 367 (3) Energy Resources Management	SOCI 121 (3) Introduction to Sociology II
EESC 402 (3) Freshwater Resources	SOCI 209 (3) Foundations of Sociological Thought
EESC 456/GEOG 466 (3) Soil Science	SOCI 211 (3) Canadian Society I
ENGL 113 (3) Reading and Writing Across the Curriculum	SOCI 216 (3) Media and Society
ENGL 150 (3) Introduction to Literary Genre	SOCI 301 (3/6) d Sociology of Development and Underdevelopment
ENGL 151 (3) Critical Studies in Literature	SOCI 305 (3) Sociology of Families
ENGL 153 (3) Readings in Narrative	SOCI 311 (3) Canadian Society
ENGL 156 (3) Environmental Literature: Anthropocene Culture	SOCI 320 (3) Cultural Studies in Sociology
ENGL 203 (3) Topics in Composition	SOCI 330 (3) Sociology of Tourism
ENGL 297 (3) Reading Animals	SOCI 355 (3) Community Studies
ENGL 388 (3/6) d Beyond Anthropocentrism	SOCI 411 (3/6) d Special Studies in Canadian Society
ENGL 397 (3) Contemporary Environmental Writing	STAT 121 (3) Elementary Statistics/STAT 230 (3) Introductory Statistics/STAT 124 (3) Business Statistics
ENGL 457 (3) Posthumanism and Critical Animal Studies	STAT 406 (3) Environmetrics
ENGL 458 (3) Canadian Environmental Writing	SUST 491 (3) Special Topics
ENGL 477 (3/9) d Literature and Science	VISA 106 (3) Introduction to Digital Media I
FDSY 221/GEOG 221 (3) Food Systems I: System Thinking	VISA 108 (3) Introduction to Digital Media II
FILM 100 (3) Introduction to Film Studies	VISA 110 (3) Studies in Photography
FILM 200 (3) Introduction to Canadian Cinema	VISA 244 (3) Photography I
FILM 261/VISA 261 (3) Video I	VISA 256 (3) Photography II
FILM 271/VISA 271 (3) Video II	WRLD 200 (3) Introduction to World Literatures
GEOG 108 (3) Introduction to Physical Geography I	WRLD 310 (3) Mythologies in Motion
GEOG 109 (3) Introduction to Physical Geography II	WRLD 360 (3) Literature and Power

The 12 Principles of GREEN CHEMISTRY

Green chemistry is an approach to chemistry that aims to maximize efficiency and minimize hazardous effects on human health and the environment. While no reaction can be perfectly 'green', the overall negative impact of chemistry research and the chemical industry can be reduced by implementing the 12 Principles of Green Chemistry wherever possible.

1. WASTE PREVENTION

Prioritize the prevention of waste, rather than cleaning up and treating waste after it has been created. Plan ahead to minimize waste at every step.

2. ATOM ECONOMY

Reduce waste at the molecular level by maximizing the number of atoms from all reagents that are incorporated into the final product. Use atom economy to evaluate reaction efficiency.

3. LESS HAZARDOUS CHEMICAL SYNTHESIS

Design chemical reactions and synthetic routes to be as safe as possible. Consider the hazards of all substances handled during the reaction, including waste.

4. DESIGNING SAFER CHEMICALS

Minimize toxicity directly by molecular design. Predict and evaluate aspects such as physical properties, toxicity, and environmental fate throughout the design process.

5. SAFER SOLVENTS & AUXILIARIES

Choose the safest solvent available for any given step. Minimize the total amount of solvents and auxiliary substances used, as these make up a large percentage of the total waste created.

6. DESIGN FOR ENERGY EFFICIENCY

Choose the least energy-intensive chemical route. Avoid heating and cooling, as well as pressurized and vacuum conditions (i.e. ambient temperature & pressure are optimal).

7. USE OF RENEWABLE FEEDSTOCKS

Use chemicals which are made from renewable (i.e. plant-based) sources, rather than other, equivalent chemicals originating from petrochemical sources.

8. REDUCE DERIVATIVES

Minimize the use of temporary derivatives such as protecting groups. Avoid derivatives to reduce reaction steps, resources required, and waste created.

9. CATALYSIS

Use catalytic instead of stoichiometric reagents in reactions. Choose catalysts to help increase selectivity, minimize waste, and reduce reaction times and energy demands.

10. DESIGN FOR DEGRADATION

Design chemicals that degrade and can be discarded easily. Ensure that both chemicals and their degradation products are not toxic, bioaccumulative, or environmentally persistent.

11. REAL-TIME POLLUTION PREVENTION

Monitor chemical reactions in real-time as they occur to prevent the formation and release of any potentially hazardous and polluting substances.

12. SAFER CHEMISTRY FOR ACCIDENT PREVENTION

Choose and develop chemical procedures that are safer and inherently minimize the risk of accidents. Know the possible risks and assess them beforehand.

Advisor, Sustainability Reporting

Suncor Energy Services

Calgary, AB

Full–time

LOCATION: Calgary, Alberta (CA-AB)

JOB NUMBER: 26157

Job Overview

Reporting to the manager, sustainability disclosure, you will support all of our sustainability disclosure reporting and assurance requirements. You will work across the business on a number of initiatives including the project management of Suncor's Report on Sustainability, annual submissions to the CDP Climate and Water questionnaires, the Dow Jones Sustainability Index (DJSI), the FTSE4Good survey and third-party research responses including MSCI, ISS-Oekom, Sustainalytics, etc. You will also assist with the development of issue positions, participate in partner meetings and events and lead projects to encourage employee understanding and engagement in sustainability issues.

Key Accountabilities

- Carry out quality control, benchmarking and best practice review of all economic, social and environmental sustainability data
- Assist with assurance processes for our sustainability disclosure
- Combine business insight with an understanding of the sustainability opportunity space to recognize opportunities for value creation
- Support organizational capacity development to embed sustainability thinking deeper within Suncor

Required Qualifications

Experience and Education:

- Two years of relevant work experience
- Bachelor's degree in science, engineering, social science, business or another relevant field in environmental, stakeholder relations, community and/or regulatory management

Skills and Knowledge:

- Proficient in data collection, management and quality control and analysis of environmental, social and economic data from across the company and using external sources

- Understanding of key sustainability issues for the organization and the industry and the level of risk or opportunity
- Familiarity and ability to follow and implement environmental, health, safety and social reporting guidelines
- You have strong, proven organization and project management skills and can work with minimal supervision You are effectively able to influence, persuade and facilitate change through building high-trust relationships
- You have a positive work ethic and are a strong communicator with an aptitude to build strong positive relationships and effectively drive messaging to diverse groups within an organization
- Core sustainability competencies required for success include Integrated Systems Thinking, Collaboration, Strategic Problem-solving and Innovation, Sustainability Integration and Sustainability Engagement

Why Suncor?

We are Canada's leading integrated energy company with a business portfolio that includes oil sands development and upgrading, offshore oil and gas production, petroleum refining, and product marketing under the Petro-Canada brand. Our global presence offers rewarding opportunities for you to learn, contribute, and grow in a variety of career-building positions. We live by the value of safety above all else – do it safely, or don't do it. Our strong track record of growth and a focus on sustainability mean tremendous potential for the future. Learn about our mission, vision and values.

In addition to rewarding job opportunities, we offer an attractive employee package, including:

- Competitive base salary, compensation programs, and an annual incentive program
- Flexible benefits package
- Rewarding pension and savings plans

Stay connected to us:

Follow us on LinkedIn, Facebook and Twitter for the latest job postings and news

Join our Talent Community and sign up to receive customized job alerts

Read our Suncor Connections newsletter to see what we're doing in the communities we live and work in We are an equal opportunity employer and encourage applications from all qualified individuals.

We are committed to providing a diverse and inclusive work environment where every employee feels valued and respected. We will consider accessibility accommodations to applicants upon request. Please note that our job postings are typically open for two weeks, so don't delay, apply now.

JOB CATEGORY: Business Professionals

https://www.google.com/search?q=jobs+in+sustainability&rlz=1C1GCEB_enCA825CA825&oq=Jobs+in+sustainability&aqs=chrome.0.0l6.3313j0j8&sourceid=chrome&ie=UTF-8&ibp=htl;jobs&sa=X&ved=2ahUKEwj6kNrDuILjAhWHIDQIHZgCBt0Qp4wCMAJ6BAgKEAE#fpstate=tldetail&htidocid=PDCLC50CEGUsY1IkAAAAAA%3D%3D&htivrt=jobs

Cut costs, cut carbon. The time to take action is NOW!

Making a difference...together

Climate Action Analyst – Victoria, BC

Parks & Environmental Services – Environmental Protection

Competition 19/115

Status Regular Full time

Hours of Work 70 hours bi-weekly

Rate of Pay $39.53 - $44.82 per hour

Review of applications begins 4:00 pm on June 4, 2019; however the competition will remain open until the successful candidate is found

Summary

The Climate Action Analyst is responsible for coordinating the Capital Regional District's corporate climate action program. The incumbent, will partner with staff across the CRD to meet the CRD's corporate climate action objectives with an internal focus of corporate operations and infrastructure. The Climate Action Analyst will be responsible for promoting and assisting with implementing internal projects to reduce greenhouse gas (GHG) emissions, obtain energy and cost savings and/or improve the resiliency of CRD owned assets and infrastructure.

Duties & Responsibilities

- Develops and provides guidance on initiatives to address the CRD's corporate GHG emissions reduction target.
- Support the organization to incorporate climate action into service delivery.
- Promotes and assists with implementing internal projects to reduce greenhouse gas (GHG) emissions, obtain energy and cost savings and/or improve the resiliency of CRD owned assets and infrastructure.
- Assists with the development of policy framework for the CRD's corporate climate action program including engaging in internal stakeholder consultations.
- Assists with the development and advocacy for a CRD Corporate Adaptation Strategy.
- Identifies and initiates an implementation strategy to meet emission reduction targets.
- Liaises with and works collaboratively with internal stakeholders, identifies climate related risk and acceptable parameters with respect to CRD's services and associated infrastructure.
- Liaises with and provides technical expertise, advice and recommendations to CRD departments to influence and incorporate a climate lens review process.
- Identifies opportunities for grants or external funding sources to support planning and implementation of Corporate Climate Action initiatives. Prepares grant applications.
- Coordinates the organizational response to the Provincial CARIP grant and GHG accounting requirements.
- Researches, develops and prepares presentations and reports.
- Follows all policies, procedures and standards of the CRD
- Performs other related duties as required.

Qualifications

- Degree in Sustainability, Resource Management or related discipline, plus a minimum of 5 years related working experience as a sustainability and/or energy specialist. An equivalent combination of education an experience may be considered.
- Excellent communication (verbal and written), interpersonal and customer service skills are required.
- Experience applying multi-criteria decision making.
- Knowledge of current regulatory framework for climate action and energy management specifically as it relates to local government.
- Knowledge and understanding of strategies to significantly reduce energy and GHG consumption within medium sized public sector organizations
- Understanding of available resources, programs and frameworks to support implications of adaptation to service delivery, including natural assets and infrastructure to climate change
- Expert knowledge of greenhouse gas measurement, reporting and verification.
- Excellent writing, public speaking, meeting facilitation, and stakeholder engagement skills.
- Strong research, analytical, database, and technical skills.
- Energy modelling experience would be considered an asset.
- Demonstrated project management skills, including overseeing the work of consultants.
- Excellent organizational skills and ability to work accurately and effectively to ambitious deadlines.
- Results-oriented, energetic team player, who is able to collaborate effectively with diverse groups of professionals and across multiple disciplines.
- Demonstrated ability to work collaboratively with stakeholders.
- Ability to facilitate work of interdepartmental teams; including influencing, seeking and providing advice.
- Proficiency and experience with word processing (MS Word), spreadsheets (MS Excel) and presentation (MS PowerPoint) software.
- Must possess a valid BC Driver's License.

Please note: This position is currently being reviewed as referenced in Article 27.01 of the CRD/CUPE Local 1978 Agreement.

Applications
To apply for this exciting opportunity, please submit your resume and covering letter online at www.crd.bc.ca under "Careers".

The CRD wishes to thank you for your interest and advises that only those candidates under active consideration will be contacted.

Organization: Capital Regional District
Location: Victoria, BC
Region: South Vancouver Island
Professional Category(s): Climate Action
Posted: June 4, 2019, 8:03 pm
Expires: July 4, 2019, 4:30 pm
https://www.civicjobs.ca/jobs?id=50472

Coordinator 2, Environmental

City of Whitehorse - Whitehorse, YT

Job Description:

Job posting closes: June 23, 2019 11:00 pm PST

An Eligibility List may be established from this competition – the duration of the eligibility list may be up to 12 months. The eligibility list may be used to fill future permanent full-time, permanent part-time, temporary full-time, temporary part-time, term or casual vacancies within the same department and classification based on the organizational needs by going to the next highest ranked candidate until the eligibility list expires.

The City wishes to thank all applicants for their interest but only those candidates selected to advance in the recruitment will be contacted. Note that only those candidates eligible to legally work in Canada will be considered.

Coordinator 2, Environmental
==========
Job Code: 039
Department: Environmental Sustainability

Job Summary:

The incumbent plans, researches, implements, evaluates and maintains environmental programs.

Duties and Responsibilities:
---
1. Oversee the development and implementation of environmental programs, including but not limited to: water conservation, energy conservation, clean energy, waste diversion and reduction, and wildlife conflict mitigation.
2. Collect and analyze technical data, undertake studies, research, and prepare and present reports for approval. Review reports, programs, and policies from consultants, other organizations and stakeholders and provide comments based on technical knowledge and standards.
3. Evaluate, monitor and propose changes and additions to Bylaws and policies, and develop and implement short and long term environmental strategies.
4. Engage the public, other organizations, and stakeholders including meetings, correspondence and reports, public presentations, presentations to City Council, and development and implementation of educational materials, and other communication in support of environmental programming.
5. Provide input and monitor annual operating and five-year capital budget and process expenditures.
6. Submit proposals for funding programs and write reports on activity and status.
7. Oversee the implementation of funding programs (e.g. Diversion Credits) including advertising; application review and selection; verifying data; fund distribution and reporting.
8. Assist with procurement and administration of contractors and consultants.
9. Follow, so far is reasonably practicable, established safety procedures and standards.
10. Other related duties.

This description contains elements necessary for identification and evaluation of the job. The incumbent may be required to perform other related duties.

