UNIVERSITY OF NORTHERN BRITISH COLUMBIA

SENATE MEETING
OPEN SESSION
AGENDA

November 23, 2022
3:30 – 5:30 PM
Senate Chambers/Zoom

1.0 Acknowledgement of Territory

2.0 S-202211.01
Approval of the Agenda ✞
Page 1 That the agenda for the November 23, 2022 Open Session of Senate be approved as presented.

✞ **NOTE:** *The Senate Agenda for the public session consists of two parts, a consent agenda and a regular agenda. The consent agenda contains items that are deemed to be routine or noncontroversial and are approved by the Steering Committee of Senate for placement on that agenda. Any Senator wishing to discuss any item on the consent agenda may ask the Chair of Senate that the item be removed from the consent agenda and placed on the regular agenda. Items removed from the consent agenda will be placed on the regular agenda and dealt with in the order in which they appear on the full agenda. Senators wishing to ask a question regarding an item on the consent agenda, without necessarily removing that item from the consent agenda, are strongly encouraged to direct questions to the Secretary of Senate in advance of the meeting.*

3.0 Presentations

3.1 Internet Security
Dave Kubert, Chief Information Security Officer

Page 9 **3.2 UNBC Strategic Plan**
Wendy Rodgers, Vice President Academic & Provost

4.0 Approval of the Minutes

S-202211.02
Approval of the Minutes
Page 18 That the Minutes for the October 26, 2022 Open Session of Senate be approved as presented.

5.0 Business Arising

6.0 President's Report - *(10 minutes)* **Payne**

7.0 Report of the Provost *(5 minutes)* **Rodgers**

8.0 Report of the Registrar *(5 minutes)* **Hawes**

9.0 Question Period *(10 minutes)*

9.1 Written questions submitted in advance

9.1.1 Could you provide a specific due date and information on the current consultative process for the honorarium policy, as it has now been in the works for almost a year. IWAU needs it, as does the First Nations Centre, really soon. When do you anticipate a final policy being developed? (Senator Huber)

9.1.2 It seems, from previous discussion at Senate, that all tuition and fees from graduate students goes into general revenue and then is dispersed for various needs. Currently we are seeing reduced research and travel funding for grad students, no funding for our NRES grad coordinator, no dedicated funding for social and cohort-building activities, etc. It will be increasingly difficult to run a viable grad program under these circumstances, so what is the rationale for the current funding model and is there any thought of changing it to better provide in these and other areas? (Senator Huber)

9.1.3 Low per diem levels affect graduate students and faculty and staff. In the case of faculty, it affects their ability to compensate students on research or conference (etc.) trips. And of course it means that students and faculty need to pay out-of-pocket for meal expenses. This can be an EDI issue as it may affect access to scholarly experiences for some individuals or groups. Per diem levels have not increased from $54 a day since at least 2005 when I arrived, and from what we can tell, that was the level in the 90s, perhaps as far back as the origin of the institution. Decades of inflation (particularly recently) have eroded the purchasing power of the per diem, and it is time for it to be increased. Is there a plan to do so? (Senator Huber)

9.2 Questions from the floor

10.0 Approval of Motions on the Consent Agenda **Payne**

S-202211.03
Approval of Motions on the Consent Agenda
That the motions on the consent agenda, except for those removed for placement on the regular agenda, be approved as presented.

11.0 Committee Reports

11.1 Senate Committee on Student Appeals **Klassen-Ross**

11.2 Senate Committee on Academic Affairs **Rodgers**

For Approval:

Page 23 Regular
S-202211.04
Proposed Revision of Calendar Entry
That, on the recommendation of the Senate Committee on Academic Affairs, the changes to the Wilp Wilxo'oskwhl Nisga'a Certificate of Nisga'a Language Fluency be approved as proposed.
Effective date: January 2023

Page 26 Regular
S-202211.05
Proposed Revision of Calendar Entry
That, on the recommendation of the Senate Committee on Academic Affairs, the changes to the Diploma of Wilp Wilxo'oskwhl Nisga'a Language Fluency be approved as proposed.
Effective date: January 2023

Page 29 Regular
S-202211.06
Proposed Revision of Calendar Entry
That, on the recommendation of the Senate Committee on Academic Affairs, the changes to the Wilp Wilxo'oskwhl Nisga'a Bachelor of Nisga'a Language Fluency Degree be approved as proposed
Effective date: January 2023

Page 34 Executive Summary **-** FALL 2023 CHANGES TO THE MATHEMATICS DEGREE PROGRAM

Page 35 Regular
S-202211.07
New Course Approval – MATH 202-3
That, on the recommendation of the Senate Committee on Academic Affairs, the new course MATH 202-3 Multivariable Calculus be approved as follows:
Effective date: September 2023

Page 41 **S-202211.08**

Regular **New Course Approval – MATH 204-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the new course MATH 204-3 Multivariable Calculus II be approved as follows:

Effective date: January 2024

Page 48 **S-202211.09**

Consent **Proposed Revision of Calendar Entry – MATH 101-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the changes to the course description and prerequisites for MATH 101-3, Calculus II, on page 271 of the 2022/23 undergraduate calendar, be approved as proposed.

Effective date: September 2023

Page 50 **S-202211.10**

Consent **Proposed Revision of Calendar Entry – MATH and PHYS**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the Joint Major in Mathematics and Physics Program Requirements on pages 149 and 150 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

Effective date: September 2023

Page 54 **S-202211.11**

Consent **Proposed Revision of Calendar Entry – MATH 201-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the changes to the course title, course description, and course prerequisites for MATH 201-3, Introduction to Complex Analysis, on page 272 of the 2022/23 undergraduate calendar, be approved as proposed.

Effective date: September 2023

Page 56 **S-202211.12**

Consent **Proposed Revision of Calendar Entry – MATH and CHEM**

That, on the recommendation of the Senate Committee on Academic Affairs, the changes to the Joint Major in Mathematics and Chemistry Program Requirements on pages 149 and 150 of the PDF 2022/23 undergraduate calendar be approved as proposed.

Effective date: September 2023

Page 60 **S-202211.13**

Consent **Proposed Revision of Calendar Entry – MATH and STATS**

That, on the recommendation of the Senate Committee on Academic Affairs, the changes to the program requirements for the B.Sc. Mathematics and Statistics on page 158 and 159 of the 2022/2023 undergraduate calendar be approved as proposed.

Effective date: September 2023

Page 64 **S-202211.14**

Consent **Proposed Revision of Calendar Entry – PHYS**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the Major in Physics Program Requirements on page180 of the PDF 2022/23 undergraduate calendar be approved as proposed.

Effective date: September 2023

Page 68 **S-202211.15**

Consent **Proposed Revision of Calendar Entry – PHYS 111-4**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 111-4, Introductory Physics II: Waves and Electricity on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

Effective date: September 2023

Page 70 **S-202211.16**

Consent **Proposed Revision of Calendar Entry – PHYS 110-4**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 110-4, Introductory Physics I: Mechanics on page 288 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

Effective date: September 2023

Page 72 **S-202211.17**

Consent **Proposed Revision of Calendar Entry – PHYS 101-4**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the title and course description for PHYS 101-4, Introduction to Physics II on page 288 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 74 **S-202211.18**

Consent **Proposed Revision of Calendar Entry – PHYS 100-4**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the title, course description and course prerequisite for PHYS 100-4, Introduction to Physics I on page 288 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 76 **S-202211.19**

Consent **Proposed Revision of Calendar Entry – PHYS 499-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 499-3, Advanced Topics in Physics on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 78 **S-202211.20**

Consent **Proposed Revision of Calendar Entry – PHYS 410-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 410-3, Classical Electromagnetism II on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed
Effective date: September 2023

Page 80 **S-202211.21**

Consent **Proposed Revision of Calendar Entry – PHYS 400-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 400-3, Quantum Mechanics II on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 82 **S-202211.22**

Consent **Proposed Revision of Calendar Entry – PHYS 390-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 390-3, Advanced Physics Laboratory on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 84 **S-202211.23**

Consent **Proposed Revision of Calendar Entry – PHYS 206-4**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 206-4, Modern Physics II on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 86 **S-202211.24**

Consent **Proposed Revision of Calendar Entry – PHYS 205-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 205-3, Modern Physics I on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 88 **S-202211.25**

Consent **Proposed Revision of Calendar Entry – PHYS 409-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 409-3, Mathematical Methods in Physics on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 90 **S-202211.26**
Consent **Proposed Revision of Calendar Entry - PHYS 406-3**
That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 406-3, Subatomic Physics on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 92 **S-202211.27**
Consent **Proposed Revision of Calendar Entry – PHYS 402-(1-6)**
That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 402-(1-6), Physics Research Project on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 94 **S-202211.28**
Consent **Proposed Revision of Calendar Entry – PHYS 401-3**
That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 401-3, Seminar on Contemporary Topics in Physics on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 96 **S-202211.29**
Consent **Proposed Revision of Calendar Entry – PHYS 351-3**
That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 351-3, Optics and Photonics I on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 98 **S-202211.30**
Consent **Proposed Revision of Calendar Entry – PHYS 310-3**
That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description and course prerequisite for PHYS 310-3, Classical Electromagnetism I on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 100 **S-202211.31**
Proposed Revision of Calendar Entry – PHYS 305-4
Consent That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 305-4, Electronics on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 102 **S-202211.32**
Consent **Proposed Revision of Calendar Entry – PHYS 302-3**
That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 302-3, Quantum Mechanics I on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 104 **S-202211.33**
Consent **Proposed Revision of Calendar Entry – PHYS 300-3**
That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 300-3, Classical Mechanics on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 106 **S-202211.34**

Consent **Proposed Revision of Calendar Entry – PHYS 202-4**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 202-4, Electromagnetism and Optics on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 108 **S-202211.35**

Consent **Proposed Revision of Calendar Entry – PHYS 200-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 200-3, Thermal Physics on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 110 **S-202211.36**

Consent **Proposed Revision of Calendar Entry – PHYS 150-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description for PHYS 150-3, Physics for Future Leaders on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 112 **S-202211.37**

Consent **Proposed Revision of Calendar Entry – PHYS 115-4**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description and course prerequisite for PHYS 115-4, General Introduction to Physics on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 114 Executive Summary – CHANGES TO BIOLOGY DEGREE AND ASSOCIATED CHANGES

Page 115 **S-202211.38**

Consent **Proposed Revision of Calendar Entry - BIOL B.Sc.**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the requirements to the 400-level of the Biology B.Sc. and to several specializations associated with the degree, on pages 61-62 (in the print or PDF calendar accessible on the UNBC web page) of the 2022/2023 undergraduate calendar, be approved as proposed.
Effective date: September 2022

Page 125 **S-202211.39**

Consent **Proposed Revision of Calendar Entry - BIOL**

That, on the recommendation of the Senate Committee on Academic Affairs, the changes to the prerequisites for BIOL 411-3, on page 206 of the 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2022

Page 127 **S-202211.40**

Consent **Proposed Revision of Calendar Entry – BIOL**

That, on the recommendation of the Senate Committee on Academic Affairs, the changes to the prerequisites for BIOL 409-3, on page 206 of the 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2022

Page 129 **S-202211.41**

Consent **Proposed Revision of Calendar Entry – ASTR 121-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description and course prerequisite for ASTR 121-3, Introduction to Astronomy II: The Universe on page 201 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 131 **S-202211.42**

Consent **Proposed Revision of Calendar Entry – ASTR 120-3**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the course description and course prerequisite for ASTR 120-3, Introduction to Astronomy I: The Solar System on page 201 of the PDF 2022/23 undergraduate calendar, be approved as proposed.
Effective date: September 2023

Page 133 **S-202211.43**

Consent **Proposed Revision of Calendar Entry – HHSC 105**

That, on the recommendation of the Senate Committee on Academic Affairs, the change(s) to the prerequisites for HHSC105 be approved as proposed.
Effective date: September 2023

11.3 Steering Committee of Senate **Payne**

11.4 Senate Committee on Nominations **Zogas**

Regular **S-202211.44**

Recommendation of Senate Committee Members to Senate

That, on the recommendation of the Senate Committee on Nominations, the following candidates, who have met all eligibility requirements to serve on Senate committees as indicated, be appointed as proposed.
Effective date: November 23, 2022

For Approval Items:

SENATE COMMITTEE POSITION TO BE FILLED **CANDIDATE**
(except as otherwise noted, all terms begin immediately)

For Information Items:

Senate Committee Vacancies

COMMITTEE	POSITION	TERM EXPIRY DATE
SCS	Lay Senator	03/31/2024
SCN	Faculty Senator	03/31/2023
	Lay Senator	03/31/2024
SCCC	Student Senator	08/31/2023
SCAAf	Faculty Senator	03/31/2024
	Faculty Member	03/31/2023
	Faculty Member	03/31/2024
	Graduate Student	08/31/2023
SCII	Indigenous Undergraduate Student	08/31/2023
SCSB	Undergraduate Student	08/31/2023
SCUB	Graduate Student	08/31/2023
	Undergraduate Student	08/31/2023
SCA	Graduate Student Senator	08/31/2023
	Student at Large	08/31/2023

11.5 Senate Committee on Curriculum and Calendar
Hawes

11.6 Senate Committee on Admissions and Degrees **Read**

11.7 Senate Committee on Indigenous Initiatives **Payne**

11.8 Senate Committee on Honorary Degrees and Special Forms of Recognition **Payne**

11.9 Senate Committee on Scholarships and Bursaries **Lewis**

For Information

Page 135 **SCSB20221026.03** *(approved)*
Prkachin Award to Support Advanced Study in Psychology
That the revised Terms and Conditions for the Prkachin Award to Support Advanced Study in Psychology be approved.
Effective: 2023-2024 Academic Year

Page 137 **SCSB20221026.04** *(approved)*
Ricci Dalton Award
That the revised Terms and Conditions for the Ricci Dalton Award be approved.
Effective: 2023-2024 Academic Year

11.10 Senate Committee on University Budget **Gehloff**

12.0 Information

13.0 Other Business

14.0 S-202211.45 *(10 minutes)*
Move to the Closed Session
That the meeting move to Close Session.

15.0 S-202211.49
Adjournment
That the Senate meeting be adjourned.

UNBC Senate

Strategic Planning
Pre-Read Package
November 23, 2022

Dear Senate Members,

UNBC's strategic plan refresh process will be officially launched on November 22nd.