Job Requirements:
Working Conditions:

Majority of the work is performed under normal office conditions. Occasional exposure to inclement weather or temperature extremes, solid waste, hazardous chemicals, odours and fumes when delivering programs, conducting audits, doing site visits, or conducting Household Hazardous Waste Days.

Knowledge and Skills:

- Degree in Environmental Studies or related discipline
- 3 years previous experience and 6 months on the job training.
- Experience in organizing and maintaining environment sustainability programs.
- Knowledge of federal and territorial environmental assessment processes and internal bylaws and policies.
- Proven skills relating to communications, team building, liaise with stakeholders,
- Proven written and oral communication skills to develop and present reports, position papers and proposals.
- Ability to foster and maintain effective relationships among peers and/or stakeholders.
- Class 5 driver's license.

An equivalent combination of education, training and experience may be considered.

Examples of Equipment to Operate:

General office equipment with the ability to operate ERP software programs, spreadsheets, electronic mail, word processing, etc.
https://ca.indeed.com/jobs?q=Sustainability&start=20&vjk=640c559b2a0320e4

Data Analyst & Client Advisor

Climate Smart - Vancouver, BC

Join our passionate team of climate action leaders who train and support businesses to reduce their carbon footprint.

About Us

Climate Smart is a dynamic enterprise that is engaging the business sector to take action on climate change and move toward a resilient, low-carbon economy. Our unique combination of training, certification and software enables organizations to measure and reduce greenhouse gas (GHG) emissions while strengthening their business at the same time. We partner with local governments (e.g., City of Vancouver, City of Edmonton), transportation hubs (e.g., Port of Vancouver and Vancouver International Airport), and other organizations (e.g., Vancity, St. John's Board of Trade) to engage the businesses in their networks and accelerate carbon reduction. Our aggregated data and related products (e.g., Business Energy and Emissions Profile – beep.eco, and 200 Million Tonnes of Opportunity – http://200million.ca/) are used by our partners and others to inform community-wide emissions planning, policy and reduction initiatives. Climate Smart is a collaborative, hands-on team that believes businesses play a critical role in addressing climate change. Our commitment to environmental sustainability underpins our internal operations and organizational culture. Learn more about Climate Smart at climatesmartbusiness.com.

About the Position

Reporting to the Data and Knowledge Systems Manager, as **Data Analyst & Client Advisor** you are a key member of the team that delivers:

Data Analysis

- Business Energy and Emissions Profiles (BEEPs)
- impact reports to host partners
- other data projects

In addition, you will contribute to developing new data products and services.

Client Advisor

As Client Advisor you will be responsible for:

- providing one-on-one support to a portfolio of client businesses to help them through the process of measuring their greenhouse gas emissions
- developing a list of emission reduction strategies for businesses to pursue
- completing their Climate Smart certification

Client Advisors are critical to Climate Smart's strong client relations, and to providing exceptional service to the businesses we work with.

Main Responsibilities

Data Analysis (60%)

- Creating Business Energy and Emissions Profiles (BEEPs), including:
- Preparatory research and data cleanup
- Deriving sectoral emission intensities from the Climate Smart dataset
- Data analysis and projections using top-down and bottom-up techniques
- Applying and analyzing Climate Smart emission intensities and community energy and emissions data using GHG accounting methodology

- Deriving and communicating insights through written and visual summaries using Microsoft and Adobe software
- Using Tableau Data Management Software to create interactive BEEP dashboards
- Other BEEP data analysis tasks as required
- In coordination with the President, develop and support the BEEP sales pipeline to develop new potential markets and demonstrate value to prospective partners
- Using Tableau data software tool to create interactive impact reports for host partners
- Provide ad hoc data support to Climate Smart's business development, training and support teams
- External communications and support for host partners, BEEP clients, and other interested parties around methodologies, data analysis, and finding
- Some travel within North America may be required

Client Advisory (40%)

- Provide technical, one-on-one support to your portfolio of Climate Smart clients on a scheduled and 'ad-hoc' basis as they conduct GHG emissions inventories, develop emissions reduction plans, and achieve Climate Smart certification
- Resolve technical issues and provide guidance on GHG inventory boundary-setting, emission reduction, and related topics according to the specific needs of each client and in accordance with principles of the GHG Protocol Corporate Standard
- Conduct a detailed review of completed inventories, emission reductions potential, delivering feedback on methodology and data quality according to the GHG Protocol Corporate Standard and Climate Smart best practices
- Develop projections and analyze the business case, for different emission reduction strategies;
- generate documentation for businesses upon completion of their certification as Climate Smart, including GHG inventory reports, case studies, and internal records
- Contribute to the on-going effectiveness and efficiency of program delivery for clients and Climate Smart

Experience, Skills and Characteristics

- Post-secondary education in environmental sciences and business, or equivalent training and work experience. Graduate degree related to climate change or GHG management is an asset
- Experience in related data analyst role(s); minimum of two years
- Technical expertise and confidence in data analysis (manipulating spatial, normalizing, visualization) and statistical analysis required
- Mastery of Excel required and Salesforce CRM an asset
- Organized and comfortable dealing with large sets of data, proven ability to extract unique insights from complex data
- Experience in GHG Accounting and knowledge of climate change research as it relates to emission inventories a strong asset
- Strong critical thinking and methodological analysis skills
- Strong oral and written communication skills with an ability to communicate to technical and non-technical audiences
- Ability to manage time and manage multiple projects
- Experience with Tableau and Adobe Products preferred

How to Apply

Please submit your cover letter and resume by midnight (PDT) on July 5, 2019 with the subject line of "Data Analyst and Client Advisor." In your cover letter, please answer the following questions:

- Why is this position of interest to you, and how does it fit with your career goals?
- Please outline your prior experience in data analysis and client service or advisory roles.

Climate Smart is an Equal Opportunity Employer: We are committed to the principles of equal and inclusive employment opportunities without regard to race, colour, religion, nationality, social or ethnic origin, sex, age, disability, sexual orientation, gender identity and/or expression, domestic partnership status or any other status that is representative of the communities we work in. Climate Smart encourages applicants from all communities.

We kindly ask for no phone calls please. We thank all candidates for applying. However, only those selected for an interview will be contacted.

Job Type: Full-time

Experience:

- Data Analysis: 2 years (Preferred)

https://ca.indeed.com/jobs?q=Sustainability&start=10&advn=4329141916365285&vjk=feb978a566caa769

Environmental Technician - Environmental Sustainability Specialist

City of North Vancouver

Vancouver, BC

the Corporation Of The City Of North Vancouver
Environmental Technician - Environmental Sustainability Specialist
temporary Full-time

The Planning And Development Department Requires A Temporary Full-time Environmental Technician - Environmental Sustainability Specialist For Approximately One Year.

With Your Proven Commitment To Sustainability,

- You Will Be Involved In Advancing The City's Zero Waste, Recycling, And Climate Protection Programs. This Is A Dynamic Advisory And Technical Position Working As A Member Of The City's Environmental Sustainability Team.
- You Will Develop, Coordinate, And Evaluate Waste Reduction, Recycling, And Climate Protection Programs, Assist In Developing Environmental Policies, And Conduct Best Practices Research And Feasibility Studies.
- You Will Provide Technical Expertise, Advice, And Guidance On Environmental Matters, Including Regulatory And Other Requirements Of Senior Governments Or Affiliated Agencies.
- You Will Coordinate Community Engagement Activities Designed To Raise Awareness And Effect Behavioural Change. You Will Develop And Maintain Collaborative Working Relationships With Community Stewardship Groups, Nonprofit Agencies, Other Municipalities, Government Departments And Agencies, Developers And The Wider City Of North Vancouver Community.
- you Will Have Completed Graduate Or Undergraduate Studies In Environmental Science, Business, Or Engineering, With Courses In Environmental Science Or Related Subjects, Together With Sound Related Experience In The Environmental Management Field. Alternatively,
- You Will Have An Equivalent Combination Of Training And Experience. Knowledge Of Waste Reduction And Recycling, Zero Waste And The Circular Economy, Climate Action Programs, And Community Based Social Marketing Is Required Along With A Thorough Knowledge Of Research And Analysis Techniques In Environmental Science. Excellent Interpersonal Skills Are Necessary To Establish And Maintain Effective Working Relationships With Internal And External Contacts. Demonstrated Project Management Skills Would Be An Asset. Strong Analytical Abilities And Excellent Knowledge Of Spreadsheets Are Required, Together With Superb Oral And Written Communication Skills And The Ability To Work Independently.
- You Will Also Have A Valid Class 5 BC Drivers' License.
- Some Evening/weekend Work May Be Required.

For Temporary Full-time Positions Of Eight (8) Months Or Longer, A City Employee Who Is Successful On The Posting Will Have The Right To Revert To Their Former Position.

Salary $36.45 To $43.04 Per Hour (pay Grade 24 - January 2019 Rates)

Hours of Work

The City of North Vancouver currently works on a compressed work schedule of 8:30 a.m. to 5:00 p.m., Monday to Friday, with one scheduled day off (Monday or Friday) approximately each three-week scheduling cycle.

Apply On-line Through The Career Portal At by Thursday, July 4, 2019.

Thank You For Your Interest In The City Of North Vancouver.

posting 2019 – 0067

https://www.google.com/search?q=jobs+in+sustainability&rlz=1C1GCEB_enCA825CA825&oq=Jobs+in+sustainability&aqs=chrome.0.0l6.3313j0j8&sourceid=chrome&ie=UTF-8&ibp=htl;jobs&sa=X&ved=2ahUKEwj6kNrDuILjAhWHIDQIHZgCBt0Qp4wCMAJ6BAgKEAE#htidocid=e4v2c0SOc3H4MrtcAAAAAA%3D%3D

Impact Assessment Analyst

Government of the Northwest Territories - Yellowknife, NT

$90,000 - $108,000 a year

Department Information

The Department of Health and Social Services works under the direction of the Minister and Deputy Minister, in partnership with the Health and Social Services Authorities, to support the health and wellbeing of people across the NWT through planning, development, evaluation and reporting on program and service delivery.

HSS is committed to the development and provision of quality services in such a way as to make the best use of public resources, ensure the sustainability of the system, focus on client safety and best practices and promote positive health and social outcomes. HSS strives to continually improve the health and social service system to ensure best health, best care, and a better future for the people of the NWT.

Job Information

The Impact Assessment Analyst is located in Yellowknife and reports to the Senior Impact Assessment Advisor in Corporate Planning, Reporting and Evaluation. The Analyst participates in all of the environmental assessment phases, supports the coordination of the assessment of impacts to the health and well-being of individuals, families and communities in the territory, as well as to the health and social services system and areas of the HSS mandate.

The Analyst is responsible for representing the Department of Health and Social Services (DHSS) in community meetings, technical sessions, and working groups as part of environmental assessment processes and socio-economic agreements. The incumbent provides expert advice, implementation, and supports the coordination of all aspects of the department's work in environmental assessment and regulatory processes, socio-economic monitoring agreements, monitoring and mitigation plans, cumulative impacts and land use planning. The position plays a key role in supporting DHSS and GNWT meeting its requirements under legislation, comprehensive land claims and self-government agreements, and regulatory systems. The Analyst ensures that potential impacts to individual, family, and community well-being and health are identified, assessed, and subject to review by the appropriate departmental or GNWT technical staff.

KNOWLEDGE, SKILLS AND ABILITIES

- Knowledge and skills relating to collecting, analyzing, and reporting on data, research ethics, utilizing research and evaluation tools.
- Knowledge of factors impacting social well-being and health.
- Ability to analyze and evaluate complex issues and develop suitable approaches and options for an effective delivery of departmental monitoring and mitigation plans and programs.
- Ability to communicate complex information in plain language to diverse audiences using a variety of communication tools.

- Ability to identify and negotiate mutually agreeable positions and negotiate with difficult and often politicized actors to reach consensus.
- Ability to facilitate diverse and multi-cultural groups while working in a complex, multi-lateral environment.
- Self-directed, innovative, adaptable, collaborative, results and service oriented.

Typically, the above qualifications would be attained by:

A Bachelor's degree in resource management, environmental studies or a related social science discipline along with two (2) years of experience in resource, social or health impact assessment.

Knowledge of social and health impact assessment is required.

GNWT Inquiries

Inquiries Only:

Management and Recruitment Services
Department of Finance
Government of the Northwest Territories
Yellowknife Centre 5th Floor
P.O. Box 1320, Yellowknife NT X1A 2L9
Fax: (867) 873-0445
jobsyk@gov.nt.ca

https://ca.indeed.com/jobs?q=Sustainability%20data%20analyst&l&vjk=a7502f98c477665c

Market Intelligence Specialist

Vancouver, British Columbia, Canada

Description

Who we are:

Semios is a market leader in leveraging the internet-of-things (IoT) and big data to improve the sustainability and profitability of specialty crops. With over 160 million data points being reported by our sensors every day, we leverage our big data analytics, such as in-depth pest and disease modeling, to empower tree fruit and tree nut growers with decision-making tools to minimize resources and risks.

We know our journey is only achievable by having a great team who shares ideas, tries new things and learns as we go.

Our innovative work has received several industry awards:

- THRIVE - Top 50 Leading AgTech (2019) – recognized as exemplifying some of the best in agriculture technology around the globe
- Global CleanTech Top 100 (2019) – identified as one of the companies best positioned to solve tomorrow's clean technology challenges

One of our partners produced this short video which shows what we do and our positive environmental impact: https://youtu.be/Yn5NrjwWOhY.

Who you are:

Motivated by meaningful work, you are looking for more than just a job; you want to work for a dynamic, growing company that finds solutions to real-life problems, such as helping the world reduce the use of pesticides and helping nature feed a growing population. Your ideal work environment includes a collaborative team spirit with the opportunity to learn and grow as you take the initiative to try new things.

You are a curious and detail oriented individual who likes gathering insights and sharing findings. You enjoy the challenge of uncovering information that is not always readily available and connecting the dots between our work and what is happening in the industry. You are skilled at conveying technical information to both technical and non-technical audiences and have the ability to put both a business and technical lense on issues.