The plan will focus on UNBC's future in a changing post-secondary landscape.

Joanne O'Shea and Lynn Hoover, from Prime Strategic Planning will be facilitating plan development. Prime has helped develop strategic plans for post-secondaries, First Nations, charitable organizations, and public sector organizations in Alberta, BC, and Saskatchewan.

Joanne and Lynn will be working closely with an internal project working group to ensure a successful project. This group includes me, Arleta Lucarelli (Executive Director, Strategy and Staff), Matt Wood (Director, Communications and Marketing) and Meaghan Wyatt (Executive Assistant, Office of the President) and they will be calling on the advice and expertise of several areas and individuals across our campuses.

There is also a strategic plan renewal Steering Committee (membership is outlined in Appendix A). The Steering Committee oversees and leads the development of the strategic plan.

At our November 23 Senate meeting, we will provide an overview of the strategic planning process. To prepare for the upcoming strategic planning update please:

Read the *Strategic Planning Primer* (pages 5 to 6). There is time allotted during the Senate meeting to answer any questions you may have on the strategic plan purpose and process.

The primer provides an overview of how strategic and cascading planning work, a common planning terminology, and a high-level timeline for the UNBC strategic plan refresh project.

Thank you,
Geoff Payne
UNBC President and Vice-Chancellor

UNBC Senate Strategic Planning
November 23, 2022

Agenda

TOPIC	ACTIVITY	WHO
1. Process	Overview of the agenda	Wendy Rodgers Vice-President Academic and Provost
2. Project Overview	Project purpose, plan, and schedule	Wendy Rodgers Vice-President Academic and Provost
3. Clarification	Q&A	Senate Members
4. Next Steps	Clarify next steps	Wendy Rodgers Vice-President Academic and Provost

UNBC Strategic Plan Renewal
Strategic Planning Primer

The What and Why of Strategic Planning

What it is: A strategic plan sets direction for the long-term and explains what we want to achieve in the future. Think of it as the big picture, the future dream, and an overview of what we will focus on to get there.

Why we do it: When done well, strategic planning makes sure we're all on the same page, driving towards the same goals. It helps us work together to make those goals happen. It focuses us on the right things, so that we are all confident we know exactly where and how we can make a difference.

Common Planning Language

There are several elements in a strategic plan, and these are often called different things by different organizations.

Sometimes jargon gets in the way of understanding, so it is important to establish a common planning language. We will customize the planning language we use to best fit UNBC's normal terminology, but for now we will use the definitions below:

Strategic Framework - A strategic planning tool that provides boundaries for the strategic planning process. It incorporates key strategic plan elements and outlines where the organization will place focus and what it wants to achieve.

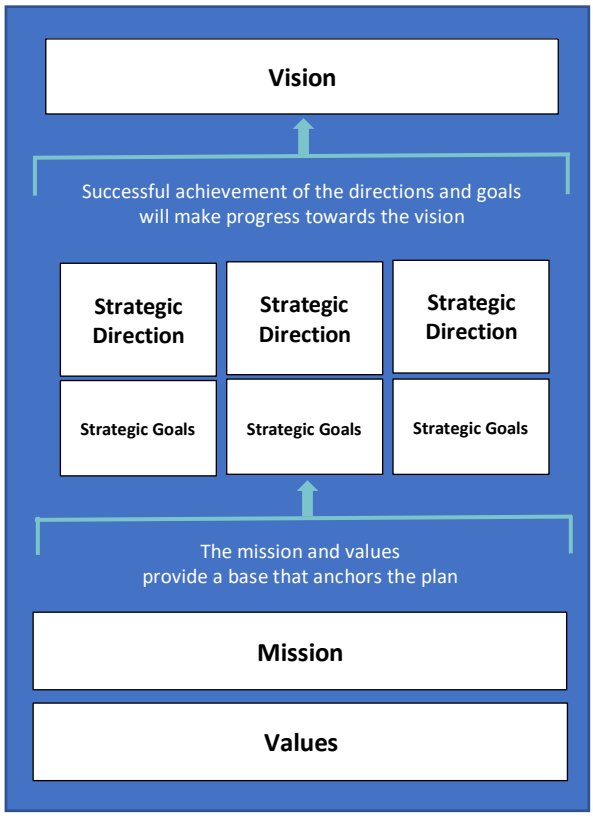
Vision - A short description of an organization's aspirations and the wider impact and value it aims to create (it is a guiding beacon to everyone in the organization; provides an enduring, deep, and inspiring purpose; and underpins internal decision making)

Strategic Direction/Theme/Priority - An area that is critical for long-term success (durable over time)

Strategic Goal - A desired end-result or outcome that describes what an organization needs to achieve (supports the mission, vision, and strategic direction;
provides direction for more detailed planning; can be measured)

Mission - A summary of why an organization exists – its purpose

Values - Philosophical statements that describe how an organization intends to conduct business every day (values guide decision-making processes, as well as organizational policies and procedures)



Note: other elements may exist that are not included in the framework, such as motto, mandate, and measures

Cascading Planning

Once the strategic plan is established, cascading planning activities keep the organization focused on implementing the plan.

Strategic Planning
Sets strategic direction for the future – 'what' we want to achieve
Planning horizon: Long-term (3-5+ years)

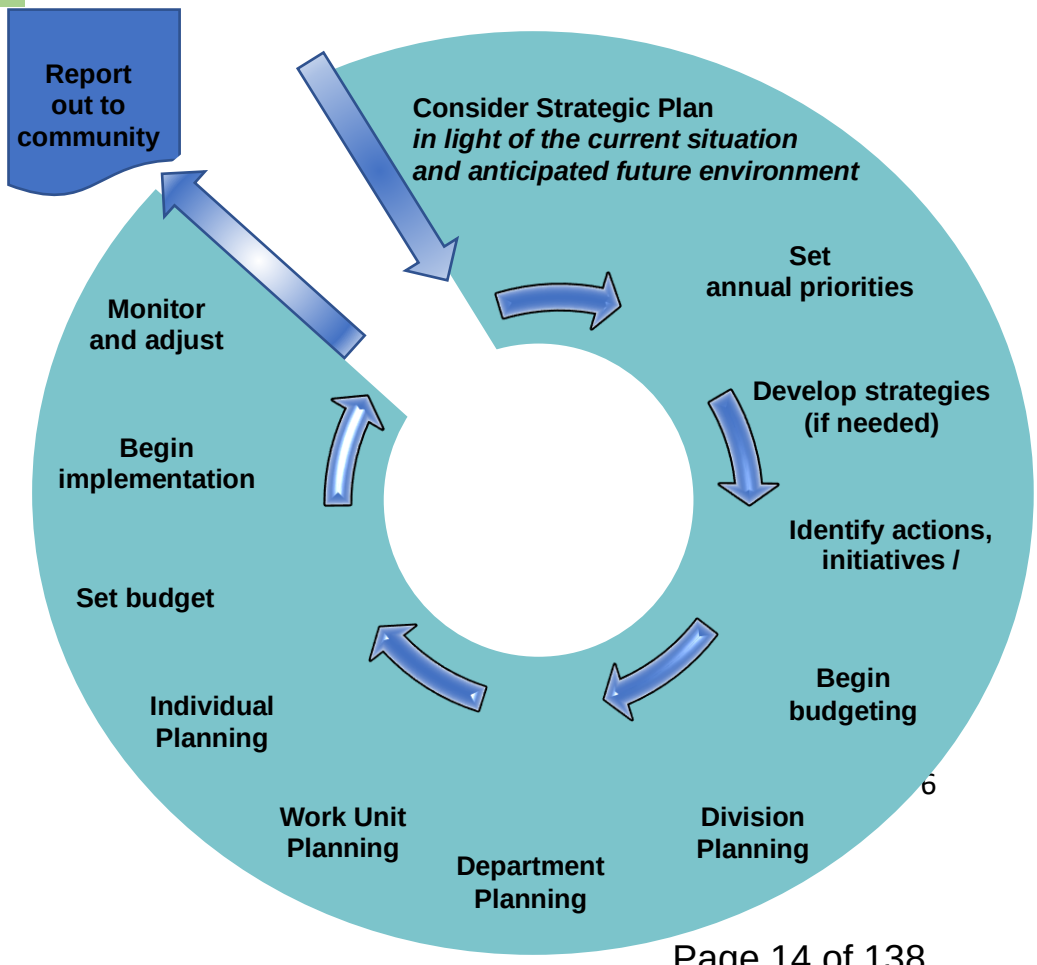
Strategy to Planning
'The how' – how we will make progress towards our vision
Can include institutional strategies, plans, and / or frameworks
Planning horizon: Shorter term and often multi-year (3+ years)

Annual Priority Setting and Action Planning
Provides focus and coordination for shorter-term implementation - what we will 'do' in a particular year
Identifies how we intend to make progress on the plan. What will be done, by when, and by who. Includes what is required to make it happen.
Planning horizon: (1-year)

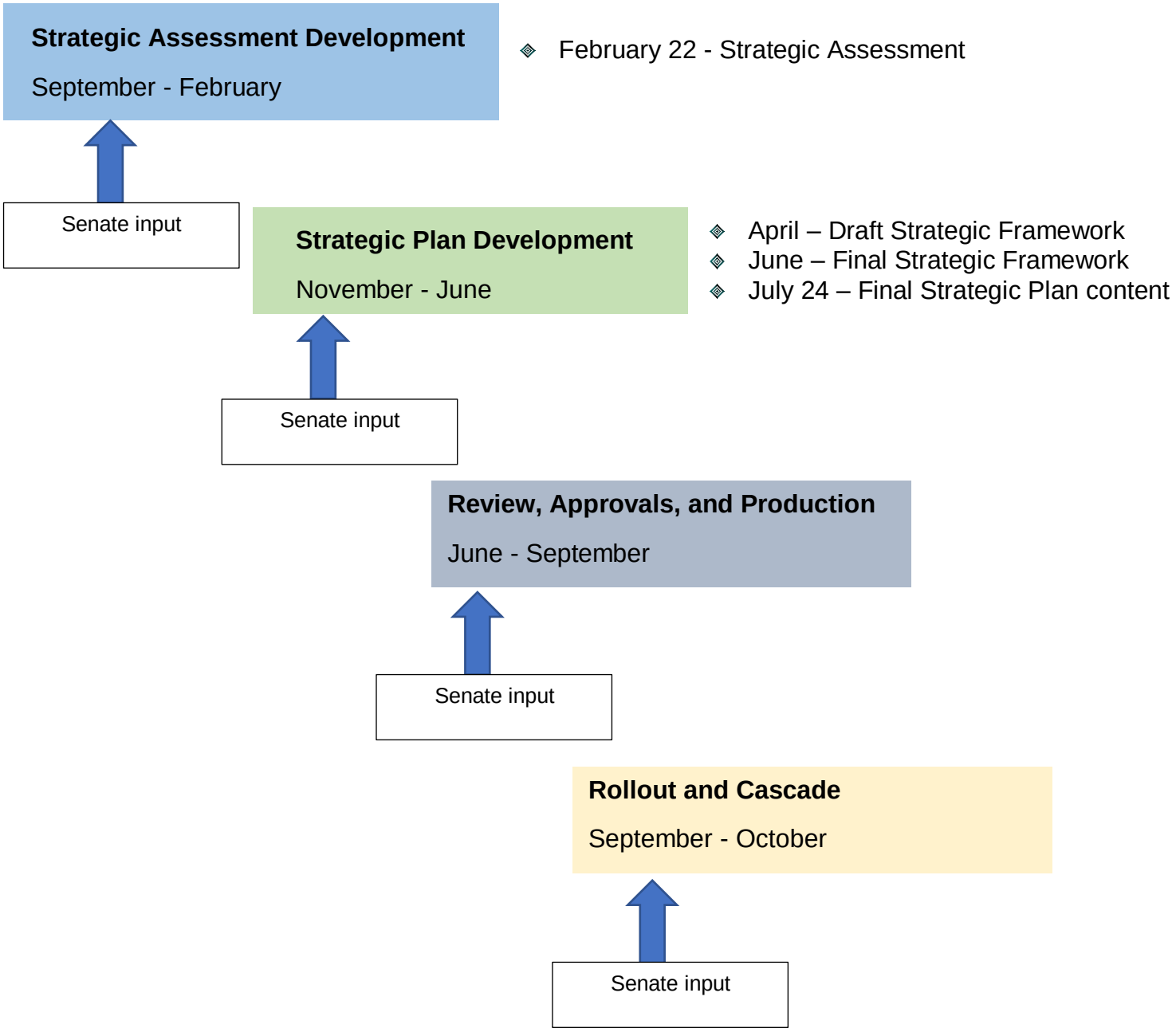
Annual Planning Cycle

To sharpen focus, every year the organization considers changes in its environment, identifies where to place focus for the year, and creates plans to make progress on achieving the goals.

To '*monitor and adjust*' (the final step in this cycle) requires a monitoring and reporting cycle that incorporates progress reporting and reporting on key indicators. This will be introduced and discussed in future sessions. For now, it is important to know monitoring and progress should occur, resulting in report(s) out the community.