What you will do:

Market Intelligence

- Accumulate, analyze, and synthesize information about the agriculture technology industry, focusing on both existing and emerging landscapes
- Collect, organize and maintain data on market trends, customers, competitors and identify and fill knowledge gaps about our competitors and industry
- Create presentations with insights that are clearly articulated and substantiated with supporting data and research material
- Advise product teams on competitive and complementary technologies and support marketing teams with information about competitive messaging and positioning
- Leverage business intelligence tools to share insights across the organization
- Assist in identifying and assessing partnership opportunities with external organizations

Grants

- Prepare information for grant applications including coordination of contributions from team members and writing of materials
- Consolidate, edit, format, proofread grant proposal drafts

Requirements

We want you to succeed, so you will need:

- Degree in Business, Science or a related discipline
- Minimum 3 years of experience in market analysis and/or competitive research role in the technology industry
- 2 years of experience in developing proposals and writing grants
- Working knowledge of business intelligence tools
- Excellent business writing and presentation skills to deliver findings and insights
- Proficient in MS Excel and/or Google Suite
- Excellent attention to detail and organizational skills
- Ability to think critically and draw strategic insights to inform decisions by analyzing information
- Significant initiative and independence in carrying out project work

Nice to have:

- Experience within agriculture industry

Benefits

Why this is the opportunity for you:

- Sleep better knowing you're making the world a better place through more sustainable food production
- Opportunity to learn and make an impact by working on meaningful projects
- Work with a team that values fun, laughter, and each other
- Competitive salary, benefits and performance based incentives

https://semios.workable.com/j/F2C8B020A3?viewed=true

Planner 1 - Environmental Sustainability

City of North Vancouver

North Vancouver, BC

Full–time

The Corporation of the City of North Vancouver Planner 1 - Environmental Sustainability Regular Full-Time

The Planning & Development Department is looking for a regular full time Planner 1 - Environmental Sustainability.

Reporting to the Manager, Environmental Sustainability, you will advance the development and implementation of key initiatives to support the City's environment, climate protection, and zero waste goals. You will research environmental sustainability issues and best practices, develop and implement policy responses to emerging issues, and prepare reports and recommendations to Council. You will carry out consultation with internal and external stakeholders including other departments, agencies, governments, residents, landowners, and business interests. You will work with internal staff and external agencies to implement initiatives and to collect and analyze data to measure and monitor progress. You will also review and evaluate development applications for compliance with environmental policies and regulations and prepare new bylaws and amendments to bylaws. Additionally you will supervise and mentor temporary staff and oversee the work of consultants.

Excellent interpersonal skills are necessary to establish and maintain effective working relationships with internal and external contacts. The ideal candidate will have demonstrated experience in facilitating teams, working across a broad range of environmental sustainability issues and developing and leading stakeholder engagement processes. Demonstrated project management skills would be an asset. Strong research and analytical abilities and knowledge of spreadsheets are required, together with superb oral and written communication skills. Knowledge of environmental management, natural capital, biodiversity, community based social marketing, zero waste and circular economy, energy conservation and climate action, and other environmental issues is required, along with a thorough knowledge of research and analysis techniques in environmental management.

You will have completed graduate or undergraduate studies in environmental science, planning, business, or engineering along with professional experience in environmental management, or an equivalent combination of training and experience.

Membership or eligibility for membership in a related professional association and a valid Class 5 Driver's License for the Province of BC is also required.

Salary: $43.04 to $50.85 per hour (January 2019 rates) Pay Grade 28

Hours of Work: The City of North Vancouver currently works on a compressed work schedule of 8:30 a.m. to 5:00 p.m., Monday to Friday, with one scheduled day off (Monday or Friday) approximately each three-week scheduling cycle.

Apply on-line through the Career Portal at www.cnv.org prior to midnight, Monday, June 24, 2019. Thank you for your interest in the City of North Vancouver. Posting #: 2019-0061

https://www.google.ca/search?source=hp&ei=gEUJXaeLD8610PEP3MWVmAU&q=jobs+in+sustainability&oq=jobs+in+sustainability&gs_l=psy-ab.3..0l10.2465.5473..6078...0.0..0.93.1063.22.....0....1..gws-wiz.....0..0i131.2ymUXvsBps4&ibp=htl;jobs&sa=X&ved=2ahUKEwiQkIfJ6_PiAhUSsp4KHV7ZBoAQp4wCMAB6BAgEEAE#htidocid=5DQYW0V5amA0d0qWAAAAAA%3D%3D

Sustainability Office Associate

City of Kitchener, The Corporation of (ON) - Kitchener, ON

Overview

The Sustainability Office Associate is responsible for increasing the number of City of Kitchener staff and stakeholders directly and meaningfully engaged in environmental sustainability and resiliency activities to achieve the City's strategic goals to mitigate and adapt to climate change.The Associate works with stakeholders to develop and deliver sustainability engagement programs to shift culture toward a conservation mindset. The Associate will provide and support education, tools, events, services and programs for stakeholders to engage in sustainability initiatives, including coordinating volunteer and/or student involvement. Priority program areas for the Sustainability Office Associate include fleet utilization, stormwater management and waste reduction, including energy use. The Associate is also responsible for administering climate related data and associated reporting processes.

Responsibilities

- Research and present best practices for impactful sustainability engagement programs for a variety of audiences (staff, building and service users, residents and business owners, etc.);
- Develop sustainability engagement initiatives (campaigns, programs, services, feedback channels, events, etc.) across City sites and audiences and ensure smooth operations through engaging with a variety of stakeholders, including contractors, staff, community members, organizations, etc.
- Develop and implement a suite of standard engagement tools, resources, techniques and channels to coordinate communication on sustainability successes and activities which include, but are not limited to, media releases, social media, website updates and blogs, surveys, annual reports, newsletters and emails;
- Engage, develop and maintain a network of key stakeholders to improve representation and impact;
- Facilitate and lead meetings, committees, workshops, awareness training, presentations, events, etc. with and for a variety of stakeholders;
- Coordinate, monitor, document and report on program delivery and update and improve as necessary;
- Perform climate related data gathering, maintenance and reporting for the Sustainability Office, including greenhouse gas emission reporting through the Regional Sustainability Initiative.

Requirements

- Comprehensive and thorough knowledge of sustainability principles, particularly surrounding climate change (both mitigation and adaptation);
- Extensive knowledge of communication and engagement processes, techniques and tools;
- Must have a minimum 3 degree/ diploma in sustainability related field such as sustainability management/communications, environmental studies, or business
- Must have a minimum of 1 year of related experience in a related field e.g., sustainability engagement, communications, programming.
- Ability to facilitate meetings and workshops;

- Self-starter with tact, initiative, responsibility and professional competence;
- Ability to perform research, solve problems and effectively manage programs;
- Skills in social media, presentations, website and database maintenance;
- Skills in marketing and promotion;
- Graphic design skills are an asset
- Excellent written and oral communication skills;
- Ability to develop and maintain effective working relationships and protocols with business persons, municipal officials, other levels of government and the general public.

Please note that as per Human Resources Policy #II-110, "Employment of Relatives of Staff Members and Elected Officials":
"The immediate relatives of staff of the Human Resources Division, all Directors, Deputy Chief Administrative Officer, or the Chief Administrative Officer and Elected Officials shall not be employed by the City in any capacity.
The immediate relatives of all other Management personnel shall not be employed where such employment would be:
1. within the same Department in the case of permanent full-time, temporary full-time and part-time classifications.
2. Within the same Division in the case of students."

We are committed to diversity and inclusion, and thank all applicants in advance. Accommodations are available during all stages of the recruitment process in accordance with the Human Rights Code. We thank all applicants for their interest, however only candidates selected for further consideration will be contacted

https://ca.indeed.com/jobs?q=Sustainability&start=40&vjk=59431f2ca3227247

Sustainability Specialist

Peterborough, ON

$33.67 an hour

Under the general direction of the Director, Sustainability, the Sustainability Specialist will prepare and implement sustainability programs, initiatives and events in order to maintain and enhance student and staff engagement, sustainability practices and awareness across the College. Developing intervention strategies to improve our environmental performance, reduce our carbon footprint, and support College sustainability goals will be a primary focus. In addition, this position is responsible for managing the implementation and operation of new and existing sustainability projects and programs at the College, including tracking and reporting targets.

Explore what Fleming College has to offer and the beautiful communities we are surrounded by. Check out Life@Fleming.

What We Are Looking For:

As our ideal candidate, you will have a relevant combination of the following education and experience:
Education:

- A 4 year degree in sustainability, environmental studies/science, environmental management, building science or equivalent; OR
- 3 year diploma/degree plus appropriate certification (i.e. LEED Green Building)

Experience:

- Five years' experience working in the sustainability field, preferably for the post-secondary environment, with involvement with academic delivery and supporting student success outside of the classroom through co-curricular activities.
- Experience coordinating and planning events/initiatives; preparation of a variety of marketing materials and communications using various social media.
- Strong knowledge of MS Word, Excel, and standard office software applications Experience with policy, program and initiative development and implementation.
- Knowledge of basic project management principles and data management.
- Experience developing funding applications.
- Previous experience with legislative and standard requirements relating to sustainability e.g. waste management, energy reporting, Greenhouse Gas (GHG) Reporting Protocols.
- Strong presentation skills with experience delivering presentations to various audiences.
- Excellent interpersonal and communication (oral and written) skills and ability to exercise tact and diplomacy.
- Strong organizational skills for priority setting and project planning.
- Experience working independently, in a team environment, including strong planning and coordination skills with the experience independently prioritizing own work assignments to meet regular deadlines, and multi task while paying particular attention to detail and accuracy.

https://rsprd.flemingc.on.ca/psc/RSPRD/EMPLOYEE/RSMS/c/HRS_HRAM.HRS_APP_SCHJOB.GBL?Page=HRS_APP_JBPST&Action=U&FOCUS=Applicant&SiteId=1&JobOpeningId=1854&PostingSeq=1

Environmental Scan of Sustainability-Themed Programming

Introduction: Sustainability is a well-acknowledged topic of importance at government and organizational/institutional levels[1]. Over the last decade, most post-secondary institutions have made sustainability a priority at both the organizational level, where reducing the ecological and energetic footprint of operations is being implemented, and at the program level, where sustainability-themed programming is being identified and marketed. Additionally, jobs related to sustainability are also on the increase. While job titles may not have the name "sustainability" within them, the knowledge and competencies[2] (e.g., critical thinking and problem solving; collaboration, communication, and global citizenship), are becoming more pronounced requirements.

Purpose: It is recognized that most degree-granting institutions offer environment-focused sustainability programming (e.g., Bachelor of Arts/Sciences environmental majors/minors); however, the purpose of this e-scan is to review more distinct, novel programming that is directly related to the broader understanding of sustainability, including science aspects but also encapsulating the social sciences. The e-scan focused on 14 post-secondary institutions across Canada, although a few innovative programs at international institutions were also reviewed.

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
National Post-secondary Sustainability Related Programming					
Acadia University, NS https://www2.acadiau.ca/index.php	Bachelor of Arts (BA) Bachelor of Community Development (BCD) Requirements: 120 hours, 40 courses over four years and include the same set of six core courses in ESST. BA ESST Requirements BCD ESST Requirements:	1) BA in Environmental Sustainability Studies (ESST) 2) BCD in ESST Concentrations in: a. Environmental Education & Activism b. Sustainable Community Development c. Innovation and Entrepreneurship for Sustainability d. Environmental Thought and Practice	Core Courses: CODE 1023 Environment and Sustainable Society; ESST 3003 Investigating Sustainability Issues: Research Methods Concentration Courses: ESST 2013 Environmental Justice and Equity; CODE 2033 Sustainable Community Development; BUSI 2763 Organizations and Sustainability; PHIL 2303 Critical Perspectives on Environmental Issues	ESST is an interdisciplinary program that combines skills and knowledge from a variety of different fields. Students gain a more complete understanding of natural and human environments and will be ready to lead change. The ESST major develops environmental leaders, managers, and professionals who are critical and insightful thinkers, as well as creative problem solvers.	Author's note: Interesting link re "potential careers" in sustainability; (2017 report from Eco Canada; 90,000 new environmental jobs are expected to be created by 2024)

[1] The 1987 Report of the Brundtland Commission, *Our Common Future*, defines sustainable development as, "meeting the needs of the present generation without compromising the ability of future generations to meet their own needs."
[2] Refer to the Future of Jobs Report 2018.
[3] Author's note: does not show entire range of courses; please refer to links for more information.

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
Dalhousie University, NS https://www.dal.ca/	Bachelor of Arts (BA) Bachelor Science (BSc) Bachelor of Management (BMgmt) Bachelor of Community Design (BCD) Bachelor of Journalism (BJH) Requirements: BA Double Major Requirements: 120 credit hours (see p. 236)	1) BA double major or combined honours degree in Environment, Sustainability, and Society (ESS) 2) BSc double major/combined honours degree in ESS 3) BMgmt major in ESS 4) BCD double major/combined honours degree in Community Design (Environmental Planning or Urban Design and Planning) and Sustainability 5) BJH combined honours in Journalism and ESS	ESS required courses: SUST 1000 What is Sustainability?; SUST 1001 A Sustainable Future; SUST 2000 Local Governance, Citizen Engagement and Sustainability; SUST 2001 Global Environmental Governance; SUST 3000 Environmental Decision Making; SUST 3701 The Community as a Living Laboratory or SUST 3502 The Campus as a Living Laboratory; six credit hours SUST or ESS electives at 2000+ level; SUST4000X/Y Environment, Sustainability and Society Capstone	The College offers unique transdisciplinary undergraduate double major programs and minors[4] in ESS in the Faculty of Arts and Social Science, Faculty of Science, Faculty of Management, Faculty of Architecture and Planning, and Faculty of Computer Science.	Note: Dalhousie has a "list of over 100 approved electives" for these programs that are from six different faculties. Note: The Dalhousie College of Sustainability provides an interdisciplinary forum for collaborative teaching and learning to address global issues in sustainability. Teaching is integrated with a broad range of existing Dalhousie degrees and programs, providing a rigorous disciplinary basis for responsive, issues-oriented study. The College provides a common place at the centre of the Dalhousie community for the study of sustainability-based problems, and hosts an exciting range of public lectures, seminars and other activities.

[4] While minors in ESS are available, they are not detailed in this e-scan.

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
Grenfell Campus, Memorial University, NL https://www.grenfell.mun.ca	Bachelor of Environment and Sustainability (BES) Requirements: 120 credit hours (40 courses)	1) BES Sustainable Resource Management 2) BES Environmental Studies	RM Courses and ENV Courses: 1000 – Introduction to Sustainability; 2001 – Introduction to Systems Thinking; 4000 – Integrated Approaches to Resource Managements ENVST 1000 – An Introduction to Environmental Studies	The BES RM program bridges scientific concerns about natural resources with policy development and management. The four-year degree program draws on existing courses shared among different programs at Grenfell Campus and also introduces new courses.	Author's note: This is a *new degree*; however, the program requirements on website still refer to a "major" (perhaps website has not been updated). Author's note: the "Course Sequence Table" is interesting.
McGill University, QC https://mcgill.ca/	Combined Bachelor of Arts and Bachelor of Science (BASc) Bachelor of Commerce (BCom) Requirements: 120 credits[5] Each program has its own requirements.	1) BASc Sustainability, Science and Society (interfaculty) 2) BASc Environment (interfaculty) 3) BCom Managing for Sustainability (major)	SS&S courses: Foundations of Sustainability: ENVR 201 Society, Environment & Sustainability; GEOG 460 Research in Sustainability BASc Env courses: ENVR 200 The Global Environment; AGRI 519 Sustainable Development; GEO 202 Statistics and Spatial Analysis; BIOL 305 Animal Diversity BCom courses: ECON 295 Macroeconomic Policy; GEOG 360 Analyzing Sustainability; ORGB 421 Managing Organizational Change	The programs aim to provide students with knowledge across a range of disciplines to help facilitate interdisciplinary communication; allow for disciplinary depth with which students can add value; and, instill leadership and soft skills that are key to effective problem-solving.	Author's note: the program comparison chart is interesting, even though it's from an earlier catalogue.

[5] Students outside of Quebec must complete 30 credits during freshman year while students from Quebec complete a 90-credit degree. In each of the BASc programs, 54 credits are achieved (roughly equal course weight between the two faculties of Arts and Sciences).

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
Okanagan College, BC https://www.okanagan.bc.ca/	Diploma Post-Diploma Certificate Requirements: SCMT – 2-year program, 33 courses (includes co-op work term option) SSC – 13 weeks; 11 courses over a 2-year period	1) Sustainable Construction Management Technology Diploma (SCMT). Five themes: a. Building Studies; b. Commercial Studies; c. Sustainability Studies; d. Core Studies; and e. Projects. 2) Post-Diploma Sustainability Studies Certificate (SSC)	Sample courses[6]: SCMT 110: Surveying for Construction; SCMT 114 Sustainability and Ethics in Construction; SCMT 134 Green Building Principles; SCMT 244 Regenerative Design; BUARD 269 Human Resources Management	The SCMT is a forward-thinking diploma program designed to enable, empower, and inspire the emerging generation of construction managers and technologists to deliver true sustainable development. This Post-Diploma SSC is designed to meet the industry demand for practitioners who are seeking specialization in sustainable construction. This certificate allows students to use their related education and/or industry experience as a foundation for the program that will build their expertise in the area of sustainability.	
Simon Fraser, BC https://www.sfu.ca/	Bachelor of Environment (BE) Requirements: 120 credits (units)	1) BE in Resource and Environmental Management Major 2) BE in Global Environmental Systems Major 3) BE in Sustainable Business: Joint Major in	Sample courses: FNST 101 – Introduction to First Nations Studies, GEOG 111 – Each System; REM 221 – Systems Thinking and the Environment; ARCH 286 – Cultural Heritage Management; CMNS 342 – Science and Public Policy:	The only BE degree in Canada, graduates will gain a good scientific understanding of environmental processes and the social, political and institutional frameworks in which environmental issues are considered. This broad	Note: SFU lists over 100 courses that are explicitly focused on sustainability and lists over 250 courses that are related to sustainability. Required and elective courses are directly related to environment and

[6] Courses in both programs overlap

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
		Business and Environment	Risk Communication; capstone	foundation is achieved through an interdisciplinary approach through which students focus on their particular interests and goals and tailor their learning through participation in practical, experience-based learning opportunities such as field schools, independent research projects, co-op, mentoring opportunities and a required capstone course in their final year.	sustainability; emphasis on methodology, practice and communication.
Thompson Rivers University, BC https://www.tru.ca/	Certificate[7] Requirements: Students must earn twelve points in three of six categories[8]; maximum of five points per category.	Leadership in Environmental Sustainability (LES) Certificate; earned in tandem with any credential	Sample sustainability courses: ADVG 1010 The Adventure Tourism Industry; SPEC 2641 Residential and Commercial Development on First Nation Lands; BBUS 3031 Business and Society; CMPT 4129 Human Side of Information Systems; ECON 4720 Sustainable Economic Development	The LES credential can be earned in tandem with any credit program offered by TRU. All students are welcome to participate whether they are on campus or Open learning students. The credential recognizes the environmental competencies[9] acquired by students through their educational experiences.	Note: TRU provides a list of over 200 sustainability-focused courses. Note: Students earning this credential will have it formally noted on their official TRU transcript and will have it acknowledged at the convocation ceremony.

[7] TRU has a BA, Major in Geography and Environmental Sciences as well.
[8] Categories: courses in Environmental Sustainability; volunteer work; green jobs; environmental of social organizations; extra-curricular; Environmental Sustainability course-related work.
[9] Listed as knowledge, skills, awareness and attitudes of an environmental sustainability citizen.

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
University of Alberta, AB https://www.ualberta.ca/	Certificate Requirements: 120 credit for degree[10]; 15 credits in sustainability (6 in core courses; 6 in elective courses; 3 credit integrative project/presentation)	Certificate in Sustainability (CIS); embedded certificate	Core courses: ALES 291 Topics in Agricultural, Life and Environmental Sciences; R SOC 450 Environmental Sociology; HECOL 100 Introduction to Principles and Practice in Human Ecology Sample elective courses: AFNS 416 One Health; AREC 375 World Food and Agriculture; HECOL 300 Policy Development and Evaluation; EDU 100 Contexts of Education; SMO 406 Ethical Issues in Business	The CIS is a credential for undergraduate students (in some programs[11]) with a commitment to learning more about sustainability. Adding the certificate to a transcript rewards students' choice to study pressing social, economic, and environmental issues. Students take courses outside of their faculty and gain deep knowledge of issues such as climate change, food security, biodiversity, renewable energy, and social inequality.	Note: U of A has an extensive "list of electives" for this certificate that are from nine different faculties/schools.
University of British Columbia, Okanagan Campus https://ok.ubc.ca/	Bachelor of Arts (BA) Master of Arts (MA), Master of Science (MSc), Doctor of Philosophy (PhD)	1) BA Major in Geography[12] 2) MA, MSc, and PhD: Interdisciplinary Graduate Studies – Sustainability Theme	BA sample courses: GEOG 108 – Introduction to Physical Geography I; GEOG 129 – Human Geography: Resource, Development, and Society; GEOR 351 – Urban Social Geography; GEOG 423 – Development of Environmental Thought.	The BA Geography Major draws on academic material from both the human and physical areas within the discipline. Curriculum emphasis is on the development of both theory and methodology and on the practical application of geographical concepts to environmental, economic,	The IGS Sustainability Theme focuses on interdisciplinary approaches to research in sustainability. Theme participants will contribute to identifying, articulating, and resolving pressing socio-ecological problems. For participating

[10] For general BA or BSc requirements, refer to links (BA; BSc)
[11] Students from nine different faculties can participate (i.e., Agriculture, Life & Environmental Sciences; Arts; Education; Science; etc.).
[12] Note: UBCV website states that their Major in Geography: Environment and Sustainability "is also offered at UBC's Okanagan Campus"; however, it is not the same (BA Major in Geography only).

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
				social, and cultural problems at global to local scales, with emphasis on issues pertinent to southern BC. The IGS in sustainability transcends conventional approaches, bringing together diverse perspectives, insights, tools, and techniques to seek solutions to the challenges of sustainability. Students will benefit from the knowledge and resources of four faculties and eight departments, and the collaborative opportunities.	faculty, see the Sustainability Theme Guide. The Sustainability Theme offers full-time, research-based degrees.
University of British Columbia – Vancouver, BC https://www.ubc.ca/	Bachelor of Arts (BA)[13] Requirements: 120 credits (40 courses) Master of Arts (MA), Master of Science (MSc), Doctor of Philosophy (PhD)	3) BA Major in Geography: Environment and Sustainability (BA ES)[14] 4) MA, MSc, and PhD in Resources, Environment, and Sustainability (RES)	Sample courses: GEOG 121 – Geography, Environment, and Globalization; GEOB 207 – Introduction to Biogeography; GEOG 321 - Historical Geography of Urbanization: Cities, Space, and Power; GEOB 472 – Research in Cartography.	In the BA ES, students gain an integrated understanding of physical, ecological, economic, socio-cultural, and political systems, as they shape the world in which we live and influence the future of life on planet earth. This program is suitable for students interested in working in the environmental sphere and	Note: UBCV has an Institute for Resources, Environment, and Sustainability (IRES) whose mission is to foster sustainable futures through integrated research and learning concerning the linkages among human and natural systems and to support decision making for local to global scales.

[13] UBCV also has a BA in Human Geography and a BSc in Geographic Sciences.
[14] Note: UBCV website states that the "program is also offered at UBC's Okanagan Campus"; however, it is named differently.

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
				will give them a strong platform for the development of a sense of global stewardship. The RES graduate programs provides a home for interdisciplinary students, focusing on the integration of the biophysical (ecological), socio-economic, and political realities of resources within the context of a sustainable, healthy environment.	Note: UBCV lists 600 courses that address environmental, social, and economic aspects of sustainability. Note: UBCV offers more than 60 undergraduate, graduate, and professional programs that allow students to orient their degree around their sustainability subject area of interest (e.g., BComm with a Sustainability Concentration; BSc Food and Environment; BA Environment and Society (minor)).
University of Calgary, AB https://www.ucalgary.ca/	Certificate Requirements : 120 units/credits; minimum required 18 units/credits total (6 courses) in sustainability courses	Certificate in Sustainability Studies (CSS); embedded into a student's chosen degree[15]	Required courses: SUST 201: Exploring Sustainability; SUST 401: Sustainability Research Methods; SUST 403: Sustainability Research Project; SUST 501: Capstone in Sustainability Studies. Sample elective courses: AFST 501: Interdisciplinary Seminar (African Studies); ANTH 341: Medical Anthropology; CNST 361:	Through the CSS, students will apply foundational principles to complex social, ecological and sustainable design problems through research and experiential learning. Using systems models, design thinking, and quantitative and qualitative methods, students will learn how to work in teams to find solutions to complex sustainability problems at	Note: U of C identifies over 350 sustainability related/focused courses across 45 disciplines and lists over 220 courses that are eligible toward the elective portion of the undergraduate CSS. Author's note: U of C identifies a concentration representing a focus within a degree or a major and requires a *minimum 18*

[15] Exceptions apply to students pursuing some specialized degrees (i.e., Law, Nursing, Medical Education, etc.)

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
			Gender, Race and Ethnicity in Canada; ECON 321: Development Economics; GEOG 421: Renewable Resources, Natural Environments and Sustainability; PSYC 427: Environmental Psychology	local, regional and global scales. Class sizes are small, course content is cross-disciplinary and students have the opportunity to engage directly with both sustainability problems and with faculty and expert practitioners who work on sustainability and resilience problems across the globe.	*units*. Concentrations appear on the transcript but not on the parchment. While SUST could be viewed as a concentration, it is actually an "embedded certificate" by definition (12-24 units taken concurrently with an eligible degree program).
University of Northern British Columbia, BC https://www.unbc.ca/	Bachelor of Arts (BA) Requirements: 120 credit hours[16]	1) BA Major in Environmental and Sustainability Studies (ESS) Areas of specialization: a. Global Environmental Studies b. Communities and Environmental Citizenship c. Natural Resource Management d. Indigenous Perspectives 2) BA Joint Major English and ESS 3) BA Joint Major ESS and Political Science	Sample ESS courses: BIOL 110-3 Introductory Ecology; MATH 150-3 Finite Mathematics for Business and Economics; ENGL 270-3 Introduction to Expository Writing; GEOG 204-3 Introduction to GIS for the Social Sciences; ENVS 306-3 Human Ecology; GEOG 420-3 Environmental Justice	The BA Major in ESS emphasizes a social science and humanities perspective on environmental and sustainability challenges and opportunities. The program provides a strong philosophical, social, and scientific basis for understanding the full diversity of environmental and sustainability issues. It positions students to be effective agents of social and environmental innovation who can promote mitigation of, and/or adaptation to, environmental challenges.	

[16] Students must complete an "academic breadth" requirement for BA degrees (twelve credit hours in four areas), which may increase the total credit hours.

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
University of Victoria, BC https://www.uvic.ca/	Bachelor of Arts (BA) Bachelor of Science (BSc) Requirements: ES 200 and ES 240; ES 301; ES 321; ES 341; 10.5 units of upper level in ES (major); 4.5 units of upper level in ES (minor).	1) BA Major in Environmental Studies (three interdisciplinary tracks) a. Ecological restoration b. Ethnoecology c. Political Ecology	Sample courses for ES Major (to be combined with a major in another subject): ES 200 Introduction to Environmental Studies; ES 301 Political Ecology; ES 341 Past, Present, and Future Ecologies	The BA ES major is about the relationship between social, cultural, economic, political and ecological systems. Students examine how human activities affect the landscape and develop integrated approaches to solving environmental problems. From engaging in community-based research to developing community action plans or working on local ecological restoration projects, students will make an impact on real issues affecting local and international communities.	The University of Victoria is focused on integrating sustainability into its courses and experiential learning programs. Note: UVIC lists over 580 courses that are linked to sustainability. Check out the list of sustainability focused and related courses for 2018-19. UVIC also lists several programs related to environment and sustainability.
University of Toronto, ON https://www.utoronto.ca/	Master of Science (MSc) Requirements: an appropriate undergraduate degree	Master of Science in Sustainability Management (MScSM)		The MScSM program provides the training for graduates to integrate knowledge from management, social, and natural sciences to address sustainability issues and make leading contributions and lasting advances in sustainability management.	Author's note: this program is mentioned in the B.Sust. proposal. The program is unique among science and management graduate programs by providing a strong foundation in sustainability management while offering an opportunity to specialize in a concentration related to management or science.