UNBC Strategic Plan Renewal
Strategic Planning Process and Timeline


Strategic Assessment Development
September - February
February 22 - Strategic Assessment
Senate input
Strategic Plan Development
November - June
April – Draft Strategic Framework
June – Final Strategic Framework
July 24 – Final Strategic Plan content
Senate input
Review, Approvals, and Production
June - September
Senate input
Rollout and Cascade
September - October
Senate input

Appendix A

Strategic Plan Steering Committee

President (Chair) – Geoff Payne

Vice President Academic and Provost – Wendy Rodgers

Vice President Finance and Administration – Rahim Somani

Associate Vice President, Equity, Diversity, and Inclusion – Aman Litt

Executive Director, Strategy & Staff – Arleta Lucarelli

Board Member – Michael Reed

Dean, Faculty Indigenous Studies, Social Sciences and Humanities – Kriston Rennie

Director of Business Services – Lisa Haslett

Director of Communications and Marketing – Matt Wood

Director of Research and Innovation – Mark Barnes

Registrar (Interim) – Kimberly Read

Associate Professor, Chair, Indigenous Environmental Health – Darlene Sanderson

Professor, Department of First Nations Studies – Rheanna Robinson

Professor, Chair of Chemistry, Math and Stats Faculty Membership – Todd Whitcombe (Faculty)

Campus Development Liaison and Operations Manager – Bruce Denis

Chief Information Officer – Trevor Fuson (Staff)

Undergraduate Student – Ramneek Khaira

Graduate Student – Christine Ann Callihoo

Indigenous Student – Cheri Brown

Committee Secretary – Meaghan Wyatt

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.04

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the changes to the Wilp Wilxo'oskwhl Nisga'a Certificate of Nisga'a Language Fluency be approved as proposed.

1. Effective date: January 2023

2. Rationale for the proposed revisions: Clarification around the curriculum requirements, ensuring the inclusion of 10 courses (30 credits), greater flexibility for student choice and future laddering opportunities, especially as they relate to the Diploma and Bachelor of Nisga'a Language Fluency programs, in addition to other study pathways post-Certificate.

3. Implications of the changes for other programs, etc., if applicable:

N/A

4. Reproduction of current Calendar entry for the item to be revised:

General Calendar Description:

The Nisga'a Language Fluency Certificate provides an immersive education in the Nisga'a language, intended to create new Nisga'a language speakers. The fundamental pedagogical approach is to offer as much Nisga'a language instruction as possible, as early as possible. The program is offered in a manner that recognizes that learners, knowledge keepers, and their communities as a whole benefit from, and contribute to, the (re)development of Nisga'a language fluency.

Students are required to complete 30 credit hours.

Curriculum:

During the certificate students take the following courses:

ARTS 101-3	Learning Strategies
ARTS 102-3	Research Writing
FNST 139-3	Nisga'a Language: Level 1
FNST 140-3	Nisga'a Language: Level 2
FNST 141-3	Nisga'a Language Immersion Level 1
FNST 169-3	Nisga'a Culture: Level 1
FNST 170-3	Nisga'a Culture: Level 2
FNST 241-3	Nisga'a Language Immersion Level 2
FNST 341-3	Nisga'a Language Immersion Level 3
FNST 441-3	Nisga'a Language Immersion Level 4

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

The Nisga'a Language Fluency Certificate provides an immersive education in the Nisga'a language, intended to create new Nisga'a language speakers. The fundamental pedagogical approach is to offer as much Nisga'a language instruction as possible, as early as possible. The program is offered in a manner that recognizes that learners, knowledge keepers, and their communities as a whole benefit from, and contribute to, the (re)development of Nisga'a language fluency.

In terms of goals and objectives, the program is designed to increase significantly the number of Nisga'a language speakers, and to prepare them for employment, particularly in the fields of education and a variety of Nisga'a organizations.

Students are required to complete 30 credit hours of university-level instruction.

During the program of study leading to the Certificate students complete the following courses.
All courses listed will be included in the UNBC academic calendar for students.

~~Students are required to complete 30 credit hours~~.

ARTS 101-3	Learning Strategies
ARTS 102-3	Research Writing
or ENGL 170	Writing and Communication Skills
FNST 139-3	Nisga'a Language: Level 1
FNST 140-3	Nisga'a Language: Level 2
FNST 141-3	Nisga'a Language Immersion Level 1
FNST 169-3	Nisga'a Culture: Level 1
FNST 170-3	Nisga'a Culture: Level 2
FNST 241-3	Nisga'a Language Immersion Level 2
FNST 142-3	Nisga'a Oral Culture Level 1
FNST 242-3	Nisga'a Oral Culture Level 2
~~FNST 341-3~~	~~Nisga'a Language Immersion Level 3~~
~~FNST 441-3~~	~~Nisga'a Language Immersion Level 4~~

6. Authorization:

Program / Academic / Administrative Unit: Department of First Nations Studies

Faculty: Indigenous Studies, Social Sciences and Humanities

Faculty Council Motion Number: FISSSHFC.2022.11.01.01

Faculty Council Approval Date: November 1, 2022

Senate Committee on Indigenous Initiatives Motion Number:

Senate Committee on Indigenous Initiatives Meeting Date:

7. Other Information

Attachment Pages: 0 pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022

Date **Chair's Signature**

For recommendation to ✓**, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.05

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the changes to the Diploma of Wilp Wilxo'oskwhl Nisga'a Language Fluency be approved as proposed.

1. Effective date: January 2023

2. Rationale for the proposed revisions: Clarification around the curriculum requirements, ensuring greater flexibility for student choice and future laddering opportunities, especially as they relate to the Certificate and Bachelor of Nisga'a Language Fluency programs, in addition to other study pathways post-Diploma.

3. Implications of the changes for other programs, etc., if applicable:

N/A

4. Reproduction of current Calendar entry for the item to be revised:

The Nisga'a Language Fluency Diploma provides an immersive educational program in the Nisga'a language, and is intended to create new and fluent Nisga'a language speakers. The fundamental pedagogical approach is to offer as much Nisga'a language instruction as possible, as early as possible. The program is offered in a manner that recognizes that learners, knowledge keepers, and their communities as a whole benefit from, and contribute to, the (re)development of Nisga'a language fluency.

In terms of goals and objectives, the program is designed to increase significantly the number of Nisga'a language speakers, and to prepare them for employment, particularly in the fields of education and a variety of Nisga'a organizations.

Students are required to complete 60 credit hours of university level instruction, including 30 credit hours from the Nisga'a Language Fluency Certificate.

Curriculum:

The first year of the Diploma is the Certificate, and students take the following courses:

ARTS 101-3	Learning Strategies
ARTS 102-3	Research Writing
FNST 139-3	Nisga'a Language: Level 1
FNST 140-3	Nisga'a Language: Level 2
FNST 141-3	Nisga'a Language Immersion Level 1
FNST 169-3	Nisga'a Culture: Level 1
FNST 170-3	Nisga'a Culture: Level 2
FNST 241-3	Nisga'a Language Immersion Level 2

During the second year of the Diploma students take the following courses:

FNST 142-3	Nisga'a Oral Culture Level 1
FNST 205-3	Seminar in First Nations Studies
FNST 206-3	First Nations Oral Literatures
FNST 220-3	Introduction to Linguistics
FNST 239-3	Nisga'a Language: Level 3
FNST 240-3	Nisga'a Language: Level 4
FNST 242-3	Nisga'a Oral Culture Level 2
FNST 269-3	Nisga'a Culture: Level 3
FNST 270-3	Nisga'a Culture: Level 4
FNST 298-3	Special Topics in First Nations Studies
FNST 341-3	Nisga'a Language Immersion Level 3
FNST 441-3	Nisga'a Language Immersion Level 4

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

The Nisga'a Language Fluency Diploma provides an immersive education in the Nisga'a language, ~~and is~~ intended to create new ~~and fluent~~ Nisga'a language speakers. The fundamental pedagogical approach is to offer as much Nisga'a language instruction as possible, as early as possible. The program is offered in a manner that recognizes that learners, knowledge keepers, and their communities as a whole benefit from, and contribute to, the (re)development of Nisga'a language fluency.

In terms of goals and objectives, the program is designed to increase significantly the number of Nisga'a language speakers, and to prepare them for employment, particularly in the fields of education and a variety of Nisga'a organizations.

Students are required to complete 60 credit hours ~~of university level instruction~~, including 30 credit hours from the Nisga'a Language Fluency Certificate.

Curriculum:

The first year of the Diploma is the Certificate, and students take the following courses:

ARTS 101-3	Learning Strategies
ARTS 102-3	Research Writing
or ENGL 170	Writing and Communication Skills
FNST 139-3	Nisga'a Language: Level 1
FNST 140-3	Nisga'a Language: Level 2
FNST 141-3	Nisga'a Language Immersion Level 1
FNST 169-3	Nisga'a Culture: Level 1
FNST 170-3	Nisga'a Culture: Level 2
FNST 241-3	Nisga'a Language Immersion Level 2
FNST 142-3	Nisga'a Oral Culture Level 1
FNST 242-3	Nisga'a Oral Culture Level 2

During the second year of the Diploma students take the following courses:

CPSC 150-3	Computer Applications
or 3-credits of Mathematics at any level	
~~FNST 142-3~~	~~Nisga'a Oral Culture Level 1~~
~~FNST 205-3~~	~~Seminar in First Nations Studies~~

~~FNST 206-3~~	~~First Nations Oral Literatures~~
FNST 220-3	Introduction to Linguistics
FNST 239-3	Nisga'a Language: Level 3
FNST 240-3	Nisga'a Language: Level 4
~~FNST 242-3~~	~~Nisga'a Oral Culture Level 2~~
FNST 269-3	Nisga'a Culture: Level 3
FNST 270-3	Nisga'a Culture: Level 4
~~FNST 298-3~~	~~Special Topics in First Nations Studies~~
FNST 341-3	Nisga'a Language Immersion Level 3
FNST 441-3	Nisga'a Language Immersion Level 4

Subject Requirement
Six additional credit hours of electives at any level; it is recommended that these be taken in the second year.

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Department of First Nations Studies

Faculty: Indigenous Studies, Social Sciences and Humanities

Faculty Council Motion Number: FISSSHFC.2022.11.01.02

Faculty Council Approval Date: November 1, 2022

Senate Committee on Indigenous Initiatives Motion Number:

Senate Committee on Indigenous Initiatives Meeting Date:

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) _____ (**Chair's Signature**)

For recommendation to ✓**, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.06

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the changes to the Wilp Wilxo'oskwhl Nisga'a Bachelor of Nisga'a Language Fluency Degree be approved as proposed.

1. **Effective date:** September 2023

2. **Rationale for the proposed revisions:** Clarification around the curriculum requirements and ordering across all four years of the Bachelor Degree, to align with the Certificate and Diploma in Nisga'a Language Fluency programs, and to ensure greater flexibility for student choice and program laddering opportunities.

3. **Implications of the changes for other programs, etc., if applicable:** N/A

4. **Reproduction of current Calendar entry for the item to be revised:**

The Bachelor of Nisga'a Language Fluency degree provides an immersive education in the Nisga'a language, intended to create new Nisga'a language speakers. The fundamental pedagogical approach is to offer as much Nisga'a language instruction as possible, as early as possible. The program is offered in a manner that recognizes that learners, knowledge keepers, and their communities as a whole benefit from, and contribute to, the (re)development of Nisga'a language fluency.

Students are required to complete 120 credit hours including a minimum of 60 credit hours of upper-division coursework. 84 credit hours (including 36 credit hours at the upper level) consists of courses with a Nisga'a language component.

For the purpose of the Bachelor of Nisga'a Language Fluency, all courses with Nisga'a language, history and/or culture from the following areas are considered:

- Anthropology
- Arts
- Biology (Ethnobotany)
- First Nations Studies
- History

Curriculum:

During the first year of the degree students take the following courses:

ARTS 101-3	Learning Strategies
ARTS 102-3	Research Writing
FNST 139-3	Nisga'a Language: Level 1
FNST 140-3	Nisga'a Language: Level 2
FNST 141-3	Nisga'a Language Immersion Level 1
FNST 169-3	Nisga'a Culture: Level 1

FNST 170-3	Nisga'a Culture: Level 2
FNST 241-3	Nisga'a Language Immersion Level 2

During the second year of the degree students take the following courses:

FNST 142-3	Nisga'a Oral Culture Level 1
FNST 205-3	Seminar in First Nations Studies
FNST 206-3	First Nations Oral Literatures
FNST 220-3	Introduction to Linguistics
FNST 239-3	Nisga'a Language: Level 3
FNST 240-3	Nisga'a Language: Level 4
FNST 242-3	Nisga'a Oral Culture Level 2
FNST 269-3	Nisga'a Culture: Level 3
FNST 270-3	Nisga'a Culture: Level 4
FNST 298-3	Special Topics in First Nations Studies
FNST 341-3	Nisga'a Language Immersion Level 3
FNST 441-3	Nisga'a Language Immersion Level 4

During the third year of the degree students take the following courses:

FNST 300-3	Research Methods in First Nations Studies
FNST 310-3	Lisims Anadromous Summer and Fall Fisheries in Nisga'a Culture and History
FNST 311-3	Spring Anadromous Fisheries of Lisims in Nisga'a Culture and History
FNST 320-3	The Structure of a First Nations Language
FNST 321-3	First Nations Advanced Composition and Conversation: Level 1
FNST 322-3	First Nations Advanced Composition and Conversation: Level 2
FNST 324-3	Advanced First Nations Language Immersion
FNST 325-3	First Nations Language Mentoring

And two of the following courses:

FNST 301-3	Art and Material Culture of BC First Nations
FNST 302-3	First Nations Health and Healing
FNST 303-3	First Nations Religion and Philosophy
FNST 304-3	Indigenous Environmental Philosophy
FNST 305-3	Seminar in First Nations Studies

During the fourth year of the degree students take the following courses:

FNST 400-3	Community-Based Research Project
FNST 420-3	Developing Language Materials
FNST 421-3	First Nations Songs and Poetry
FNST 422-3	First Nations Speeches and Stories
FNST 423-3	A Study of a First Nations Language Family and Its Linguistic Relatives
FNST 425-3	Oral History

And two of the following courses:

FNST 410-6	Advanced Topics in First Nations Art and Material Culture
FNST 440-6	Internship in First Nations Studies
FNST 497-6	Senior Project in First Nations Studies
FNST 498-6	Special Topics in First Nations Studies

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

The Bachelor of Nisga'a Language Fluency degree provides an immersive education in the Nisga'a language, intended to create new Nisga'a language speakers. The fundamental pedagogical approach is to offer as much Nisga'a language instruction as possible, as early as possible. The program is offered in a manner that recognizes that learners, knowledge keepers, and their communities as a whole benefit from, and contribute to, the (re)development of Nisga'a language fluency.