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
University of Waterloo, ON https://uwaterloo.ca/	Bachelor of Environment Studies (BES) Requirements: Typically, students complete 40 courses to earn a degree[17] Masters of Environment Studies (MES)	1) BES Environment and Business 2) BES Environment, Resources, and Sustainability (ER&S) 3) BES Geography and Aviation 4) BES Geography and Environmental Management (also a BA) 5) BES Geomatics 6) BES International Development 7) BES Planning	Sample Courses: ER&S, BES, Honours (Reg. and Co-op): ERS 101 Approaches: Environment, Resources and Sustainability; ENVS 200 Field Ecology; ERS 301 Sustainability Thought, Practice and Prospects; ERS 401 Sustainability Science and its Critiques	BES in Environment, Resources, and Sustainability is an interdisciplinary program that provides a solid understanding of environmental issues and the tools needed to resolve them. The program is oriented around people's relationships with their natural environments, the technological world, their local community and society as a whole. Professors and students seek sustainability in a world where much of what humans do is not sustainable.	Note: U of W has a School of Environment, Resources and Sustainability. The university lists 21 undergraduate programs related to sustainability; 7 of those lead to a Bachelor of Environment Studies (BES); also, lists ten "options" through which customizations enable interdisciplinary approaches and collaboration. U of W lists 21 graduate programs related to sustainability; 6 of those lead to a Masters of Environment Studies (MES).

[17] Five courses is considered a full load (2.5 lecture units is equivalent to 5 courses). Courses can range in units. Honours programs are typically capped at 3.25 units per term.

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
International Post-secondary Sustainability Related Programming					
Allegheny College, US https://allegheny.edu/	Bachelor of Arts (BA) Bachelor Science (BSc) Requirements: 128 credit hours; major includes 60 required credits (15 courses)	1) BA Major in Environmental Science and Sustainability (ESS) 2) BSc Major in ESS	Sample Required Courses: ENVSC 110 – Introduction to Environmental Science; FSENV 201 – Environmental Problem Analysis; ECON 202 Economic Statistics; MATH 157 – Calculus I for Social/Life Sciences; GHS 324 – Environmental Health; PSYCH 375 – Community Psychology; Capstone project; work experience recommended.	Students in the ESS Major will gain an enhanced understanding—from scientific, social, and humanities perspectives—of the environment and current environmental issues; gain experience in solving actual environmental problems; gain the ability to use modern research methods to explain observations about the natural world and about societies; and gain a network of alumni in government, industry, and the academic world linking students to jobs and graduate programs.	Note: the college recently renamed its Department of Environmental Science/Studies to **Department of Environmental Science and Sustainability** to allow more courses taught by other departments, and recognize the interdisciplinary nature of the environmental science and sustainability field and the need to equip students with the technical skills they can immediately apply outside of the classroom along with the ability to continually adapt and learn in the constantly evolving field of environmental science.
Arizona State University, US https://www.asu.edu/	Bachelor of Arts (BA) Bachelor of Science (BS) Requirements: 120 hours; 45 minimum in upper division Master of Science in Global Sustainability Science	1) BA in Sustainability (four tracks) a. Society and Sustainability b. Policy and Governance in Sustainable Systems c. International Development and Sustainability	BA Sust sample courses: SOS 101: Introduction to Applies Mathematics for the Life and Social Sciences; ENG 107: First-Year Composition; SOS 110: Sustainable World; SOS 220: Systems Thinking; Natural Science – Quantitative; SOS	Undergraduate sustainability degrees and programs are flexible, interdisciplinary, and problem-oriented. BA in Sust degree best suited to students interested in social sciences, humanities, planning or related fields. Students	Note: USA's first School of Sustainability, established in 2006. The School of Sustainability's mission is to educate a new generation of scholars and practitioners and create innovative modes of scholarship by bringing together leaders, stakeholders, and people

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
		d. Sustainable Urban Dynamics 2) BS in Sustainability (three tracks) a. Sustainable Energy, Materials, and Technology b. The Economics of Sustainability c. Ecosystems Sustainability 3) Master of Science in Global Sustainability Science; two-year collaborative degree in partnership with Leuphana University, Germany; students earn two degrees, one from each university	475: Collaborative Design Development BS Sust sample courses: SOS 101: Introduction to Applies Mathematics for the Life and Social Sciences; ENG 107: First-Year Composition; SOS 211: Calculus and Probability for the Life and Social Sciences; Computer/Statistics/ Quantitative Applications; SOS 326: Sustainable Ecosystems; SOS 465: Sustainable Urbanism: SOS 484: Capstone: Internship	learn concepts and methods relevant to the sustainability of environmental resources and social institutions, evaluating the sustainability of environmental institutions, legal frameworks, property rights and culture. The BS in Sust is an undergraduate degree best suited to students inclined toward natural sciences, economics, engineering or related fields. Students learn concepts and methods relevant to the sustainable use of environmental resources, evaluating the sustainability of technology, the built environment and environmental regulations and policy.	from multiple disciplines to develop practical solutions to the most pressing sustainability challenges.
Edith Cowan University, AUS http://www.ecu.edu.au/	Bachelor of Sustainability (BofS) Requirements: Three-year program (24 units/courses; 300 points); some majors	BofS includes four majors[18]: 1. Developing Sustainable Communities (BofS, DSC) 2. Humanities and Arts (BofS , HA)	Sample core courses: SCI1001 Introduction to Sustainability; SCC1111 General Chemistry; CSV1101 Introduction to Community Work; CSV1102 Introduction to Social Analysis; HIS2140	The BofS presents students with a unique opportunity to contribute to an emerging global challenge: how to make peoples' lives, livelihoods, communities,	Author's note: ECU appears to refer to its bachelor's degrees as courses.

[18] There seems to be contradictory information regarding a fifth major: Sustainable Planning. SP is not on the main web page but is in the "handbook".

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
	require professional/ practicum placements.	3. Sustainable Business Management (BofS , SBM) 4. Sustainable Environments (BofS , SE)	Slavery; From Ancient Green to the Modern Global Economy; CCA3111 Preparation for Professional Life Sample major courses: (hit links to majors) ACS3133 Aboriginal Communities; PSY1101 Introduction to Psychology; HIS3101 Human Rights: Struggles for Global Justice; MAN3612 Project Management; SCI3453 Sustainable Natural Resource Management	environments and spaces sustainable. Students receive practical and theoretical guidance in a set of skills that are essential for solving problems: systems thinking, critical thinking, and decision-making, and will build personal attributes that will enable them to work in teams to generate new ideas, and new solutions. Studies include an emphasis on field-based exercises and workplace learning.	
Murdoch University, AUS https://www.murdoch.edu.au/	Bachelor of Arts (BA) Requirements: 72 credit points (cps): 24 cps in core; 24 cps in major units; 24 cps in options.	BA in Sustainable Development Recommended double majors include 1. Community Development 2. Tourism and Events 3. International Aid and Development	Sample core units: MSP100 Career Learning: Managing Your Career; ART102 Inventing the Future; MSP201 Read World Learning; AIS308 Working with Indigenous Communities: Internship Major units: SUS100 Introduction to Sustainable Development; ENV245 Global and Regional Sustainability; SUS301 Resilient Regions: Sustainability in Practice	In this course, students will learn about the sustainability issues affecting us all, including climate change, scarce resources, and the challenge of balancing economic growth with protecting the environment. Students develop analytic and communication skills and gain practical experience with industry professionals as part of their studies.	

Institution	Certificate/Diploma/ Degree	Programs	Sample Courses[3]	Program Overview	Notes
University of New England, AUS https://www.une.edu.au/	Bachelor of Sustainability (BofS) Requirements: Three-year program (core units – 60 credit points (cps); one major – 48 to 72 cps; elective units – 12 to 36 cps; total of 144 cps).	Five majors: 1. Community Engagement and Development 2. Cultural Heritage Management 3. Environmental Governance 4. Environmental Resilience 5. Governance and Regulation	Sample core units: ECON329 Environment and Natural Resource Economics; PHIL366 The Ethics of Environmentalism; PSYC315 Environmental Psychology: How to Tame an Ecological Serial Killer. Sample prescribed units: (hit on major links): GEPL112 Where in the World? Australia's Human Geography; PSYC101 Introductory Psychology; EDCX310 Learning in Social Movements; SOCY301 Changing Climate, Changing Lives	The Bachelor of Sustainability at UNE (first to offer the program in Australia) provides a unique opportunity to develop skills and an understanding of sustainability in a holistic manner, integrating the social sciences and humanities with the environmental sciences and natural resource management. Going beyond traditional disciplinary boundaries, and transcending the old 'arts-sciences' divide, UNE adopts a multi- and inter-disciplinary approach to sustainability, and graduates gain an understanding of social and community sustainability as well as ecologically sustainable development - a great advantage in the growing 'green collar' job market.	

Program Comparison – Bachelor of Sustainability with similar Canadian institution's programs

UBC Okanagan	UBC Vancouver	Dalhousie University	McGill University	Simon Fraser
Proposed Bachelor of Sustainability The Bachelor of Sustainability program requires students to complete a minimum of 123 credits. Mandatory Requirements (minimum of 84 credits) – 39 credits of integrative core courses in sustainability, of which 14 credits are upper level. – A minimum of 42 additional credits of courses from one concentration, of which at least 21 credits are upper level. **Proposed concentrations include:** 1. Environmental Analytics 2. Environmental Conservation and Management 3. Environmental Humanities 4. Green Chemistry Elective Requirements: – Remaining credits, depending on the concentration, are from recommended electives.	BA Geography Major in Environment and Sustainability For a BA major, students must complete at least 120 credits (48 are 300+); 42 within specialization (30 are 300+); 60 credits outside specialization. Lower Level Requirements (18 credits) Students must take: – 9 credits GEOG 121, 211, GEOB 270; and – 6 credits GEOB 102, 103; and – 3 credits from GEOB 200, 204, 206, 207, GEOG 122, 220, 250 Upper Level Requirements (30 credits) Students must take 30 credits from courses numbered 300 and higher, as follows: **Environmental Concentration** (18 credits) – 6 credits GEOG 313, 314 – 6 credits from GEOG 310, 311, 312, 316, 318 – 3 credits from GEOB 300, 304, 305, 307, 308	BA Double Major in Environment, Sustainability, and Society or a BSC Double Major in ESS In addition to fulfilling the 120 credit hour degree requirements, students must complete the following: ESS Requirements: (27 credit hours) – SUST 1000.06: What is Sustainability? – SUST 1001.06: A Sustainable Future – SUST 2000.06: Local Governance, Citizen Engagement and Sustainability – SUST 2001.06: Global Environmental Governance – SUST 3000.03: Environmental Decision Making – SUST 3701.03: The Community as a Living Laboratory or SUST 3502.03: The Campus as a Living Laboratory – 6 credit hours[1] SUST or ESS Electives at 2000 level or above	BASc Sustainability, Science and Society (interfaculty) Students are normally admitted to a four-year degree requiring the completion of 120 credits, but Advanced Standing of up to 30 credits may be granted if students obtain satisfactory results in the Diploma of Collegial Studies, International Baccalaureate, French Baccalaureate, Advanced Levels, and Advanced Placement tests. Required Courses (27 credits) **Foundations of Sustainability** 9 credits selected from Foundations of Sustainability as follows: – ENVR 201 Society, Environment and Sustainability (3 credits) – GEOG 360 Analyzing Sustainability (3 credits) – GEOG 460 Research in Sustainability (3 credits) **Biophysical, Societal, Cultural, Institutional, and Ethical** 18 credits from introduction to biophysical, societal, cultural,	Bachelor of Environment, Resource and Environmental Major Students complete 120 units, including at least 45 upper division units, as specified below. Lower Division Requirements (30 to 32 credits) Complete all of (15 credits) – FNST 101 - Introduction to First Nations Studies (3) – GEOG 111 - Earth Systems (3) – POL 253 - Introduction to Public Policy (3) – REM 100 - Global Change (3) – REM 200 - Introduction to Resource and Environmental Management in Canada (3) Choose one of (3 credits) – GEOG 215 - Biogeography (3) – BISC 204 - Introduction to Ecology (3) Choose one of (3 credits) – GEOG 251 - Quantitative Geography (3) – STAT 201 - Statistics for the Life Sciences (3)

[1] At Dalhousie, a typical course is .5 credits/3 credit hours; students generally complete 40 courses.

UBC Okanagan	UBC Vancouver	Dalhousie University	McGill University	Simon Fraser
Students must complete enough upper level electives to achieve a minimum of 48 for the degree.	– 3 credits from GEOB 400, 401, 402, 407; GEOG 410, 412, 419, 423 **Research and Methods** (12 credits) – 3 credits GEOG 374 – 9 credits from GEOG 315 (or 379b), 319, 345, 371, 395, 410, 412, 419, 423, 429, 446, 447, 448; GEOB 309, 370, 372, 373, 400, 401, 402, 403, 405, 406, 407, 472, 479 **Recommended Program Electives** (60 credits) Please refer to the geography web site for suggestions on program electives	– SUST 4000XY.06: Environment, Sustainability and Society Capstone Allied Subject Requirements: Please consult the Calendar and Academic Advisor for your Allied Subject. General Degree Requirements satisfied by SUST courses: – For BA and BSc students, SUST 1000.06 satisfies the writing requirement. – For BA students either SUST 1000.06 or SUST 1001.06 satisfies the Life and Physical Sciences requirement. – For BSc students either SUST 1000.06 or SUST 1001.06 satisfies the Social Science requirement.	institutional, and ethical dimensions of sustainability. – ENVR 200 The Global Environment (3 credits) – ENVR 202 The Evolving Earth (3 credits) – ENVR 203 Knowledge, Ethics and Environment (3 credits) – GEOG 203 Environmental Systems (3 credits) – GEOG 310 Development and Livelihoods (3 credits) – MGPO 440 Strategies for Sustainability (3 credits) Complementary Courses (27 credits) 27 credits selected as follows: – 3 credits of Statistics 3 credits of System Modelling tools 3 credits of Economics 18 credits selected from 3 areas **Statistics** 3 credits of Statistics from the following: – AEMA 310 Statistical Methods 1 (3 credits) – BIOL 373 Biometry (3 credits) – GEOG 202 Statistics and Spatial Analysis (3 credits)	– STAT 203 - Introduction to Statistics for the Social Sciences (3) – STAT 205 - Introduction to Statistics (3) Choose one of (3 credits) – GEOG 253 - Introduction to Remote Sensing (3) – GEOG 255 - Geographical Information Science I (3) – REM 221 - Systems Thinking and the Environment (3) Choose one of (3 or 4 credits) – ARCH 201 - Reconstructing the Human Past (4) – ARCH 286 - Cultural Heritage Management (4) – FNST 212 - Indigenous Perceptions of Landscape (3) Choose one of (3 or 4 credits) – GEOG 221 - Economic Worlds (3) – GEOG 241 - People, Place, Society (3) – REM 281 - Sustainable Communities, Sustainable World (3) or SD 281 - Sustainable Communities, Sustainable World (3)