Students are required to complete 120 credit hours including a minimum of 60 credit hours of upper-division coursework. 84 credit hours (including 36 credit hours at the upper level) consists of courses with a Nisga'a language component.

For the purpose of the Bachelor of Nisga'a Language Fluency, all courses with Nisga'a language, history and/or culture from the following areas are considered:

- Anthropology
- Arts
- Biology (Ethnobotany)
- First Nations Studies
- History

Curriculum:

During the first year of the degree students take the following courses:

ARTS 101-3	Learning Strategies
ARTS 102-3	Research Writing
or ENGL 170	Writing and Communication Skills
FNST 139-3	Nisga'a Language: Level 1
FNST 140-3	Nisga'a Language: Level 2
FNST 141-3	Nisga'a Language Immersion Level 1
FNST 169-3	Nisga'a Culture: Level 1
FNST 170-3	Nisga'a Culture: Level 2
FNST 241-3	Nisga'a Language Immersion Level 2
FNST 142-3	Nisga'a Oral Culture Level 1
FNST 242-3	Nisga'a Oral Culture Level 2

During the second year of the degree students take the following courses:

CPSC 150-3	Computer Applications
or 3-credits of Mathematics at any level	
~~FNST 142-3~~	~~Nisga'a Oral Culture Level 1~~
~~FNST 205-3~~	~~Seminar in First Nations Studies~~
~~FNST 206-3~~	~~First Nations Oral Literatures~~
FNST 220-3	Introduction to Linguistics
FNST 239-3	Nisga'a Language: Level 3
FNST 240-3	Nisga'a Language: Level 4
~~FNST 242-3~~	~~Nisga'a Oral Culture Level 2~~
FNST 269-3	Nisga'a Culture: Level 3
FNST 270-3	Nisga'a Culture: Level 4
~~FNST 298-3~~	~~Special Topics in First Nations Studies~~
FNST 341-3	Nisga'a Language Immersion Level 3
FNST 441-3	Nisga'a Language Immersion Level 4

Subject Requirement

Six additional credit hours of electives at any level; it is recommended that these be taken in the second year.

During the third year of the degree students take the following courses:

FNST 300-3	Research Methods in First Nations Studies
FNST 310-3	Lisims Anadromous Summer and Fall Fisheries in Nisga'a Culture and History
FNST 311-3	Spring Anadromous Fisheries of Lisims in Nisga'a Culture and History
FNST 320-3	The Structure of a First Nations Language
FNST 321-3	First Nations Advanced Composition and Conversation: Level 1
FNST 322-3	First Nations Advanced Composition and Conversation: Level 2
FNST 324-3	Advanced First Nations Language Immersion
FNST 325-3	First Nations Language Mentoring
BIOL 350-3	Ethnobotany

And ~~two~~ one of the following courses:

FNST 301-3	Art and Material Culture of BC First Nations
FNST 302-3	First Nations Health and Healing
FNST 303-3	First Nations Religion and Philosophy
FNST 304-3	Indigenous Environmental Philosophy
FNST 305-3	Seminar in First Nations Studies

During the fourth year of the degree students take the following courses:

FNST 400-3	Community-Based Research Project
FNST 420-3	Developing Language Materials
FNST 421-3	First Nations Songs and Poetry
FNST 422-3	First Nations Speeches and Stories
FNST 423-3	A Study of a First Nations Language Family and Its Linguistic Relatives
FNST 425-3	Oral History

And two of the following courses:

FNST 410-6	Advanced Topics in First Nations Art and Material Culture
FNST 440-6	Internship in First Nations Studies
FNST 497-6	Senior Project in First Nations Studies
FNST 498-6	Special Topics in First Nations Studies

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Department of First Nations Studies

Faculty: Indigenous Studies, Social Sciences and Humanities

Faculty Council Motion Number: FISSSHFC.2022.11.01.03

Faculty Council Approval Date: November 1, 2022

Senate Committee on Indigenous Initiatives Motion Number:

Senate Committee on Indigenous Initiatives Meeting Date:

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓**, or information of** _____ **Senate.**

FALL 2023 CHANGES TO THE MATHEMATICS DEGREE PROGRAM

There are seven motions being put forward at this time to update and restructure the degrees in Mathematics.

The first is a change in the calendar description for MATH 101-3 to better represent the topics and content of the course as it is presently taught in the course.

The second and third involve the creation of an academic stream within the Mathematics and Statistics degree programs that better reflect the norms at other Universities. SFU, UBC, and UVic all offer two courses in calculus at the 200-level and spread the content over a longer period of time. Presently, MATH 200 has too much content for a single semester and doesn't delve deep enough into the various topics to serve students in Mathematics Majors and Honours degrees along with the Physical Sciences. The shift is essentially from a "survey" type course to a much fuller and broader understanding of mathematics. As MATH 200-3 will be retained as a course offering, the changes only directly affect the B.Sc. and B.Sc. (Honours) in Mathematics. However, discussions with partners in the various Joint Degree in which Mathematics participates along with other degree programs which require MATH 200-3 are ongoing as they may choose to include MATH 202-3 and MATH 204-3 within their degree programs. (Preliminary discussions with the Department of Physics and Chemistry indicate they may choose to make this change.)

The fourth motion shifts complex analysis from the 200-level to the 300-level. This course is more appropriately taught at the 300-level and is consistent with comparator courses at UVic (MATH 301), SFU (MATH 322), and UBC (MATH 300). The content and topics within the course are better served after the students have finished a full 200-level program in multivariable calculus.

The final set of motions detail the necessary changes to the degree program in the calendar entry for Mathematics and Statistics, for the Joint Major in Chemistry and Mathematics, and for the Joint Major in Mathematics and Physics.

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.07

SENATE COMMITTEE ON ACADEMIC AFFAIRS

NEW COURSE APPROVAL MOTION FORM

Motion: That the new course MATH 202-3 Multivariable Calculus be approved as follows:

A. Description of the Course

MATH 202 is a calculus course that is typically preceded by differential and integral calculus in single variable. The focus in MATH 202 is on functions of several variables and analytic geometry. MATH 202 introduces the learner to techniques that lead to viewing geometric objects as algebraic expressions via parametrization. Once this is achieved, students can perform analysis on nonstandard geometries (i.e., not the regular shapes) and physical flows (think of a water stream, or a wind). For instance, the first part of MATH 202 enables students to compute the arclength of an involved space curve, or the area enclosed by a plane curve. The second part of the course addresses functions of several variables (which can be viewed as an analytic/algebraic parametrization of a 3d surface). In this part of the course, partial differentiation and linear approximation is introduced. Geometrically, this is an attempt to determine the tangent plane to a surface, for example, using partial differentiation, optimization (resp. constrained optimization) problems are solved via the multidimensional second derivative test (resp. Lagrange multipliers). The 3rd part of the course addresses multiple integrals (double and triple). Applications of the 3rd part of MATH 202 include computing the volume of a 3d body enclosed by the graph of a function $z = f(x, y)$.

1. **Proposed semester of first offering:**
   September 2023

2. **Academic Program:**
   Mathematics

3. **Course Subject, Number*, and Credit hours (e.g. CHEM 210-3):**
   MATH 202-3

4. **Course Title:**
   Multivariable Calculus I

5. **Goal(s) of Course:**

Students in MATH 202 get to

a. Learn about notions of analytic geometry: parametrization, space curves, arclength, etc.
b. Study functions of several variables: their differentiability and the smoothness of the surfaces associated with such functions. Perform a first order approximation of such functions (near a point).
c. Perform optimization (resp. constrained optimization) of quantities that depend on several variables. Students of MATH 202 learn about computing the maxima/minima of functions of several variables and about Lagrange Multipliers.
d. Learn about multiple integrals and their applications in life/physical sciences, nature and engineering.

6. Calendar Course Description:

MATH 202-3 Multivariable Calculus I
This course focuses on functions of several variables, analytic geometry, and their utility. It starts with a review of area and arclength in polar coordinates, and lines and planes in space. The course covers cylindrical and spherical coordinates, quadric surfaces, vector-valued functions, and arclength and curvature of space curves. Topics in this course also include differentiation of functions of several variables, tangent planes and linear approximations, the chain rule, minima/maxima, and Lagrange multipliers. Lastly, the course covers double and triple integrals, applications, and change of variables in multiple integrals.

Prerequisites: MATH 101-3
Precluded: MATH 200-3

7. Credit Hours: 3 credit hours (Normally, UNBC courses are 3 credit hours and may not be repeated for additional credit. If this course falls outside the norm, please complete sections "a)" and "b)" below).

a) Can the course be repeated for credit if the subject matter differs substantially?

No X

***** If "yes," please indicate the maximum number** of credit hours which may be applied to a student's degree using this course: **3**

****** If the course may be taken more than once but will only ever be offered for 3 credit hours, for example, per offering, the credit hours are simply expressed as "3" and the following notation (with the correct number of credit hours noted) is included within the Calendar Course Description:
"This course may be repeated to a maximum of XX credit hours if the material is substantially different."

b) Is variable credit available for this course? No X

Variable credit is denoted by the following examples:

i) **"3-6"**: in this example, the course may be offered for 3, 4, 5, OR 6 credit hours during a single offering. In this example, the course number would be expressed as CHEM 210-(3-6).

ii) **"3,6"**: in this example, the course may be offered for EITHER 3 or 6 credit hours during a single offering. In this example, the course number would be expressed as CHEM 210-(3,6).

8. Contact Hours (per week):

Lecture	3	Seminar	0
Laboratory	0	Other (please specify)	

9. Prerequisites (taken prior):

MATH 101 Minimum Grade of C-

10. Prerequisites with concurrency (taken prior or simultaneously):
None

11. Co-requisites (must be taken simultaneously):
None

12. Preclusions:
MATH 200-3

13. Course Equivalencies:
None

14. Grade Mode: NORMAL (i.e., alpha grade)

15. Course to be offered: each semester _____ each year x

alternating years _____

16. Proposed text / readings:

(a) *Calculus, Volume 3* (OpenStax. Digital: ISBN-10: 1-947172-16-6, ISBN-13: 978-1-947172-16-6)
URL: https://openstax.org/details/books/calculus-volume-3

(b) *CLP3: Multivariable Calculus*, (open text), available at the
URL: https://personal.math.ubc.ca/~CLP/CLP3/

B. Significance Within Academic Program

1. Anticipated enrolment 20

2. If there is a proposed enrolment limit, state the limit and explain: Not applicable

3. Required for: Major: Mathematics, Physics Minor: _____ Other: _____

4. Elective in: Major: _____ Minor: _____ Other: _____

5. Course required by another major/minor:

Any double major with Mathematics

6. Course required or recommended by an accrediting agency:
Not applicable

7. Toward what degrees will the course be accepted for credit?
BSc in Mathematics; BSc in Physics; any undergraduate degree that has Mathematics as a double major.

8. What other courses are being proposed within the Program this year?
MATH 204-3

9. What courses are being deleted from the Program this year?
None

C. Relation to Other Program Areas

1. Identify courses in other UNBC Programs that overlap with this course; describe the overlap and comment on its significance:
The content of this course overlaps with MATH 200. MATH 200 covers the material in the syllabus of this proposed new course. In fact, MATH 200 covers about twice the material in the proposed MATH 202, causing a high paced lecturing style. The development of MATH 202 and MATH 204, as well as other changes proposed by the Department of Math. and Stats, are explained in the Introduction (cover letter) attached [see Introduction].

2. Is a preclusion required? Yes X (MATH 200-3)

3. If there is an overlap, and no preclusion is required, please explain why not:

4. Has this overlap been discussed with the Program concerned? Yes X

5. **In offering this course, will UNBC require facilities or staff at other institutions?** No X

If yes, please describe requirements: not applicable

6. **Is this course replacing an existing course that is included in one or more transfer agreements with external institutions?**

   No X

   If "yes," please contact the Articulation Officer in the Office of the Registrar.

D. Resources required

1. **Please describe ADDITIONAL resources required over the next five years to offer this course.**

   i. **Faculty Staffing:** no additional staffing required in present

   ii. **Space (classroom, laboratory, storage, etc.):** classroom with a board and video projector

   iii: **Library Holdings:** See attached form

   iv. **Computer (time, hardware, software):** Maple software, MATLAB

E. Additional Attached Materials

Math 202 Course outline (3 pages)

F. Other Considerations

1. **First Nations Content*:** No X
   **** Whether a new course has First Nations content is to be determined by the relevant Faculty Council(s).***

   ****If "yes,"** refer the motion to the Senate Committee on First Nations and Aboriginal Peoples **prior to** SCAAF.

2. **Other Information:** none

3. Attachment Pages (in addition to required "Library Holdings" Form): 3 pages

G. Authorization **(Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Math

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:27

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

Library Holdings Form
(to be submitted with SCAAF New Course Approval Motion Form)

PROPOSED NEW COURSE: MATH 202-3 Multivariable Calculus I

Library Holdings (to be completed by the appropriate Librarian):

a) Are current library holdings adequate? Yes X

b) If no to a), what monographs / periodicals / E-resources will be needed, and at what estimated cost?

None

c) If no to a), what is the proposed funding source?

Susie Wilson

September 15, 2022

University Librarian (or designate) signature **Date**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.08

SENATE COMMITTEE ON ACADEMIC AFFAIRS

NEW COURSE APPROVAL MOTION FORM

Motion: That the new course MATH 204-3 Multivariable Calculus II be approved as follows:

A. Description of the Course

MATH 204 is a calculus course that is typically preceded by MATH 202 (Multivariable Calculus I). MATH 204 can be viewed as a course consisting of two major parts. In Part I of MATH 204, students get to learn about three major tools: Green's formula, Gauss's formula (or the Divergence Theorem) and/or Stokes's formula. The formulae stated above were and continue to be at the foundation of many fields, such as Electromagnetism (Maxwell's equations), fluid dynamics, mathematical biology, etc. To understand the statements of these three formulae, students need to have a good knowledge of multivariable functions, vector valued functions, multiple integrals, and parametric curves. This makes MATH 202 the main requirement for MATH 204.

1. **Proposed semester of first offering:**
   January 2024

2. **Academic Program:**
   Mathematics

3. **Course Subject, Number*, and Credit hours (e.g. CHEM 210-3):**
   MATH 204-3

4. **Course Title:**
   Multivariable Calculus II

5. **Goal(s) of Course:**

Students in MATH 204 get to
(a) Parametrize a nonstandard surface in 3d (possibly self-intersecting)
(b) Compute line integrals and surface integrals.
(c) Learn about Green's theorem, Stokes's, and Gauss's formula.
(d) Apply (a), (b), and/or (c) to compute the flux of a fluid through a surface, compute a surface area determined by a parametric surface, etc.
(e) Learn about power series, their convergence and apply them to certain problems, such as approximating a function near a point.

6. **Calendar Course Description:**

MATH 204-3 Multivariable Calculus II
This course focuses on vector calculus and power series. The course consists of two major parts. The first part addresses Green's theorem, Stokes's formula and the divergence theorem (Gauss's formula), including vector fields, line integrals, conservative vector fields, divergence and curl, parametric surfaces, and surface integrals of vector or scalar fields. Applications include computing the mass flow rate, the surface area of a parametric surface and the volume of a three-dimensional body via Stokes's or Gauss's formula. The other part of the course deals with power series, their convergence, and their use in approximating functions via Taylor's theorem.

Prerequisites: MATH 202-3
Precluded: MATH 200-3

7. Credit Hours: 3 credit hours (Normally, UNBC courses are 3 credit hours and may not be repeated for additional credit. If this course falls outside the norm, please complete sections "a)" and "b)" below).

a) Can the course be repeated for credit if the subject matter differs substantially?

No X

***** If "yes," please indicate the maximum number** of credit hours which may be applied to a student's degree using this course: _____

****** If the course may be taken more than once but will only ever be offered for 3 credit hours, for example, per offering, the credit hours are simply expressed as "3" and the following notation (with the correct number of credit hours noted) is included within the Calendar Course Description:
"This course may be repeated to a maximum of XX credit hours if the material is substantially different."

b) Is variable credit available for this course? No X

Variable credit is denoted by the following examples:

i) "3-6": in this example, the course may be offered for 3, 4, 5, OR 6 credit hours during a single offering. In this example, the course number would be expressed as CHEM 210-(3-6).

ii) "3,6": in this example, the course may be offered for EITHER 3 or 6 credit hours during a single offering. In this example, the course number would be expressed as CHEM 210-(3,6).

8. Contact Hours (per week):

Lecture	3	Seminar	0
Laboratory	0	Other (please specify)	

9. Prerequisites (taken prior):
MATH 202-3

10. Prerequisites with concurrency (taken prior or simultaneously):
None

11. Co-requisites (must be taken simultaneously):
None

12. Preclusions:
MATH 200-3

13. Course Equivalencies:
None

14. Grade Mode: NORMAL (i.e., alpha grade)

15. Course to be offered:

each semester	
each year	x
alternating years	

16. Proposed text / readings:

(a) *Calculus, Volume 3* (OpenStax. Digital: ISBN-10: 1-947172-16-6, ISBN-13: 978-1-947172-16-6)
URL: https://openstax.org/details/books/calculus-volume-3

and

Calculus, Volume 2 (OpenStax. Digital: ISBN-13: 978-1-947172-14-2)
URL: https://openstax.org/details/books/calculus-volume-2

(b) *CLP3: Multivariable Calculus*, (open text), available at the
URL: https://personal.math.ubc.ca/~CLP/CLP3/

B. Significance Within Academic Program

1. Anticipated enrolment 20

2. If there is a proposed enrolment limit, state the limit and explain: Not applicable

3. Required for: Major: Mathematics, Physics Minor: _____ Other: _____

4. Elective in: Major: _____ Minor: _____ Other: _____

5. Course required by another major/minor:

Any double major with Mathematics

6. Course required or recommended by an accrediting agency:

Not applicable

7. Toward what degrees will the course be accepted for credit?
BSc in Mathematics; BSc in Physics; any undergraduate degree that has Mathematics as a double major.

8. What other courses are being proposed within the Program this year?
Math 202

9. What courses are being deleted from the Program this year?
None

C. Relation to Other Program Areas

1. Identify courses in other UNBC Programs that overlap with this course; describe the overlap and comment on its significance:
The content of this course overlaps with a part of MATH 200. MATH 200 covers the material in the syllabus of this proposed new course. In fact, MATH 200 covers about twice the material in the proposed MATH 204, causing a high paced lecturing style. The main goal behind this proposal is to guarantee that the students get to retain the material they see in class and use it for their subsequent studies/courses. This is important as MATH 204's material is essential in various areas of science (see Section A, above).

2. Is a preclusion required? Yes X (MATH 200-3)

3. If there is an overlap, and no preclusion is required, please explain why not:

4. Has this overlap been discussed with the Program concerned? Yes X

5. In offering this course, will UNBC require facilities or staff at other institutions?

No X

If yes, please describe requirements:
Not applicable

6. **Is this course replacing an existing course that is included in one or more transfer agreements with external institutions?**

   No X

   If "yes," please contact the Articulation Officer in the Office of the Registrar.

D. Resources required

1. **Please describe ADDITIONAL resources required over the next five years to offer this course.**

   i. **Faculty Staffing:** no additional staffing required in present

   ii. **Space (classroom, laboratory, storage, etc.):** classroom with a board and video projector

   iii: **Library Holdings:** See attached form

   iv. **Computer (time, hardware, software):** Maple software, MATLAB

E. Additional Attached Materials

- MATH 204 Course Outline (3 pages)

F. Other Considerations

1. **First Nations Content*:** No X
   **** Whether a new course has First Nations content is to be determined by the relevant Faculty Council(s).***

   ****If "yes,"** refer the motion to the Senate Committee on First Nations and Aboriginal Peoples **prior to** SCAAF.

2. **Other Information:** none

3. **Attachment Pages (in addition to required "Library Holdings" Form):** 3 pages

G. Authorization (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Math

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:28

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

INFORMATION TO BE COMPLETED BY RECORDING SECRETARY AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 _____ _____

Date **Chair's Signature**

For recommendation to ___✓___, or information of _____ Senate.

Library Holdings Form
(to be submitted with SCAAF New Course Approval Motion Form)

PROPOSED NEW COURSE: MATH 204-3 Multivariable Calculus II

Library Holdings (to be completed by the appropriate Librarian):

a) Are current library holdings adequate? Yes X

b) If no to a), what monographs / periodicals / E-resources will be needed, and at what estimated cost?

None

c) If no to a), what is the proposed funding source?

Susie Wilson

September 15, 2022

University Librarian (or designate) signature **Date**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.09

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the changes to the course description and prerequisites for MATH 101-3, Calculus II, on page 271 of the 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: Sept 2023

2. Rationale for the proposed revisions: In this motion, we propose the following changes to the course description of MATH 101-3. We added to the course description the topic "calculus of parametric curves and polar curves with special emphasis on applications of integration in computing areas and arc lengths in polar coordinates" since it is always covered in this course. We also added "arc length and surface area" to the list of applications of integration covered in MATH 101. We removed from the course description the topics "first order linear differential equations, definition of partial derivatives" since they are not presently taught in MATH 101 (covered in MATH 230 and MATH 200/202, respectively). Finally, we removed MATH 105-3 from the prerequisites since this course no longer exists and has not been offered in the last 10 years.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

MATH 101-3 Calculus II This course provides a continuation of MATH 100-3. Areas of study include the definition of the natural logarithm as an integral and of the exponential function as its inverse, integration by parts, miscellaneous techniques of integration, improper integrals, volumes by slicing and by shell techniques, the trapezoidal rule and Simpson's rule, infinite sequences and series, Taylor series, masses, volumes, moments, centre of mass, first order linear differential equations, definition of partial derivatives. All sections of this course are taught using Maple software.
Prerequisites: MATH 100-3 or MATH 105-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

~~**MATH 101-3 Calculus II** This course provides a continuation of MATH 100-3. Areas of study include the definition of the natural logarithm as an integral and of the exponential function as its inverse, integration by parts, miscellaneous techniques of integration, improper integrals, volumes by slicing and by shell techniques, the trapezoidal rule and Simpson's rule, infinite sequences and series, Taylor series, masses, volumes, moments, centre of mass, first order linear differential equations, definition of partial derivatives. All sections of this course are taught using Maple software.~~
~~Prerequisites: MATH 100-3 or MATH 105-3~~

MATH 101-3 Calculus II This course focuses on integral calculus for a single variable. The course covers the definition of the natural logarithm as an integral and the exponential function as its inverse, integration by parts, techniques of integration, volumes by slicing and shell techniques, improper integrals, numerical integration, and applications of integration (e.g., computing arc lengths, surface areas, moments and centres of mass), calculus of parametric curves and polar curves with special emphasis on applications of integration

in computing areas and arc lengths in polar coordinates. It also covers sequences, numerical series, power series, and Taylor's theorem.
Prerequisites: MATH 100-3

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Department of Mathematics and Statistics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:03

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓ **, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.10

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the Joint Major in Mathematics and Physics Program Requirements on pages 149 and 150 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. **Effective date:** September 2023

2. **Rationale for the proposed revisions:** The changes in degree requirements for the Joint Major in Mathematics and Physics are primarily meant to accommodate upcoming changes to both the Major in Physics and Major in Mathematics degrees submitted in separate motions.

3. **Implications of the changes for other programs, etc., if applicable:** None

4. **Reproduction of current Calendar entry for the item to be revised:**

Joint Major in Mathematics and Physics (BSc)

The minimum requirement for completion of a Bachelor of Science with a Joint Major in Mathematics and Physics is 125 credit hours.

MATH 150-3 (Finite Mathematics for Business and Economics) may not be used for credit towards any Mathematics major or joint major.

Program Requirements

Lower-Division Requirement

CPSC 100-4 Computer Programming I
MATH 100-3 Calculus I
MATH 101-3 Calculus II
MATH 200-3 Calculus III
MATH 201-3 Introduction to Complex Analysis
MATH 220-3 Linear Algebra
MATH 230-3 Linear Differential Equations and Boundary Value Problems
PHYS 110-4 Introductory Physics I: Mechanics
PHYS 111-4 Introductory Physics II: Waves and Electricity
PHYS 200-3 Thermal Physics
PHYS 202-4 Electromagnetism and Optics
PHYS 205-3 Modern Physics I
PHYS 206-3 Modern Physics II

Upper-Division Requirement

MATH 320-3 Survey of Algebra
MATH 326-3 Advanced Linear Algebra
MATH 335-3 Introduction to Numerical Methods
MATH 336-3 Intermediate Differential Equations
STAT 371-3 Probability and Statistics for Scientists and Engineers
PHYS 300-3 Classical Mechanics
PHYS 302-3 Quantum Mechanics I
PHYS 310-3 Classical Electromagnetism I
PHYS 400-3 Quantum Mechanics II
PHYS 407-3 Statistical Mechanics

Subject Upper-Division Requirements: 9 additional upper-division credit hours are required from MATH or STAT courses, of which at least 6 must be at the 400 level. An additional 6 credit hours of the 300- or 400-level PHYS courses are required. Of these combined Subject Upper-Division Requirements, at least 9 credit hours must be at the 400 level.

Elective and Academic Breadth

Elective credit hours as necessary to ensure completion of a minimum of 125 credit hours including any additional credits necessary to meet the Academic Breadth requirement of the University (see Academic Regulation 15).

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

The minimum requirement for completion of a Bachelor of Science with a Joint Major in Mathematics and Physics is 125 credit hours.

MATH 150-3 (Finite Mathematics for Business and Economics) may not be used for credit towards any Mathematics major or joint major.

Program Requirements

Lower-Division Requirement

CPSC 100-4 Computer Programming I
MATH 100-3 Calculus I
MATH 101-3 Calculus II
~~MATH 200-3 Calculus III~~
~~MATH 201-3 Introduction to Complex Analysis~~
MATH 202-3 Multivariable Calculus I
MATH 204-3 Multivariable Calculus II
MATH 220-3 Linear Algebra
MATH 230-3 Linear Differential Equations and Boundary Value Problems
PHYS 110-4 Introductory Physics I: Mechanics
PHYS 111-4 Introductory Physics II: Waves and Electricity
PHYS 200-3 Thermal Physics
PHYS 202-4 Electromagnetism and Optics
PHYS 205-3 Modern Physics I
PHYS 206-3 Modern Physics II

Upper-Division Requirement

MATH 301-3 Introduction to Complex Analysis
MATH 320-3 Survey of Algebra
MATH 326-3 Advanced Linear Algebra
MATH 335-3 Introduction to Numerical Methods
MATH 336-3 Intermediate Differential Equations
~~STAT 371-3 Probability and Statistics for Scientists and Engineers~~
PHYS 300-3 Classical Mechanics
PHYS 302-3 Quantum Mechanics I
PHYS 310-3 Classical Electromagnetism I
PHYS 400-3 Quantum Mechanics II
PHYS 407-3 Statistical Mechanics
PHYS 410-3 Classical Electromagnetism II
STAT 371-3 Probability and Statistics for Scientists and Engineers

Subject Upper-Division Requirements: 9 additional upper-division credit hours are required from MATH or STAT courses, of which at least 6 must be at the 400 level. ~~An additional 6 credit hours of the 300- or 400-level PHYS courses are required. Of these combined Subject Upper-Division Requirements, at least 9 credit hours must be at the 400 level.~~ An additional 6 upper-division credit hours of PHYS courses are required, of which at least 3 credit hours must be at the 400 level.

Elective and Academic Breadth

Elective credit hours must be taken as necessary to ensure completion of a minimum of 125 credit hours including any additional credits necessary to meet the Academic Breadth requirement of the University (see Academic Regulation 15).