UBC Okanagan	UBC Vancouver	Dalhousie University	McGill University	Simon Fraser
			– PSYC 204 Introduction to Psychological Statistics (3 credits) **System Modelling** 3 credits of System Modelling tools from the following: – ESYS 301 Earth System Modelling (3 credits) – GEOG 501 Modelling Environmental Systems (3 credits) **Economics** 3 credits of Economics from the following: – AGEC 333 Resource Economics (3 credits) – ECON 225 Economics of the Environment (3 credits) – ECON 326 Ecological Economics (3 credits) 18 additional credits of complementary courses chosen from three areas listed, at least two courses from each area, at least 9 credits at 300 level or higher.	Upper Division Requirements (34 credits minimum) Complete all of (10 credits) – REM 311 - Applied Ecology and Sustainable Environments (3) – REM 321 - Ecological Economics (4) – REM 356W - Institutional Arrangements for Sustainable Environmental Management (3) **Biophysical Perspectives on Resource and Environmental Management** Choose one of several (3 or 4 credits) **Quantitative Methods in Resource and Environmental Management** Choose one of several (3 or 4 credits) **Indigenous Perspectives on Resource and Environmental Management** Choose one of several (3 or 4 credits) **Social and Community Perspectives on Resource and Environmental Management** Choose one of several (3 or 4 credits)

UBC Okanagan	UBC Vancouver	Dalhousie University	McGill University	Simon Fraser
				Communication and Conflict Resolution Choose one of several (3, 4 or 8 credits) **Policy, Planning and Regulation** Choose one of several (3 or 4 credits) **Resource and Environmental Management Sectors** Choose two of several (one must be at the 400 level) (6, 7, or 8 credits) Upper Division Electives (6, 7, or 8 credits) Any other two REM courses from the full list of 300 and 400 level REM courses. Capstone Experience (4 credits) Complete the following – REM 495 - Resource and Environmental Management Capstone (4)

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Dean's Office **Faculty/School Approval Date:** 20190319 **Effective Session:** 2021W	**Date:** 20181220 **Contact:** Bernard Momer; Lael Parrott **Phone:** 250.807.9406; 250.807.8122 **Email:** bernard.momer@ubc.ca; lael.parrott@ubc.ca

Type of Action: New Program

Rationale: In its desire to embrace innovation and support a sustainable world, the Faculty of Arts and Sciences at the University of British Columbia, Okanagan Campus, is proposing to offer a novel undergraduate degree program in sustainability. The program will be distinctive in its ability to provide students the opportunity to assess social, economic, and environmental facets of sustainability education and training across the humanities, social sciences, and natural sciences. The program aligns well with both the strategic plan, *Shaping UBC's Next Century*, and UBC Okanagan's Aspire goals. The program will challenge students to become more socially aware, global citizens within various private and public sectors who will positively and significantly contribute to a growing societal imperative.

Please refer to the program proposal paper for further information on the new Bachelor of Sustainability.

Clarification: As of July 1, 2020 the Faculty of Arts & Sciences will be split into the Faculty of Arts and Social Sciences and the Faculty of Science. After this date the Bachelor of Sustainability will be offered by these two new Faculties.

Proposed Academic Calendar Entry:

Courses of Study and Degrees Offered

14203] Introduction

[12893] The UBC Okanagan campus offers a selection of bachelor's, master's, and doctoral degrees. Doctoral and master's degrees are offered by a disciplinary faculty.

[12806] Degrees Offered

Faculty of Applied Science	
Bachelor of Applied Science	B.A.Sc.
Master of Applied Science	M.A.Sc.
Master of Engineering	M.Eng.
Doctor of Philosophy	Ph.D.
Faculty of Arts and Sciences	
Bachelor of Arts	B.A.
Bachelor of Science	B.Sc.
Bachelor of Sustainability	**B.Sust**.
Master of Arts	M.A.
Master of Science	M.Sc.
Doctor of Philosophy	Ph.D.
Faculty of Creative and Critical Studies	
Bachelor of Arts	B.A.
Bachelor of Fine Arts	B.F.A.
Bachelor of Media Studies	B.M.S.
Master of Arts in English	M.A. (English)
Master of Fine Arts	M.F.A.

Draft Academic Calendar URL:

http://www.calendar.ubc.ca/okanagan/proof/edit/index.cfm?tree=18,309,0,0

Present Academic Calendar Entry:

Courses of Study and Degrees Offered

[14203] Introduction

[12893] The UBC Okanagan campus offers a selection of bachelor's, master's, and doctoral degrees. Doctoral and master's degrees are offered by a disciplinary faculty.

[12806] Degrees Offered

Faculty of Applied Science	
Bachelor of Applied Science	B.A.Sc.
Master of Applied Science	M.A.Sc.
Master of Engineering	M.Eng.
Doctor of Philosophy	Ph.D.
Faculty of Arts and Sciences	
Bachelor of Arts	B.A.
Bachelor of Science	B.Sc.
Master of Arts	M.A.
Master of Science	M.Sc.
Doctor of Philosophy	Ph.D.
Faculty of Creative and Critical Studies	
Bachelor of Arts	B.A.
Bachelor of Fine Arts	B.F.A.
Bachelor of Media Studies	B.M.S.
Master of Arts in English	M.A. (English)
Master of Fine Arts	M.F.A.

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Dean's Office **Faculty/School Approval Date:** 20190319 **Effective Session:** 2021W	**Date:** 20181220 **Contact:** Bernard Momer; Lael Parrott **Phone:** 250.807.9406; 250.807.8122 **Email:** bernard.momer@ubc.ca; lael.parrott@ubc.ca

Type of Action: New Program

Rationale: In its desire to embrace innovation and support a sustainable world, the Faculty of Arts and Sciences at the University of British Columbia, Okanagan Campus, is proposing to offer a novel undergraduate degree program in sustainability. The program will be distinctive in its ability to provide students the opportunity to assess social, economic, and environmental facets of sustainability education and training across the humanities, social sciences, and natural sciences. The program aligns well with both the strategic plan, *Shaping UBC's Next Century*, and UBC Okanagan's Aspire goals. The program will challenge students to become more socially aware, global citizens within various private and public sectors who will positively and significantly contribute to a growing societal imperative.

Please refer to the program proposal paper for further information on the new Bachelor of Sustainability.

Clarification: As of July 1, 2020 the Faculty of Arts & Sciences will be split into the Faculty of Arts and Social Sciences and the Faculty of Science. After this date the Bachelor of Sustainability will be offered by these two new Faculties.

Proposed Academic Calendar Entry: **Program Overview** **The Bachelor of Sustainability (B.Sust.) degree is a four-year direct-entry interdisciplinary program blending practice, theory, and research methodology in participating concentrations. Students take a set of core integrative courses specific to sustainability along with a set of advanced courses in one of the concentrations:** • **Environmental Analytics** • **Environmental Conservation and Management** • **Environmental Humanities** • **Green Chemistry** **The curriculum consists of 39 credits from core integrative courses, along with a minimum of 42 credits from concentration courses. Remaining credits will be chosen from relevant elective courses in consultation with a program advisor to enable students to achieve the necessary breadth to become well-versed in sustainability matters on a local-to-global scale.**	**Draft Academic Calendar URL:** n/a **Present Academic Calendar Entry:** n/a

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>Faculty/School: IKBSAS
Dept./Unit: Dean’s Office
Faculty/School Approval Date: 20190319
Effective Session: 2021W</td><td>Date: 20181220
Contact: Bernard Momer; Lael Parrott
Phone: 250.807.9406; 250.807.8122
Email: bernard.momer@ubc.ca; lael.parrott@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New Program</td></tr>
<tr><td colspan="2">Rationale: In its desire to embrace innovation and support a sustainable world, the Faculty of Arts and Sciences at the University of British Columbia, Okanagan Campus, is proposing to offer a novel undergraduate degree program in sustainability. The program will be distinctive in its ability to provide students the opportunity to assess social, economic, and environmental facets of sustainability education and training across the humanities, social sciences, and natural sciences. The program aligns well with both the strategic plan, Shaping UBC’s Next Century, and UBC Okanagan’s Aspire goals. The program will challenge students to become more socially aware, global citizens within various private and public sectors who will positively and significantly contribute to a growing societal imperative.

Please refer to the program proposal paper for further information on the new Bachelor of Sustainability.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

Homepage Faculties, Schools, and Colleges Faculty of Arts and Sciences Bachelor of Sustainability Programs
Admission Requirements

Admission Requirements

Application for admission to the Bachelor of Sustainability program must be made through Enrolment Services.

The program will only admit students to the Winter Session. Students admitted to the Winter Session can elect to register only for courses beginning in January; however, this is not recommended. Starting</td><td>Draft Academic Calendar URL:
N/A

Present Academic Calendar Entry:

N/A</td></tr>
</table>

classes in January may limit course options and may lengthen the time it takes to complete degree requirements. Students applying to the program should be available to start in September of the year admitted.

Admission from Secondary School

The admission criteria specific to secondary school applicants to the Bachelor of Sustainability program are detailed in *Admissions*.

Admission from Post-Secondary Study

Individuals who have completed courses through an alternate post-secondary institution can apply for entry to year one of the Bachelor of Sustainability program and must meet competitive admission requirements for entry. Once admitted, applicants may be considered for promotion to year two of the program only if they are recognized as having already substantially completed year one core and concentration course requirements.

Transfer from Another UBC Program

Individuals who have completed courses through another UBC program can apply for entry to year one of the Bachelor of Sustainability program and must meet competitive admission requirements. Once admitted, applicants may be considered for promotion to year two of the program only if they are recognized as having already substantially completed year one core and concentration course requirements.

Admission is not available into years three and four of the program.

Proposed Academic Calendar Entry:

Commented [UO1]: Link to http://www.calendar.ubc.ca/okanagan/index.cfm?tree=2,0,0,0

Program	Minimum Pre-Requisite Courses:	Core Program-Specific Assessment based upon Grade 11 and Grade 12 course grades[1] from the following subject categories:
Sustainability	**English 12 or English 12 First Peoples** **Pre-Calculus 12[2]** **Minimum of one Grade 12 Science**	**Language Arts** **Sciences** **Mathematics and Computation** **Social Studies**

[…]

[2] Outstanding applicants missing Pre-Calculus 12 or equivalent are encouraged to apply and will be considered on a case-by-case basis.

Draft Academic Calendar URL:
http://www.calendar.ubc.ca/okanagan/proof/edit/index.cfm?tree=2,356,0,0

Present Academic Calendar Entry:
N/A

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Dean's Office **Faculty/School Approval Date:** 20190319 **Effective Session:** 2021W	**Date:** 20181220 **Contact:** Bernard Momer; Lael Parrott **Phone:** 250.807.9406; 250.807.8122 **Email:** bernard.momer@ubc.ca; lael.parrott@ubc.ca

Type of Action: New Program

Rationale: In its desire to embrace innovation and support a sustainable world, the Faculty of Arts and Sciences at University of British Columbia, Okanagan Campus, is proposing to offer a novel undergraduate degree program in sustainability. The program will be distinctive in its ability to provide students the opportunity to assess social, economic, and environmental facets of sustainability education and training across the humanities, social sciences, and natural sciences. The program aligns well with both the strategic plan, *Shaping UBC's Next Century*, and UBC Okanagan's Aspire goals. The program will challenge students to become more socially aware, global citizens within various private and public sectors who will positively and significantly contribute to a growing societal imperative.

Please refer to the program proposal paper for further information on the new Bachelor of Sustainability.

Clarification: As of July 1, 2020 the Faculty of Arts & Sciences will be split into the Faculty of Arts and Social Sciences and the Faculty of Science. After this date the Bachelor of Sustainability will be offered by these two new Faculties.

Proposed Academic Calendar Entry: Homepage Faculties, Schools, and Colleges Faculty of Arts and Sciences Bachelor of Sustainability Programs **Academic Regulations** **Academic Regulations** **In addition to the general policies and regulations set out in Policies and Regulations, the following academic regulations listed apply to undergraduate students in this program.**	**Draft Academic Calendar URL:** N/A **Present Academic Calendar Entry:** N/A

Repeating/Failed Courses

Except in special cases, no student may repeat a course more than once.

Students wanting to repeat a course more than once must submit a written request to the Dean's Office in the faculty delivering their concentration.

The highest grade achieved will be used in the determination of the student's graduation standing, though all grades remain on the student's academic record.

Supplemental Examinations

The Bachelor of Sustainability degree program does not offer supplemental examinations in any courses.

Major or Honours Programs

Students in the Bachelor of Sustainability are not permitted to complete a major or honours program in addition to their B.Sust.

Dean's List

Students who complete 24 credits or more in a Winter Session with an overall average of 85% or higher on all credits attempted will receive the notation "Dean's List" on their permanent records for that specific Winter Session.

Promotion Requirements

Promotion is dependent on successful completion of a minimum number of credits as listed below.

First Year	**0–23 credits**
Second Year	**24–47 credits**
Third Year	**48–77 credits**

Fourth Year 78 or more credits **Academic Standing and Continuation Requirements** **Supplementary to the University's policy on Academic Standing, the regulations below are applicable to B.Sust. students.** **On Academic Probation** **On Academic Probation will be assigned to a student who, while not falling under the provisions for Failed standing, has:** • **earned a sessional cumulative average of less than 55%; or** • **enrolled in 18 or more credits in a session and passed fewer than 60% of those credits; or** • **enrolled in fewer than 18 credits in a session and passed fewer than 50% of those credits.** **A student placed On Academic Probation at the end of the Winter Session will normally be allowed to register in a maximum of 9 credits in the following term. This restriction may be waived at the discretion of the Faculty. The credit restriction will only be enforced if the student is notified before the subsequent term begins.** **On Academic Probation is changed to In Good Standing if a student's cumulative average in the term in which he or she was on Academic Probation is 55% or higher.** **Failed Standing** **A student placed on Failed standing for the first time will normally be required to discontinue his or her studies for a period of one academic year (12 months) prior to resuming his or her program of study. A student who already has a Failed standing on his or her academic record (from any UBC program) will be required to withdraw from the University and may only be**	

readmitted under the Advancement Regulations. Failed standing will be assigned at the end of the Winter Session (April) based on performance in that session. The evaluation will consider all courses taken in the session. Failed standing will be assigned to a student who has: • **a sessional cumulative average less than 50%, passing fewer than 50% of the credits attempted in that session; or** • **a sessional cumulative average of less than 45%.** **Courses taken in the Summer Session are not taken into consideration for assigning Failed standing, although they are applicable for On Academic Probation.**	

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** Dean's Office **Faculty/School Approval Date:** 20190319 **Effective Session:** 2021W	**Date:** 20181220 **Contact:** Bernard Momer; Lael Parrott **Phone:** 250.807.9406; 250.807.8122 **Email:** bernard.momer@ubc.ca; lael.parrott@ubc.ca

Type of Action: New Program

Rationale: In its desire to embrace innovation and support a sustainable world, the Faculty of Arts and Sciences at the University of British Columbia, Okanagan Campus, is proposing to offer a novel undergraduate degree program in sustainability. The program will be distinctive in its ability to provide students the opportunity to assess social, economic, and environmental facets of sustainability education and training across the humanities, social sciences, and natural sciences. The program aligns well with both the strategic plan, *Shaping UBC's Next Century*, and UBC Okanagan's Aspire goals. The program will challenge students to become more socially aware, global citizens within various private and public sectors who will positively and significantly contribute to a growing societal imperative.