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Math

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:29

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: 0 pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022

Date **Chair's Signature**

For recommendation to ✓ **, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.11

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the changes to the course title, course description, and course prerequisites for MATH 201-3, Introduction to Complex Analysis, on page 272 of the 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions:

This motion proposes a change in the course number of MATH 201-3 to MATH 301-3 along with minor changes in the course description to better reflect the content of the course as taught. The new numbering is in-line with other BC universities where the equivalent course is offered as an upper division course (see MATH 300 at UBC, MATH 322 at SFU and MATH 301 at UVic). We also include the newly proposed course, MATH 202-3, as an alternative prerequisite, and we indicate the preclusion of MATH 201-3.

3. Implications of the changes for other programs, etc., if applicable:

MATH 201-3 is required from students enrolled in the Mathematics, Physics, Joint Chemistry-Mathematics, Joint Computer Science-Mathematics, Joint Economics-Mathematics and Joint Mathematics-Physics programs. After consultation with the respective academic units, we found that the students will not be affected by the proposed changes.

4. Reproduction of current Calendar entry for the item to be revised:

MATH 201-3 Introduction to Complex Analysis Complex numbers and topology of the complex plane, theory of analytic functions, precise definition of limit and continuity, harmonic functions, contour integration, Cauchy's integral theorem and integral formula, series representation for analytic functions, residue theory, the fundamental theorem of algebra.
Prerequisites: MATH 200-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

MATH ~~201~~ 301-3 Introduction to Complex Analysis This course is an introduction to complex analysis. Topics include complex numbers and topology of the complex plane, theory of analytic functions, precise definition of limit and continuity, harmonic functions, contour integration, Cauchy's integral theorem and integral formula, bounds for analytic functions and applications, Taylor and Laurent expansions of ~~series representation for~~ analytic functions, zeros and singularities of analytic functions, and residue theory. ~~the fundamental theorem of algebra.~~
Prerequisites: MATH 200-3 or MATH 202-3
Precluded: MATH 201-3

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Math

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:26

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓**, or information of _____ Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.12

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the changes to the Joint Major in Mathematics and Chemistry Program Requirements on pages 149 and 150 of the PDF 2022/23 undergraduate calendar be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: The changes in degree requirements for the Joint Major in Mathematics and Physics are primarily meant to accommodate upcoming changes to both the Major in Physics and Major in Mathematics degrees submitted in separate motions.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

Joint Major in Chemistry and Mathematics (BSc)

The minimum requirement for completion of a Bachelor of Science with a Joint Major in Chemistry and Mathematics is 125 credit hours. MATH 342-3 (Biostatistics) may not be used for credit towards any Mathematics major, minor, or joint major. MATH 150-3 (Finite Mathematics for Business and Economics) may not be used for credit towards any Mathematics major or joint major.

Program Requirements

Lower-Division Requirement

CHEM 100-3 General Chemistry I
CHEM 101-3 General Chemistry II
CHEM 120-1 General Chemistry Lab I
CHEM 121-1 General Chemistry Lab II
CHEM 200-3 Physical Chemistry I
CHEM 201-3 Organic Chemistry I
CHEM 202-3 Inorganic Chemistry I
CHEM 203-3 Organic Chemistry II
CHEM 210-3 Analytical Chemistry I
CPSC 100-4 Computer Programming I
MATH 100-3 Calculus I
MATH 101-3 Calculus II
MATH 201-3 Calculus III
MATH 201-3 Introduction to Complex Analysis
MATH 220-3 Linear Algebra
MATH 230-3 Linear Differential Equations and Boundary Value Problems
PHYS 110-4 Introductory Physics I: Mechanics
PHYS 111-4 Introductory Physics II: Waves and Electricity

Upper-Division Requirement

Chemistry

CHEM 300-3 Physical Chemistry II
or CHEM 305-3 Physical Chemistry III
CHEM 310-3 Analytical Chemistry II
CHEM 320-3 Inorganic Chemistry II
or CHEM 321-3 Inorganic Chemistry III

Nine credit hours of 300- or 400-level Chemistry*
Six credit hours of 400 level Chemistry*

*Up to 6 credit hours from BCMB 306-3, BCMB 308-3, BCMB 330-3, BCMB 340-3, BCMB 401-3, BCMB 402-3, BCMB 403-2, or BCMB 405-3 may be used to satisfy these requirements.

Mathematics

MATH 320-3 Survey of Algebra
MATH 326-3 Advanced Linear Algebra
MATH 335-3 Introduction to Numerical Methods
STAT 371-3 Probability and Statistics for Scientists and Engineers

Six credit hours of 300- or 400-level Mathematics*;
and Six credit hours of 400-level Mathematics

*Between the two disciplines, a minimum of 15 credit hours at the 400 level must be completed.

Elective and Academic Breadth

Elective credit hours as necessary to ensure completion of a minimum of 125 credit hours including any additional credits necessary to meet the Academic Breadth requirement of the University (see Academic Regulation 15).

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

Joint Major in Chemistry and Mathematics (BSc)

The minimum requirement for completion of a Bachelor of Science with a Joint Major in Chemistry and Mathematics is 125 credit hours. MATH 342-3 (Biostatistics) may not be used for credit towards any Mathematics major, minor, or joint major. MATH 150-3 (Finite Mathematics for Business and Economics) may not be used for credit towards any Mathematics major or joint major.

Program Requirements

Lower-Division Requirement

CHEM 100-3 General Chemistry I
CHEM 101-3 General Chemistry II
CHEM 120-1 General Chemistry Lab I
CHEM 121-1 General Chemistry Lab II
CHEM 200-3 Physical Chemistry I
CHEM 201-3 Organic Chemistry I
CHEM 202-3 Inorganic Chemistry I
CHEM 203-3 Organic Chemistry II
CHEM 210-3 Analytical Chemistry I

CPSC 100-4 Computer Programming I
MATH 100-3 Calculus I
MATH 101-3 Calculus II
~~MATH 201-3 Calculus III~~
MATH 202-3 Multivariable Calculus I
MATH 204-3 Multivariable Calculus II
~~MATH 201-3 Introduction to Complex Analysis~~
MATH 220-3 Linear Algebra
MATH 230-3 Linear Differential Equations and Boundary Value Problems
PHYS 110-4 Introductory Physics I: Mechanics
PHYS 111-4 Introductory Physics II: Waves and Electricity

Upper-Division Requirement

Chemistry

CHEM 300-3 Physical Chemistry II
or CHEM 305-3 Physical Chemistry III
CHEM 310-3 Analytical Chemistry II
CHEM 320-3 Inorganic Chemistry II
or CHEM 321-3 Inorganic Chemistry III

Nine credit hours of 300- or 400-level Chemistry*
Six credit hours of 400-level Chemistry*

*Up to 6 credit hours from BCMB 306-3, BCMB 308-3, BCMB 330-3, BCMB 340-3, BCMB 401-3, BCMB 402-3, BCMB 403-2, or BCMB 405-3 may be used to satisfy these requirements.

Mathematics

MATH 301-3 Introduction to Complex Analysis
MATH 320-3 Survey of Algebra
MATH 326-3 Advanced Linear Algebra
MATH 335-3 Introduction to Numerical Methods
STAT 371-3 Probability and Statistics for Scientists and Engineers

Six credit hours of 300- or 400-level Mathematics*;
and Six credit hours of 400-level Mathematics

*Between the two disciplines, a minimum of 15 credit hours at the 400 level must be completed.

Elective and Academic Breadth

Elective credit hours must be taken as necessary to ensure completion of a minimum of 125 credit hours including any additional credits necessary to meet the Academic Breadth requirement of the University (see Academic Regulation 15).

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Dept.'s of Chemistry & Biochemistry and Mathematics & Statistics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:30

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓**, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.13

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the changes to the program requirements for the B.Sc. Mathematics and Statistics on page 158 and 159 of the 2022/2023 undergraduate calendar be approved as proposed.

1. **Effective date:** September 2023

2. **Rationale for the proposed revisions:** These changes are a result of the introduction of two new second year courses in Mathematics and the renumbering of one course.

3. **Implications of the changes for other programs, etc., if applicable:** None.

4. **Reproduction of current Calendar entry for the item to be revised:**

Program Requirements

Note: Unless otherwise stated, students enrolling in any MATH or STAT courses with prerequisites are required to have completed all prerequisite courses for that course with a C- (60%) or better, or have permission to enroll from the Department Chair. If the prerequisite course is a BC high school course, the minimum required grade is a C (60%).

Literacy Requirement

One of the following:

ENGL 170-3 Writing and Communication Skills
ENGL 270-3 Expository Writing

Lower-Division Requirement

100 Level

CPSC 100-4 Computer Programming I
CPSC 141-3 Discrete Computational Mathematics
MATH 100-3 Calculus I
MATH 101-3 Calculus II

200 Level

MATH 200-3 Calculus III
MATH 201-3 Introduction to Complex Analysis
MATH 220-3 Linear Algebra
MATH 224-3 Foundations of Modern Mathematics
MATH 230-3 Linear Differential Equations and Boundary Value Problems

Recommended

CPSC 101-4 Computer Programming II
CPSC 242-3 Mathematical Topics for Computer Science

General Requirement

Two of the following:

BIOL 103-3 Introductory Biology I
and BIOL 123-1 Introductory Biology I Laboratory
BIOL 104-3 Introductory Biology II
and BIOL 124-1 Introductory Biology II Laboratory
CHEM 100-3 General Chemistry I
and CHEM 120-1 General Chemistry Lab I
CHEM 101-3 General Chemistry II
and CHEM 121-1 General Chemistry Lab II
PHYS 100-4 Introduction to Physics I
or PHYS 110-4* Introductory Physics I
PHYS 111-4* Introductory Physics II: Waves and Electricity

***Note:** PHYS 110-4 (Introductory Physics I: Mechanics) and PHYS 111-4 (Introductory Physics II: Waves and Electricity) are strongly recommended for all majors.

Upper-Division Requirement

300 Level

MATH 302-3 Introductory Mathematical Analysis
MATH 320-3 Survey of Algebra
MATH 336-3 Intermediate Differential Equations
or MATH 335-3 Introduction to Numerical Methods
STAT 371-3 Probability and Statistics for Scientists and Engineers
STAT 372-3 Mathematical Statistics

300 or 400 Level
MATH 326-3 Advanced Linear Algebra
or MATH 405-3 Topology

400 Level

Twelve additional credit hours in Mathematics or Statistics at the 400 level.

Elective and Academic Breadth

Elective credit hours as necessary to ensure completion of a minimum of 120 credit hours including any additional credits necessary to meet the Academic Breadth requirement of the University (see Academic Regulation 15)

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

Program Requirements

Note: Unless otherwise stated, students enrolling in any MATH or STAT courses with prerequisites are required to have completed all prerequisite courses for that course with a C- (60%) or better, or have permission to enroll from the Department Chair. If the prerequisite course is a BC high school course, the minimum required grade is a C (60%).

Literacy Requirement

One of the following:
ENGL 170-3 Writing and Communication Skills
ENGL 270-3 Expository Writing

Lower-Division Requirement

100 Level

CPSC 100-4 Computer Programming I
CPSC 141-3 Discrete Computational Mathematics
MATH 100-3 Calculus I
MATH 101-3 Calculus II

200 Level

~~MATH 200-3 Calculus III~~
~~MATH 201-3 Introduction to Complex Analysis~~
MATH 202-3 Multivariable Calculus I
MATH 204-3 Multivariable Calculus II
MATH 220-3 Linear Algebra
MATH 224-3 Foundations of Modern Mathematics
MATH 230-3 Linear Differential Equations and Boundary Value Problems

Recommended

CPSC 101-4 Computer Programming II
CPSC 242-3 Mathematical Topics for Computer Science

General Requirement

Two of the following:
BIOL 103-3 Introductory Biology I
and BIOL 123-1 Introductory Biology I Laboratory
BIOL 104-3 Introductory Biology II
and BIOL 124-1 Introductory Biology II Laboratory
CHEM 100-3 General Chemistry I
and CHEM 120-1 General Chemistry Lab I
CHEM 101-3 General Chemistry II
and CHEM 121-1 General Chemistry Lab II
PHYS 100-4 ~~Introduction to Physics~~ Physics for Life Sciences I
or PHYS 110-4* Introductory Physics I: Mechanics
PHYS 111-4* Introductory Physics II: Waves and Electricity

***Note:** PHYS 110-4 (Introductory Physics I: Mechanics) and PHYS 111-4 (Introductory Physics II: Waves and Electricity) are strongly recommended for all majors.

Upper-Division Requirement

300 Level

MATH 301-3 Introduction to Complex Analysis
MATH 302-3 Introductory Mathematical Analysis
MATH 320-3 Survey of Algebra
MATH 336-3 Intermediate Differential Equations
or MATH 335-3 Introduction to Numerical Methods
STAT 371-3 Probability and Statistics for Scientists and Engineers

STAT 372-3 Mathematical Statistics

300 or 400 Level
MATH 326-3 Advanced Linear Algebra
or MATH 405-3 Topology

400 Level

Twelve additional credit hours in Mathematics or Statistics at the 400 level.

Elective and Academic Breadth

Elective credit hours must be taken as necessary to ensure completion of a minimum of 120 credit hours including any additional credits necessary to meet the Academic Breadth requirement of the University (see Academic Regulation 15).

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Department of Mathematics and Statistics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:31

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓**, or information of _____ Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.14

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the Major in Physics Program Requirements on page180 of the PDF 2022/23 undergraduate calendar be approved as proposed.

1. **Effective date:** September 2023

2. **Rationale for the proposed revisions:** The changes to the degree requirements are primarily meant to address the most recent recommendations by the Physics External Review and consist of adding existing courses in experimental and theoretical physics to the list of required courses at the upper level. The changes are also meant to accommodate upcoming changes affecting a number of MATH courses required for the Physics degree.

3. **Implications of the changes for other programs, etc., if applicable:** None

4. **Reproduction of current Calendar entry for the item to be revised:**

Major in Physics

A major in Physics requires students to complete 49 credit hours of Physics; 27 credit hours of these must be at the upper-division level.

The minimum requirement for completion of a Bachelor of Science degree with a major in Physics is 120 credit hours.

Program Requirements

Lower-Division Requirement

100 Level

CHEM 100-3 General Chemistry I
MATH 100-3 Calculus I
MATH 101-3 Calculus II
PHYS 110-4 Introductory Physics I: Mechanics
PHYS 111-4 Introductory Physics II: Waves and Electricity
CPSC 100-4 Computer Programming I
or CPSC 110-3 Introduction to Computer Systems and Programming

200 Level

MATH 200-3 Calculus III
MATH 201-3 Introduction to Complex Analysis
MATH 220-3 Linear Algebra
MATH 230-3 Linear Differential Equations and Boundary Value Problems
PHYS 200-3 Thermal Physics
PHYS 202-4 Electromagnetism and Optics
PHYS 205-3 Modern Physics I

Four additional credit hours at the 200 level.

Upper-Division Requirement

300 Level
MATH 336-3 Intermediate Differential Equations
PHYS 300-3 Classical Mechanics
PHYS 302-3 Quantum Mechanics I
PHYS 310-3 Classic Electromagnetism I

400 Level
PHYS 400-3 Quantum Mechanics II
PHYS 401-3 Seminar on Contemporary Topics in Physics
PHYS 407-3 Statistical Mechanics

Nine additional credit hours of Physics at the 300 or 400 level.

Elective and Academic Breadth
Elective credit hours as necessary to ensure completion of a minimum of 120 credit hours including any additional credits necessary to meet the Academic Breadth requirement of the University (see Academic
Regulation 15).

Recommended electives include:
CPSC 101-4 Computer Programming II
CHEM 101-3 General Chemistry II
CHEM 200-3 Physical Chemistry I
MATH 335-3 Introduction to Numerical Methods
STAT 371-3 Probability and Statistics for Scientists and Engineers

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

Major in Physics
A major in Physics requires students to complete ~~49~~ 58 credit hours of Physics; ~~27~~ 36 credit hours of these must be at the upper-division level.

The minimum requirement for completion of a Bachelor of Science degree with a major in Physics is 120 credit hours.

Program Requirements

Lower-Division Requirement

100 Level
CHEM 100-3 General Chemistry I
MATH 100-3 Calculus I
MATH 101-3 Calculus II
PHYS 110-4 Introductory Physics I: Mechanics
PHYS 111-4 Introductory Physics II: Waves and Electricity
CPSC 100-4 Computer Programming I
or CPSC 110-3 Introduction to Computer Systems and Programming

200 Level

~~MATH 202-3 Calculus III~~
~~MATH 201-3 Introduction to Complex Analysis~~
MATH 202-3 Multivariable Calculus I
MATH 204-3 Multivariable Calculus II
MATH 220-3 Linear Algebra
MATH 230-3 Linear Differential Equations and Boundary Value Problems
PHYS 200-3 Thermal Physics
PHYS 202-4 Electromagnetism and Optics
PHYS 205-3 Modern Physics I
PHYS 206-4 Modern Physics II

~~Four additional credit hours at the 200 level.~~

Upper-Division Requirement

300 Level
MATH 301-3 Introduction to Complex Analysis
MATH 336-3 Intermediate Differential Equations
PHYS 300-3 Classical Mechanics
PHYS 302-3 Quantum Mechanics I
PHYS 310-3 Classic Electromagnetism I
PHYS 390-3 Advanced Physics Laboratory

400 Level
PHYS 400-3 Quantum Mechanics II
PHYS 401-3 Seminar on Contemporary Topics in Physics
PHYS 404-3 Solid State Physics
PHYS 407-3 Statistical Mechanics
PHYS 410-3 Classic Electromagnetism II

Nine additional credit hours of Physics at the 300 or 400 level~~.~~

Elective and Academic Breadth

Elective credit hours must be taken as necessary to ensure completion of a minimum of 120 credit hours including any additional credits necessary to meet the Academic Breadth requirement of the University (see Academic Regulation 15).

Recommended electives include:

~~CPSC 101-4 Computer Programming II~~
CHEM 101-3 General Chemistry II
CHEM 200-3 Physical Chemistry I
CPSC 101-4 Computer Programming II
MATH 335-3 Introduction to Numerical Methods
STAT 371-3 Probability and Statistics for Scientists and Engineers

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:36

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.15

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 111-4, Introductory Physics II: Waves and Electricity on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 111-4 Introductory Physics II: Waves and Electricity

Second part of the calculus-based introductory physics course for majors in physical and mathematical sciences, including oscillatory motion, wave motion, sound waves, superposition and standing waves, electric field, Gauss's law, electric potential, capacitance and dielectrics, current and resistance, DC circuits, magnetic fields, sources of magnetic fields.

Prerequisites: PHYS 110-4; or PHYS 100-4 with a grade of B or better
Co-requisites: MATH 101-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 111-4 Introductory Physics II: Waves and Electricity

This course is the s~~S~~econd part of the calculus-based ~~introductory~~ physics sequence~~course~~ for majors in physical and mathematical sciences. Topics include universal gravitation, elements of thermodynamics, fluid dynamics, ~~including~~ oscillatory motion, wave motion, sound waves, superposition and standing waves, electric field, Gauss's law, electric potential, and capacitance and dielectrics~~, current and resistance, DC circuits, magnetic fields, sources of magnetic fields~~.

Prerequisites: PHYS 110-4; or PHYS 100-4 with a grade of B or better
Co-requisites: MATH 101-3

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:35

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.16

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 110-4, Introductory Physics I: Mechanics on page 288 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 110-4 Introductory Physics I: Mechanics

This is the first part of the calculus-based introductory physics course for majors in physical and mathematical sciences. Topics include vectors, measurement, motion in one and two dimensions, the laws of motion, application of Newton's laws, work and energy, potential energy, conservation of energy, linear momentum and collisions, rotation of rigid bodies, rolling motion, angular momentum, static equilibrium, elasticity, law of universal gravitation, and elements of thermodynamics.

Prerequisites: Physics 12 or PHYS 115-4, and Principles of Math 12 or Pre-calculus 12 or MATH 115-3
Co-requisites: MATH 100-3 or MATH 105-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 110-4 Introductory Physics I: Mechanics

This course is the first part of the calculus-based ~~introductory~~ physics sequence ~~course~~ for majors in physical and mathematical sciences. Topics include vectors, measurement, motion in one and two dimensions, the laws of motion, application of Newton's laws, work and energy, potential energy, conservation of energy, linear momentum and collisions, rotation of rigid bodies, rolling motion, angular momentum, static equilibrium, and elasticity~~, law of universal gravitation, and elements of thermodynamics~~.

Prerequisites: Physics 12 or PHYS 115-4, and Principles of Math 12 or Pre-calculus 12 or MATH 115-3
Co-requisites: MATH 100-3 or MATH 105-3

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:34

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓**, or information of _____ Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.17

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the title and course description for PHYS 101-4, Introduction to Physics II on page 288 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 101-4 Introduction to Physics II

Second part of an algebra-based introductory physics course for majors in life sciences. Covers: electric charge, electric field, electric potential, DC circuits, magnetic field, sources of magnetic fields, magnetic induction, electromagnetic waves, geometrical optics, elements of modern physics.

Prerequisites: PHYS 100-4 or PHYS 110-4

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 101-4 ~~Introduction to Physics II~~ Physics for Life Sciences II

This course is the s~~S~~econd part of an algebra-based introductory physics course sequence for majors in life and environmental sciences. Topics include oscillations and waves, sound, electric forces and fields, electrical energy and capacitance, current and resistance, direct-current circuits, magnetism, electromagnetic induction, reflection and refraction of light, mirrors and lenses, and~~Covers: electric charge, electric field, electric potential, DC circuits, magnetic field, sources of magnetic fields, magnetic induction, electromagnetic waves, geometrical optics,~~ elements of modern physics.

Prerequisites: PHYS 100-4 or PHYS 110-4

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:33

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.18

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the title, course description and course prerequisite for PHYS 100-4, Introduction to Physics I on page 288 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 100-4 Introduction to Physics I

This course is the first part of an algebra-based introductory physics course sequence for majors in life and environmental sciences. Topics include physics and measurement, the laws of motion, applications of Newton's second law, work and energy, linear momentum and collisions, static equilibrium, elasticity, law of universal gravitation, laws of thermodynamics, fluid mechanics, and sound waves.

Prerequisites: Physics 11 or PHYS 115-4

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 100-4 ~~Introduction to Physics I~~ Physics for Life Sciences I

This course is the first part of an algebra-based introductory physics course sequence for majors in life and environmental sciences. Topics include physics and measurement, motion in one and two dimensions, ~~the laws of motion~~, ~~applications of~~ Newton's ~~second~~ laws of motion,~~ work and~~ energy, linear momentum and collisions, rotational motion and gravitation, rotational equilibrium and dynamics, fluids and solids, and elements of thermal physics~~static equilibrium, elasticity, law of universal gravitation, laws of thermodynamics, fluid mechanics, and sound waves~~.

Prerequisites: Physics 11 or Physics 12 or PHYS 115-4

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:32

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.19

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 499-3, Advanced Topics in Physics on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 499-3 Advanced Topics in Physics

Topics include a selection of topics from contemporary Physics. This course may be taken more than once for credit provided that different topics are covered.

Prerequisites: Permission of the instructor

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 499-3 Advanced Topics in Physics

This course examines advanced ~~Topics include a selection of~~ topics ~~from~~ in contemporary p~~P~~hysics. Topics depend on instructor and student interest and normally focus on material not dealt with in other courses. This course may be repeated to a maximum of 6 credit hours if the material is substantially different ~~taken more than once for credit provided that different topics are covered~~.

Prerequisites: Permission of the instructor

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:24

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022

Date **Chair's Signature**

For recommendation to ✓**, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.20

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 410-3, Classical Electromagnetism II on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 410-3 Classical Electromagnetism II

Second part of a two-semester course in electrodynamics: Faraday's induction law; inductance; Maxwell's equations; generation and propagation of electromagnetic waves; plane waves; spherical waves; reflection and refraction; wave guides; electric dipole radiation; magnetic dipole radiation; antennas.

Prerequisites: PHYS 310-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 410-3 Classical Electromagnetism II

This is the s~~S~~econd part of a two-semester course in classical electromagnetism. Topics include conservation laws in electrodynamics~~:~~, electromagnetic wave equation, electromagnetic waves and their properties, wave polarization, electromagnetic waves in linear media and in conductors, wave guides, transmission lines, resonant cavities, electromagnetic potentials, ~~Faraday's induction law; inductance; Maxwell's equations; generation and propagation of electromagnetic waves; plane waves; spherical waves; reflection and refraction; wave guides;~~ electric dipole radiation~~;~~, magnetic dipole radiation, multipole radiation, radiation by a single charge,~~;~~ antennas, relativity, relativistic electrodynamics, four vectors, and relativistic formulation of Maxwell's equations.

Prerequisites: PHYS 310-3

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:23

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.21

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 400-3, Quantum Mechanics II on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 400-3 Quantum Mechanics II

Continuation of Quantum Mechanics I. Covers: matrix formulation, perturbation theory, approximation methods, scattering theory, many-particle problems, identical particles, spin and statistics, atomic and molecular systems.

Prerequisites: PHYS 302-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 400-3 Quantum Mechanics II

This course is the second part of a two-semester course on quantum mechanics. In this second course, the following topics are covered: identical particles, Lagrangian and Hamiltonian formalisms, Lorentz force in quantum mechanics, symmetries, time-independent perturbation theory, variational methods, time-dependent perturbation theory, scattering processes, and quantum entanglement. ~~Continuation of Quantum Mechanics I. Covers: matrix formulation, perturbation theory, approximation methods, scattering theory, many-particle problems, identical particles, spin and statistics, atomic and molecular systems.~~

Prerequisites: PHYS 302-3

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:22

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.22

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 390-3, Advanced Physics Laboratory on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. **Effective date:** September 2023

2. **Rationale for the proposed revisions:** Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. **Implications of the changes for other programs, etc., if applicable:** None

4. **Reproduction of current Calendar entry for the item to be revised:**

PHYS 390-3 Advanced Physics Laboratory

Advanced laboratory experiments in mechanics, thermodynamics, electromagnetism, solid state physics, and atomic and nuclear physics.

Prerequisites: PHYS 202-4 and PHYS 206-4

5. **Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":**

PHYS 390-3 Advanced Physics Laboratory

This is a course in a~~A~~dvanced laboratory methods involving experiments in a range of foundational areas of physics. Topics covered vary but include ~~mechanics, thermodynamics,~~ electromagnetism, solid state physics, optics and photonics, and atomic and nuclear physics.

Prerequisites: PHYS 202-4 and PHYS 206-4

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:21

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓**, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.23

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 206-4, Modern Physics II on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 206-4 Modern Physics II

This is the second part of a two-semester course in modern physics providing an introduction to the theories of quantum mechanics and relativity and their applications. Topics include Lorentz transformations, relativistic kinematics, relativistic dynamics, statistical physics, the solid state of matter, structure of crystals, semiconductors and superconductors, nuclear structure, radioactivity, nuclear reactions, applications of nuclear physics, elementary particles, and elements of cosmology.

Prerequisites: PHYS 205-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 206-4 Modern Physics II

This is the second part of a two-semester course in modern physics ~~providing an introduction to~~ introducing the theories of quantum mechanics and relativity and their applications. Topics include quantum mechanics in three dimensions, atomic structure and spectroscopy, ~~Lorentz transformations, relativistic kinematics, relativistic dynamics,~~ statistical physics and quantum statistics, molecular structure and spectroscopy, the solid state of matter, structure of crystals, semiconductors and superconductors, properties and ~~nuclear~~ structure of nuclei, radioactivity, nuclear reactions, applications of nuclear physics, and elementary particles~~, and elements of cosmology~~.

Prerequisites: PHYS 205-3

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**
Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:20

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.24

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 205-3, Modern Physics I on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 205-3 Modern Physics I

This is the first part of a two-semester course in modern physics providing an introduction to the theories of quantum mechanics and their applications. Topics include foundations of quantum theory, the quantum theory of light, the particle and wave nature of matter, the Schrodinger equation in one and three dimensions, tunneling phenomena, atomic structure and spectroscopy, and molecules and molecular spectroscopy.