Please refer to the program proposal paper for further information on the new Bachelor of Sustainability.

Proposed Academic Calendar Entry: Homepage Faculties, Schools, and Colleges Faculty of Arts and Sciences Bachelor of Sustainability Programs **Degree Requirements** **Degree Requirements** **Students in the Bachelor of Sustainability program must complete the following degree requirements:** • **A minimum of 123 credits of which:** – **39 credits are in core integrative courses in sustainability.** – **At least 42[1] additional credits are from courses in one concentration, of which**	**Draft Academic Calendar URL:** N/A **Present Academic Calendar Entry:** N/A

at least 21 credits must be at the 300/400 level.
  - **Remaining credits are from a selection of electives recommended for the program. Overall, students must complete 48 credits in upper-level courses to fulfill degree requirements.**
  - **Recommended electives may also occur in a concentration. Course credit can only be used once toward concentration or elective requirements. Double-counting of course credit will not be granted.**
- **Once accepted into the Bachelor of Sustainability program, students are expected to complete all of their coursework at the UBC Okanagan Campus, with the exception of credit completed through a UBC Go Global student exchange experience or through the cross-campus exchange program.**

Proposed Academic Calendar Entry:

Homepage Faculties, Schools, and Colleges Faculty of Arts and Sciences Bachelor of Sustainability Programs **Bachelor of Sustainability Environmental Analytics Concentration**

Bachelor of Sustainability Environmental Analytics Concentration

First Year	Credits
ENGL 112	3
INDG 102	3
SUST 100	3
SUST 104	3
COSC 111	3

Present Academic Calendar Entry: N/A

DATA 101	3
ECON 101	3
ECON 102	3
MATH 100	3
MATH 101	3
Total Credits (minimum)	30

Second Year	Credits
STAT 230	3
SUST 200	3
SUST 202	1
SUST 204	3
SUST 205	3
DATA 301	3
GEOG 128	3
PHIL 125	3
Electives	9
Total Credits (minimum)	31

Third Year	Credits
SUST 300	3
SUST 301	3
SUST 302	1
COSC 304	3
DATA 311	3
DATA 315	3
ECON 371	3
GISC 380	3
Electives	9
Total Credits (minimum)	31

Fourth Year	Credits
SUST 400	6
SUST 402	1
BIOL 401 or another approved upper-level BIOL course	3
DATA 407	3
DATA 410	3
GEOG 431	3
PHIL 435	3
STAT 406	3
Electives	6
Total Credits (minimum)	31

Overall Total Credits (minimum)	**123**

Proposed Academic Calendar Entry:

Homepage Faculties, Schools, and Colleges Faculty of Arts and Sciences Bachelor of Sustainability Programs
Bachelor of Sustainability Environmental Conservation & Management Concentration

Bachelor of Sustainability Environmental Conservation & Management Concentration

First Year	Credits
ENGL 112	3
INDG 102	3
SUST 100	3
SUST 104	3
ECON 101	3
EESC 111	3
GEOG 109	3
GEOG 129	3
MATH 100	3
Electives	3
Total Credits (minimum)	30

Second Year	Credits
BIOL 202	3
SUST 200	3
SUST 201	3
SUST 202	1
SUST 204	3
SUST 205	3
EESC 213	3
GEOG 272	3
Electives	9
Total Credits (minimum)	31

Third Year	Credits
SUST 300	3
SUST 301	3
SUST 302	1

Present Academic Calendar Entry: N/A

EESC/GEOG 314	3
EESC 315	3
GISC 380	3
GISC 381	3
Electives	12
Total Credits (minimum)	31

Fourth Year	Credits
SUST 400	6
SUST 402	1
EESC 402	3
EESC 444	3
EESC 456	3
Electives	15
Total Credits (minimum)	31

Overall Total Credits (minimum)	123

Proposed Academic Calendar Entry:

Homepage Faculties, Schools, and Colleges Faculty of Arts and Sciences Bachelor of Sustainability Programs
Bachelor of Sustainability Environmental Humanities Concentration

Bachelor of Sustainability Environmental Humanities Concentration

First Year	Credits
ENGL 112	3
INDG 102	3
SUST 100	3
SUST 104	3
ENGL 156	3
GEOG 108	3
HIST 106	3
INDG 100	3
Electives	6
Total Credits (minimum)	30

Second Year	Credits
SUST 201	3
SUST 200	3
SUST 202	1

Present Academic Calendar Entry: N/A

SUST 204	3
SUST 205	3
One of ANTH 245, ENG 234, ENGL 297, INDG 201, INDG 203	3
HIST 215	3
INDG 202	3
Electives	9
Total Credits (minimum)	31

Third Year	Credits
SUST 300	3
SUST 301	3
SUST 302	1
One of CULT 317, ENGL 387, ENGL 388, ENGL 397	3
One of GEOG 304, GEOG 318, GEOG 365	3
One of HIST 300, HIST 301, HIST 309, HIST 395	3
INDG 307	3
Electives	12
Total Credits (minimum)	31

Fourth Year	Credits
SUST 400	6
SUST 402	1
One of ANTH 445, GEOG 423, INDG 420	3
One of ENGL 457, ENGL 458, GWST 400	3
PHIL 435	3
Electives	15
Total Credits (minimum)	31

Overall Total Credits (minimum)	123

Proposed Academic Calendar Entry:

Homepage Faculties, Schools, and Colleges Faculty of Arts and Sciences Bachelor of Sustainability Programs
Bachelor of Sustainability Green Chemistry Concentration

Present Academic Calendar Entry: N/A

Bachelor of Sustainability
Green Chemistry Concentration

First Year	Credits
ENGL 112	3
INDG 102	3
SUST 100	3
SUST 104	3
CHEM 121	3
CHEM 123	3
MATH 100	3
MATH 101	3
PHYS 111	3
PHYS 121	3
Total Credits (minimum)	30

Second Year	Credits
BIOL 202	3
SUST 200	3
SUST 202	1
SUST 204	3
SUST 205	3
CHEM 201	3
CHEM 203	3
CHEM 204	3
CHEM 220	3
Electives	6
Total Credits (minimum)	31

Third Year	Credits
SUST 300	3
SUST 301	3
SUST 302	1
CHEM 330	3
CHEM 336	3
CHEM 338	3
Electives[2]	15
Total Credits (minimum)	31

Fourth Year	Credits
SUST 400	6
SUST 402	1

CHEM 333	**3**	
CHEM 334	**3**	
CHEM 462 or CHEM 448	**3**	
CHEM 463 or CHEM 448	**3**	
Electives	**12**	
Total Credits (minimum)	**31**	
Overall Total Credits (minimum)	**123**	

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>Faculty/School: IKBSAS
Dept./Unit: CHEM
Faculty/School Approval Date: 20190319
Effective Session: 2020W</td><td>Date: 20181220
Contact: Bernard Momer; Lael Parrott
Phone: 250.807.9406; 250.807.8122
Email: bernard.momer@ubc.ca; lael.parrott@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New Course</td></tr>
<tr><td colspan="2">Rationale: See the program proposal paper for the rationale to create the new Bachelor of Sustainability program.

This course has been developed as a concentration course to support the new Bachelor of Sustainability program. Modern society relies implicitly on an affordable supply of vast amounts of fertilizers, materials, textiles, and medicines, all of which must be synthesized from other substances by chemical reactions. A sustainable society is impossible without the creation of improved production methods for these commodities, methods that must consume fewer and locally-generated resources, demand less energy, produce less waste, and employ fewer hazardous reagents – thereby embodying the principles of sustainable chemistry. Such efforts will require the development of new synthetic procedures with an increased reliance on innocuous solvents, renewable and benign reagents, and efficient catalysts.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

CHEM 334 (3) Green Organic Chemistry
More sustainable and less hazardous methods in synthetic chemistry. Topics include feedstocks for chemical synthesis, alternative solvents, polymers, atom and step economy, design of safer chemicals. [3-4*-0]
Prerequisite: CHEM 204.</td><td>Draft Academic Calendar URL:
n/a

Present Academic Calendar Entry:
n/a</td></tr>
</table>

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>Faculty/School: IKBSAS
Dept./Unit: CMPS
Faculty/School Approval Date: 20190319
Effective Session: 2020W</td><td>Date: 20181220
Contact: Bernard Momer; Lael Parrott
Phone: 250.807.9406; 250.807.8122
Email: bernard.momer@ubc.ca; lael.parrott@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New Course</td></tr>
<tr><td colspan="2">Rationale: The new course fills a gap in our offering of data science courses and supports an upcoming concentration in environmental analytics in the future Bachelor of Sustainability program. A huge amount of data is time sensitive and correctly interpreting trends is critical to understand the data and make predictions.

UBC Vancouver offers STAT 443 Time Series and Forecasting and University of Alberta offers STAT 479 - Time Series Analysis; both require much deeper background in statistics. Quite differently SFU offers STAT 485 E100 Applied Time Series Analysis (3), which is similar to the proposed course. The goal is to use a minimal background in statistics (e.g., no background in probability is assumed), to provide practical skills supported by lab assignments. It is anticipated that the course will be useful and attractive to a number of disciplines that manipulate time series.

The [3-1-0] vector is standard for a statistics course and allows for disseminating fundamental concepts while providing practical skills.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

<u>DATA 315 (3) Applied Time Series and Forecasting</u>
<u>Trends, stationary and nonstationary time series models, forecasting, seasonal models. [3-1-0]</u>
<u>Prerequisite: STAT 230.</u></td><td>Draft Academic Calendar URL:
n/a

Present Academic Calendar Entry:
n/a</td></tr>
</table>

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>Faculty/School: IKBSAS
Dept./Unit: EEGS
Faculty/School Approval Date: 20190319
Effective Session: 2020W</td><td>Date: 20181220
Contact: Bernard Momer; Lael Parrott
Phone: 250.807.9406; 250.807.8122
Email: bernard.momer@ubc.ca; lael.parrott@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New Course</td></tr>
<tr><td colspan="2">Rationale: This course has been developed as a core course to support the new Bachelor of Sustainability (B.Sust.) program. The course provides a necessary, critical perspective on sustainability and human/nature relations, on resource and environmental policy setting, and on specific case studies in natural resources management.

As a core course for the B.Sust. program, the course design aligns with several of the UBC Strategic Plan’s strategies (Strategy 2, Strategy 3, Strategy 12, and Strategy 14). Additionally, the course design aligns with UBC Okanagan’s Aspire goals for “Transformative Students Learning,” “Community Engagement,” and “Place.”

Refer to the program proposal paper for the rationale to create the new Bachelor of Sustainability program.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

<u>SUST 200 (3) Application, Practice and Management Approaches</u>
<u>Concepts of governance, natural resource management, and economy-environment connections. Restricted to students in the Bachelor of Sustainability program. [3-0-0]</u>
<u>Prerequisite: SUST 100.</u></td><td>Draft Academic Calendar URL:
n/a

Present Academic Calendar Entry:
n/a</td></tr>
</table>

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>Faculty/School: IKBSAS
Dept./Unit: EEGS
Faculty Approval Date: 20190319
Effective Session: 2020W</td><td>Date: 20181220
Contact: Bernard Momer; Lael Parrott
Phone: 250.807.9406; 250.807.8122
Email: bernard.momer@ubc.ca; lael.parrott@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New Course</td></tr>
<tr><td colspan="2">Rationale: This course has been developed as a core course to support the new Bachelor of Sustainability (B.Sust.) program. Community Services Learning (CSL) courses provide students the experience and essential foundation necessary for working in the community environment, which will prepare them to become sustainability leaders in their communities.

As a core course for the B.Sust. program, the course design aligns with several of the UBC Strategic Plan’s strategies (Strategy 2, Strategy 3, Strategy 12, and Strategy 14). Additionally, the course design aligns with UBC Okanagan’s Aspire goals for “Transformative Students Learning,” “Community Engagement,” and “Place.”

Refer to the program proposal paper for the rationale to create the new Bachelor of Sustainability program.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

SUST 202 (1) Community Service Learning
Apply sustainability learning and knowledge to the broader community through a self-directed project involving at least 30 hours of community service.
Restricted to students in the Bachelor of Sustainability program. [0-0-1]</td><td>Draft Academic Calendar URL:
n/a

Present Academic Calendar Entry:
n/a</td></tr>
</table>

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** EPP **Faculty/School Approval Date:** 20190319 **Effective Session:** 2020W	**Date:** 20190122 **Contact:** Bernard Momer; Lael Parrott **Phone:** 250.807.9406; 250.807.8122 **Email:** bernard.momer@ubc.ca; lael.parrott@ubc.ca

Type of Action: New Course

Rationale: This course has been developed as a core course to support the new Bachelor of Sustainability (B.Sust.) program. Choices imply trade-offs and are difficult when there is no clear right or wrong option. A necessary feature of sustainability discourse is the articulation of what it is we value and wish to sustain, on what normative basis, and by what means. Choices made in the interest of promoting sustainability will often be rife with trade-offs. Economics has a long history of studying how people and organizations make choices in face of trade-offs. Economic theory and analysis can therefore provide important insights and decision-support in the context of sustainability decision making. However, it has also become clear that the assumptions inherent in economic theory are simplifications that may miss important aspects of human values, social interactions, and relationships with the natural world. This course will provide students with a foundational understanding of the economics of sustainable choices, using conventional assumptions and exploring the implications of challenges to those assumptions.

As a core course for the B.Sust. program, the course design aligns with several of the UBC Strategic Plan's strategies (Strategy 2, Strategy 3, Strategy 12, and Strategy 14). Additionally, the course design aligns with UBC Okanagan's Aspire goals for "Transformative Students Learning," "Community Engagement," and "Place."

Refer to the program proposal paper for the rationale to create the new Bachelor of Sustainability program.

Proposed Academic Calendar Entry: **SUST 205 (3) Sustainability Economics Explores and contrasts approaches and tools from mainstream economics and heterodox economics that may contribute to sustainability decision making. Identification and evaluation of trade-offs associated with choices made in the name of sustainability. Restricted to students in the Bachelor of Sustainability program. [3-0-0]** ***Prerequisite*: SUST 200 recommended.**	**Draft Academic Calendar URL:** n/a **Present Academic Calendar Entry:** n/a

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>Faculty/School: IKBSAS
Dept./Unit: EEGS
Faculty/School Approval Date: 20190319
Effective Session: 2020W</td><td>Date: 20181220
Contact: Bernard Momer; Lael Parrott
Phone: 250.807.9406; 250.807.8122
Email: bernard.momer@ubc.ca; lael.parrott@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New Course</td></tr>
<tr><td colspan="2">Rationale: This course has been developed as a core course to support the new Bachelor of Sustainability (B.Sust.) program. In recognition that achieving global environmental sustainability will require local and regional initiatives, this course explores challenges and solutions for creating sustainable and resilient landscapes.

As a core course for the B.Sust. program, the course design aligns with several of the UBC Strategic Plan’s strategies (Strategy 2, Strategy 3, Strategy 12, and Strategy 14). Additionally, the course design aligns with UBC Okanagan’s Aspire goals for “Transformative Students Learning,” “Community Engagement,” and “Place.”

Refer to the program proposal paper for the rationale to create the new Bachelor of Sustainability program.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

<u>SUST 300 (3) Achieving Sustainability at the Regional Scale</u>
<u>Advanced analysis of regional-scale challenges and solutions to sustainability in developed and developing nations. Ecosystem services and relationships to human well-being. Social and ecological resilience of landscapes. [3-0-0]</u>
<u>Prerequisite: SUST 200.</u></td><td>Draft Academic Calendar URL:
n/a

Present Academic Calendar Entry:
n/a</td></tr>
</table>

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>Faculty/School: IKBSAS
Dept./Unit: EEGS
Faculty/School Approval Date: 20190319
Effective Session: 2020W</td><td>Date: 20181220
Contact: Bernard Momer; Lael Parrott
Phone: 250.807.9406; 250.807.8122
Email: bernard.momer@ubc.ca; lael.parrott@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New Course</td></tr>
<tr><td colspan="2">Rationale: This course has been developed as a core course to support the new Bachelor of Sustainability program and will develop student's appreciation for the challenges of finding sustainable solutions to multi-scale, multi-stakeholder problems that require systems-level approaches and methods.

As a core course for the B.Sust. program, the course design aligns with several of the UBC Strategic Plan's strategies (Strategy 2, Strategy 3, Strategy 12, and Strategy 14). Additionally, the course design aligns with UBC Okanagan's Aspire goals for "Transformative Students Learning," "Community Engagement," and "Place."

Refer to the program proposal paper for the rationale to create the new Bachelor of Sustainability program.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

<u>SUST 301 (3) Methods in Solving Wicked Problems
Interdisciplinary methods to address challenges of finding sustainable solutions to multi-scale, multi-stakeholder problems that require systems-level approaches. We begin with the premise that these problems are 'wicked' problems that have no single, correct solution, and where any solution is intertwined with issues of human ethics, values, and social equity.
Restricted to students in the Bachelor of Sustainability program. [3-0-0]
Prerequisite: SUST 300 and one of BIOL 202, STAT 230, or SUST 201.</u></td><td>Draft Academic Calendar URL:
n/a

Present Academic Calendar Entry:
n/a</td></tr>
</table>

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** EEGS **Faculty/School Approval Date:** 20190319 **Effective Session:** 2020W	**Date:** 20181220 **Contact:** Bernard Momer; Lael Parrott **Phone:** 250.807.9406; 250.807.8122 **Email:** bernard.momer@ubc.ca; lael.parrott@ubc.ca

Type of Action: New Course

Rationale:

This course has been developed as a core course to support the new Bachelor of Sustainability (B.Sust.) program. Community Services Learning (CSL) courses provide students the experience and essential foundation necessary for working in the community environment, which will prepare them to become sustainability leaders in their communities.

As a core course for the B.Sust. program, the course design aligns with several of the UBC Strategic Plan's strategies (Strategy 2, Strategy 3, Strategy 12, and Strategy 14). Additionally, the course design aligns with UBC Okanagan's Aspire goals for "Transformative Students Learning," "Community Engagement," and "Place."

Refer to the program proposal paper for the rationale to create the new Bachelor of Sustainability program.

Proposed Academic Calendar Entry: **SUST 302 (1) Community Service Learning** **Apply sustainability learning and knowledge to the broader community through a self-directed project involving at least 30 hours of community service. Development of personal sustainability goals. Restricted to students in the Bachelor of Sustainability program. [0-0-1]** ***Prerequisite*: SUST 202.**	**Draft Academic Calendar URL:** n/a **Present Academic Calendar Entry:** n/a

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

<table>
<tr><td colspan="2">Category: 1</td></tr>
<tr><td>Faculty/School: IKBSAS
Dept./Unit: EEGS
Faculty/School Approval Date: 20190319
Effective Session: 2020W</td><td>Date: 20181220
Contact: Bernard Momer; Lael Parrott
Phone: 250.807.9406; 250.807.8122
Email: bernard.momer@ubc.ca; lael.parrott@ubc.ca</td></tr>
<tr><td colspan="2">Type of Action: New Course</td></tr>
<tr><td colspan="2">Rationale:

This course has been developed as a core course to support the new Bachelor of Sustainability. The capstone project provides students an excellent experiential learning experience, helps them to build confidence in their competencies, and may provide benefits to the broader community as students work in interdisciplinary teams to undertake an applied project.

As a core course for the B.Sust. program, the course design aligns with several of the UBC Strategic Plan’s strategies (Strategy 2, Strategy 3, Strategy 12, and Strategy 14). Additionally, the course design aligns with UBC Okanagan’s Aspire goals for “Transformative Students Learning,” “Community Engagement,” and “Place.”

Refer to the program proposal paper for the rationale to create the new Bachelor of Sustainability program.</td></tr>
<tr><td>Proposed Academic Calendar Entry:

<u>SUST 400 (6) Capstone Project in Sustainability</u>
<u>Applied project in sustainability studies. May follow a traditional academic research model or may be community-based. May be undertaken in partnership with external organizations as relevant. Restricted to students in the Bachelor of Sustainability program. [3-0-0; 3-0-0]</u>
<u>Prerequisite: SUST 301.</u></td><td>Draft Academic Calendar URL:
n/a

Present Academic Calendar Entry:
n/a</td></tr>
</table>

Curriculum Proposal Form
New/Change to Course/Program – Okanagan campus

Category**: 1**

Faculty/School: IKBSAS **Dept./Unit:** EEGS **Faculty/School Approval Date:** 20190319 **Effective Session:** 2020W	**Date:** 20181220 **Contact:** Bernard Momer; Lael Parrott **Phone:** 250.807.9406; 250.807.8122 **Email:** bernard.momer@ubc.ca; lael.parrott@ubc.ca

Type of Action: New Course

Rationale:

This course has been developed as a core course to support the new Bachelor of Sustainability (B.Sust.) program. Community Services Learning (CSL) courses provide students the experience and essential foundation necessary for working in the community environment, which will prepare them to become sustainability leaders in their communities.

As a core course for the B.Sust. program, the course design aligns with several of the UBC Strategic Plan's strategies (Strategy 2, Strategy 3, Strategy 12, and Strategy 14). Additionally, the course design aligns with UBC Okanagan's Aspire goals for "Transformative Students Learning," "Community Engagement," and "Place."

Refer to the program proposal paper for the rationale to create the new Bachelor of Sustainability program.

	Draft Academic Calendar URL: n/a
Proposed Academic Calendar Entry: **SUST 402 (1) Community Service Learning** **Apply sustainability learning and knowledge to the broader community through a self-directed project involving at least 30 hours of community service. Refine personal sustainability goals. Work with diverse stakeholders to attain a common objective. Restricted to students in the Bachelor of Sustainability program. [0-0-1]** ***Prerequisite*: SUST 302.**	**Present Academic Calendar Entry:** n/a

THE UNIVERSITY OF BRITISH COLUMBIA

Office of the Provost &
Vice-President Academic
1138 Alumni Avenue
Kelowna, BC Canada V1V 1V7
provost.ok.ubc.ca

MEMORANDUM

To: Senate

From: Dr Ananya Mukherjee Reed on behalf of the Deans' Council

Re: Extension of the Credit/D/Fail Grading System to the Okanagan Campus

Date: 23 March 2020

As senators are aware, the current COVID-19 pandemic situation is presenting our faculty and students with extraordinary challenges and sources of uncertainty and stress. Presently, the Okanagan campus has a number of academic concession options available to assist students. This include Aegrotat standings (AEG), Adjudicated Passes (J), Deferred Standings (SD), Supplementals (S), and voluntary formal withdrawals (W). For details on each of these standings, please refer to the Academic Calendar at http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,41,90,1015.

Recently, students have been asking for another form of concession, either an optional Pass/Fail standing, or access an expanded form of the Credit/D/Fail (CRDF) system currently available at the Vancouver campus (See http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,42,910,0). After consideration of the policy, regulatory, and technological factors, the Okanagan Deans would like to implement the Credit/D/Fail system on an extraordinary basis for the Okanagan campus as an option for students who are uncertain of the outcome of this term's courses on their academic standings.

For those not familiar, CRDF is a system in which instructors grade students normally with percentages; however, for those courses where students have declared CRDF, rather than the percentage grade appearing on their transcript, the SIS converts that percentage to a standing of "Cr" (for those grades 55% or higher), "D" (for those grades 50 to 54.9%) or "F" (for any grades less than 50% or lower than the passing grade in the Faculty) appear. CRDF standings are not included in calculations of sessional or final averages, but still count towards overall credit loads and towards requirements for a percentage of courses to be passed to continue. This is similar to Pass/Fail; however, it is advantageous in that while the underlying percentage grade is not published by UBC, it is retained in our SIS for use if needed (such as for course pre-requisites that require a grade). It is also something that can be done quickly by UBC as the necessary systems (primarily the SIS) functionality already exists.

In Vancouver, CRDF is limited to only elective courses and to no more than 6 credits per session or 12 credits overall. Given these extraordinary circumstances, should this policy be approved

the Okanagan deans would prefer neither restriction to be applied for the Okanagan campus. To clarify, the deans' strong preference is that there is no limitation on the type of course (elective/non-elective) nor any limitation on the number of credits for the Okanagan version of the CRDF so long as this does not compromise accreditation or licensure requirements.

There are both positive and negative repercussions of such a decision. For instance, CRDF may reduce student stress over grades or mitigate the effects of changes in modes of instruction or examinations, but it may also compromise eligibility for scholarships, pose problems for professional accreditation or regulators, prevent the use of a course as a pre-requisite, or hinder admission to majors or graduate/professional programs. We need to ensure that these potential consequences are known to students before they make an informed choice to ask for a CRDF standing in place a percentage grade. Given the circumstances, UBC will try to mitigate any negative effects as much as possible with clear communication to students. This will likely involve recommendations to the Senate to review and revise academic regulations, such as those governing eligibility for awards.

Several other Canadian universities, including Toronto, Calgary and Alberta have policies to allow students either the option of a Credit (or Pass)/Fail option, or to mandate that almost all courses change to Pass/Fail grading option.

This proposal is not applicable to those courses already graded on a Pass/Fail basis such as those in the Faculty of Education, nor for graduate-level courses.

Should this proposal be approved, the deans intend to use their powers under academic concessions to allow CRDF to be applied for by students for full-session or term 2 courses in the 2019 Winter Session.

Therefore, on behalf of the Deans I would recommend that Senate resolve as follows:

> *That Senate approve the Academic Regulations for Credit/D/Fail Standing as set out in the attached proposal, retroactively to 1 September 2019 and effective for the 2019W and 2020S academic sessions.*

Credit/D/Fail Grading for Undergraduate Courses

Students in undergraduate programs may elect to attempt percentage-graded courses with Credit/D/Fail (Cr/D/F) standing instead of a percentage grade. This standing will be recorded on a student's Official Transcript of Academic Record in lieu of their percentage grade in the course. For accreditation and licensure reasons, not all programs allow and some courses may not be taken for Credit/D/Fail at the discretion of the faculty offering the course.

Students registered in graduate programs are not eligible for Credit/D/Fail grading in any course.

Credit/D/Fail standings shall not count towards a student's weighted-credit average for academic performance evaluations under Academic Performance Evaluations (LINK) in a student's program of study, but courses taken as Credit/D/Fail shall still be considered in adjudicating requirements under those evaluations based upon percentages of courses passed or failed.

The deadline to opt for Credit/D/Fail standing shall be the same as the deadline to drop a course without Withdrawal (W) standing. (as published in the Academic Year (LINK)). A student cannot change from a percentage grade to a Cr/D/F standing, or vice-versa, after the deadline for opting for a Cr/D/F standing.

It is the responsibility of the student to ensure that the course he or she wishes to take as Credit/D/F complies with all regulations set out for their program. Students are strongly encouraged to consult with their program advisor.

Should a student change their program of study (including adding a declared specialization), and a course previously taken as Credit/D/Fail would not normally be acceptable to their new program of study, the new program of study may accept a Credit or D standing in place of a percentage grade. In such cases where a Credit or D standing is unacceptable to the new program of study, with the consent of the student and the dean of the faculty offering the program of study, the Credit or D standing may be converted back to the students originally-assigned percentage grade. In such cases where either the student or the Faculty does not consent, the Faculty, at its discretion, may require the student to:

- take the course again under its normal percentage basis (credit shall still be granted only once for the course under these circumstances);
- take another comparable course in its place; or
- not register in that program of study.

Opting for Credit/D/Fail standing may impact that course's standing to be considered for financial assistance and awards. Courses taken for Credit/D/Fail will be counted towards the credit load but will not be included in the calculation of weighted-credit averages for UBC awards. Students are encouraged to talk to an Enrolment Services Advisor if they have concerns with the financial assistance or awards implications of taking a course with Credit/D/Fail standing.