Prerequisites: PHYS 111-4

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 205-3 Modern Physics I

This is the first part of a two-semester course in modern physics ~~providing an introduction to~~ introducing the theories of relativity and quantum mechanics and their applications. Topics include Lorentz transformations, relativistic kinematics, relativistic dynamics, foundations of quantum theory, ~~the~~ quantum theory of light, ~~the~~ particle and wave nature of matter, wave function and the uncertainty principle, the Schrodinger equation in one ~~and three~~ dimension~~s~~, and tunneling phenomena~~, atomic structure and spectroscopy, and molecules and molecular spectroscopy~~.

Prerequisites: PHYS 111-4

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:19

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.25

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 409-3, Mathematical Methods in Physics on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 409-3 Mathematical Methods in Physics

This course surveys the methods and techniques involved in the formulation and solutions of physics problems. Topics include matrix algebra and group theory, eigenvalue problems, differential equations, functions of a complex variable, Green's functions, special functions, Fourier series, integral equations, calculus of variations, and tensor analysis.

Prerequisites: Permission of the instructor
Precluded: MATH 409-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 409-3 Mathematical Methods in Physics

This course surveys the methods and techniques involved in the mathematical description of physical systems. ~~formulation and solutions of physics problems.~~ Topics include matrix algebra and group theory, eigenvalue problems, differential equations, functions of a complex variable, Green's functions, ~~special functions,~~ Fourier series, integral equations, calculus of variations, and tensor analysis.

Prerequisites: Permission of the instructor
Precluded: MATH 409-3

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)
Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:18

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.26

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 406-3, Subatomic Physics on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 406-3 Subatomic Physics

This course covers properties and structure of subatomic particles, symmetries and conservation laws, electromagnetic, weak, and hadronic interactions, beta decay, alpha decay, gamma decay, models of nuclear structure, nuclear reactions, fission, fusion, quarks and hadron spectroscopy.

Prerequisites: PHYS 206-4

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 406-3 Subatomic Physics

This course is an introduction to the fields of nuclear and particle physics. Topics include ~~covers~~ properties and structure of nuclei, the shell model, radioactivity, nuclear reactions, fission and fusion, elementary particles and fundamental interactions, fermions, bosons, Feynman diagrams, quantum electrodynamics and the electromagnetic force, quarks and hadron spectroscopy, meson exchange potentials, color charge and quantum chromodynamics, the weak gauge bosons and the electroweak force, symmetries and conservation laws, and the standard model. ~~subatomic particles, symmetries and conservation laws, electromagnetic, weak, and hadronic interactions, beta decay, alpha decay, gamma decay, models of nuclear structure, nuclear reactions, fission, fusion, quarks and hadron spectroscopy.~~

Prerequisites: PHYS 206-4

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:17

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓**, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.27

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 402-(1-6), Physics Research Project on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 402-(1-6) Physics Research Project

This is an experimental or theoretical research project conducted by the student under the supervision of a faculty member. This course may be repeated to a maximum of 6 credit hours.

Prerequisites: Upper-division standing in a Physics Degree and permission of the instructor

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 402-(1-6) Physics Research Project

This course requires students to conduct a project under the supervision of a faculty member. Students are normally required to submit a written report on the outcome of the project and deliver a presentation to the department. Project topics are usually chosen in an area of theoretical or experimental physics that matches the area of expertise of the faculty member supervising the student. ~~This is an experimental or theoretical research project conducted by the student under the supervision of a faculty member.~~ This course may be repeated to a maximum of 6 credit hours.

Prerequisites: Upper-division standing in a Physics d~~De~~gree and permission of the instructor

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:16

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓**, or information of _____ Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.28

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 401-3, Seminar on Contemporary Topics in Physics on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. **Effective date:** September 2023

2. **Rationale for the proposed revisions:** Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. **Implications of the changes for other programs, etc., if applicable:** None

4. **Reproduction of current Calendar entry for the item to be revised:**

PHYS 401-3 Seminar on Contemporary Topics in Physics

Special topics from current areas of research in basic and applied physics.

Prerequisites: Permission of the instructor

5. **Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":**

PHYS 401-3 Seminar on Contemporary Topics in Physics

This is a seminar course designed to expose students to current active topics of research in various fields of physics and applied physics. The course revolves around seminar presentations given by invited speakers from UNBC and other research institutions, as well as presentations given by the students enrolled in the course. ~~Special topics from current areas of research in basic and applied physics.~~

Prerequisites: Permission of the instructor

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:15

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 **Date**

Chair's Signature

For recommendation to ✓ **, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.29

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 351-3, Optics and Photonics I on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 351-3 Optics and Photonics I

Geometrical and physical optics: mathematics of wave motion, electromagnetic theory of light, photons, laws of geometrical optics, aberrations in optical systems, optical instruments, superposition of waves, interference, polarization, diffraction, Fourier optics, holography.

Prerequisites: PHYS 202-4
Precluded: PHYS 301-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 351-3 Optics and Photonics I

This is an introductory course in g~~G~~eometrical and physical optics~~:~~. Topics include mathematics of wave motion, electromagnetic theory of light, photons, laws of geometrical optics, aberrations in optical systems, optical instruments, superposition of waves, interference, polarization, diffraction, ~~Fourier optics,~~ and elements of holography.

Prerequisites: PHYS 202-4
~~Precluded: PHYS 301-3~~

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:14

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 **Date**

Chair's Signature

For recommendation to ✓ **, or information of** _____ **Senate.**

UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.30

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description and course prerequisite for PHYS 310-3, Classical Electromagnetism I on page 290 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 310-3 Classical Electromagnetism I

First part of a two-semester course in electrodynamics: the electric field and the scalar potential; Coulomb's and Gauss's laws; Poisson's and Laplace's equations; boundary-value problems in electrostatics; electric multipoles; electric energy and forces; dielectric materials and continuity conditions; the magnetic field and the vector potential; Ampere's law; magnetic materials; magnetic energy and forces.

Prerequisites: MATH 201-3, PHYS 202-4

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 310-3 Classical Electromagnetism I

This is the f~~F~~irst part of a two-semester course in classical electromagnetism. Topics include ~~electrodynamics:~~ the electric field and the scalar potential~~;~~, Coulomb's and Gauss's laws~~;~~, Poisson's and Laplace's equations~~;~~, boundary-value problems in electrostatics~~;~~, electric multipoles~~;~~, ~~electric~~ electrostatic energy and forces~~;~~, dielectric materials and continuity conditions~~;~~, the magnetic field and the vector potential~~;~~, Ampere's law~~;~~, magnetic fields in matter and magnetic materials~~;~~, magnetic energy and forces, Faraday's law and electromagnetic induction, electrodynamics, and Maxwell's equations.

Prerequisites: ~~MATH 201-3,~~ MATH 204-3 and PHYS 202-4

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:13

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.31

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 305-4, Electronics on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 305-4 Electronics

Basics of electric and electronic circuits, including DC circuits, Kirchhoff's laws, Thevenin's and Norton's theorems, AC circuits, operational amplifiers, diodes, transistors, gates, combinational and sequential logic, filters, oscillators, control systems, digital circuits.

Prerequisites: PHYS 111-4 and PHYS 202-4 and PHYS 206-4, or permission of the instructor

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 305-4 Electronics

This course is an introductory electronics course for science majors. The course is offered in an integrated laboratory-lecture environment and requires an electronics design project. Topics include ~~Basics of electric and electronic circuits, including~~ DC circuits, Kirchhoff's laws, Thevenin's and Norton's theorems and equivalent circuit models, AC circuits and filters, ~~operational amplifiers,~~ diodes, transistors, operational amplifiers, feedback, and noise in electrical systems. ~~gates, combinational and sequential logic, filters, oscillators, control systems, digital circuits.~~

Prerequisites: ~~PHYS 111-4 and~~ PHYS 202-4 and PHYS 206-4, or permission of the instructor

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:12

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 **Date** **Chair's Signature**

For recommendation to ✓ **, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.32

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 302-3, Quantum Mechanics I on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 302-3 Quantum Mechanics I

Breakdown of classical mechanics, wave packets, wave-particle duality, wave function and Schrodinger equation, eigenvalues and eigenfunctions, harmonic oscillator, potential wells, potential barriers, central force problems, hydrogen atom, spin and angular momentum, time dependence of quantum states.

Prerequisites: PHYS 205-3 and MATH 230-3
Precluded: CHEM 303-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 302-3 Quantum Mechanics I

This course is the first part of a two-semester course in quantum mechanics. Topics include quantum phenomena, the wave function and the Schrödinger equation, physical quantities and measurements, quantization of energy in simple systems, principles of quantum mechanics, commutation of observables, the Stern-Gerlach experiment, angular momentum, description of atoms, spin-1/2 and magnetic resonance, addition of angular momenta, and identical particles. ~~Breakdown of classical mechanics, wave packets, wave-particle duality, wave function and Schrodinger equation, eigenvalues and eigenfunctions, harmonic oscillator, potential wells, potential barriers, central force problems, hydrogen atom, spin and angular momentum, time dependence of quantum states.~~

Prerequisites: PHYS 205-3 and MATH 230-3
Precluded: CHEM 303-3

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:11

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.33

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 300-3, Classical Mechanics on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 300-3 Classical Mechanics

Analytical classical mechanics, including Newtonian mechanics, motion in non-inertial frames, Lagrangian dynamics, central-force motion, motion of rigid bodies, small oscillations, coupled oscillations, Hamiltonian dynamics.

Prerequisites: PHYS 111-4, MATH 220-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 300-3 Classical Mechanics

This course covers topics in a~~A~~nalytical ~~classical~~ mechanics~~,~~ including Newtonian mechanics, motion in non-inertial reference frame~~s~~, calculus of variations, Lagrangian formalism ~~dynamics~~, central force ~~central force~~ motion, Hamiltonian formalism, canonical transformations, Hamilton-Jacobi theory, linear oscillators, and theory of small vibrations~~motion of rigid bodies, small oscillations, coupled oscillations, Hamiltonian dynamics~~.

Prerequisites: PHYS 111-4~~,~~and MATH 220-3

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:10

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022

Date **Chair's Signature**

For recommendation to ✓**, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.34

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 202-4, Electromagnetism and Optics on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 202-4 Electromagnetism and Optics

Magnetic field, Ampere's law, Faraday's law, inductance, magnetism and matter, electromagnetic oscillations, alternating currents, Maxwell's equations, electromagnetic waves, geometrical optics, interference, diffraction.

Prerequisites: PHYS 111-4
Co-requisites: MATH 200-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 202-4 Electromagnetism and Optics

Topics in this course include Gauss's law, current and resistance, direct-current circuits, magnetic fields and forces, sources of magnetic fields, Faraday's law, inductance, alternating-current circuits, electromagnetic waves, the nature and propagation of light, geometric optics, and interference. ~~Magnetic field, Ampere's law, Faraday's law, inductance, magnetism and matter, electromagnetic oscillations, alternating currents, Maxwell's equations, electromagnetic waves, geometrical optics, interference, diffraction.~~

Prerequisites: PHYS 111-4
Co-requisites: MATH 20~~0~~2-3

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:09

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.35

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 200-3, Thermal Physics on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 200-3 Thermal Physics

Thermodynamics and introductory statistical mechanics, including temperature, reversible processes and work, first law of thermodynamics, second law of thermodynamics, entropy, thermodynamic potentials, change of phase, chemical potentials, third law of thermodynamics, kinetic theory of gases.

Prerequisites: PHYS 111-4
Co-requisites: MATH 200-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 200-3 Thermal Physics

This course covers t~~T~~hermodynamics and introductory statistical mechanics.~~,~~ Topics include ~~including~~ temperature, reversible processes and work, the first law of thermodynamics, the second law of thermodynamics, entropy, ~~thermodynamic potentials, change of phase, chemical potentials,~~ the third law of thermodynamics, ~~kinetic theory of gases~~ engines and refrigerators, free energy and chemical potential, phase transformations, and Boltzmann statistics.

Prerequisites: PHYS 111-4
Co-requisites: MATH 202-3

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:08

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓**, or information of** _____ **Senate.**

UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.36

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description for PHYS 150-3, Physics for Future Leaders on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 150-3 Physics for Future Leaders

This course examines the physics underlying major technological aspects of modern society and issues of global concern. Through addressing themes such as global warming, the energy problem and alternative sources of energy, nuclear power and nuclear weapons, health and medical technology, pollution of the atmosphere, satellites, telecommunication, and the internet, this course introduces basic physics topics such as motion and energy, atoms and heat, gravity and force, electricity and magnetism, light and electromagnetic waves, radioactivity and nuclear reactions, quantum physics, and relativity. This course requires no scientific or mathematical background and is accessible to students in any discipline.

Prerequisites: None

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 150-3 Physics for Future Leaders

This course examines the physics and technology underlying ~~major technological aspects of~~ modern society and issues of global concern. ~~Through addressing themes such as global warming, the energy problem and alternative sources of energy, nuclear power and nuclear weapons, health and medical technology, pollution of the atmosphere, satellites, telecommunication, and the internet, this~~ The course introduces basic physics ~~topics~~ themes such as motion and energy, atoms and heat, gravity and force, electricity and magnetism, light and electromagnetic waves, and radioactivity and nuclear reactions~~, quantum physics, and relativity~~. Using these concepts, the course provides a basic scientific understanding of topics such as climate change, alternative energy, nuclear power and nuclear weapons, medical technology, atmospheric pollution, earthquakes, satellites, and telecommunication. This course requires no scientific or mathematical background and is accessible to students in any discipline.

Prerequisites: None

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:07

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.37

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description and course prerequisite for PHYS 115-4, General Introduction to Physics on page 289 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

PHYS 115-4 General Introduction to Physics

This is an algebra-based introductory physics course for students without Grade 12 Physics. Topics include physics and measurement, the laws of motion and their applications, circular motion, work and energy, electric field, electric potential, DC circuits, magnetic fields and magnetic forces.

Prerequisites: Students with credit in Physics 12 require permission of the Program Chair

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

PHYS 115-4 General Introduction to Physics

This is an algebra-based introductory physics course for students without Grade 12 Physics. Topics include physics and measurement, motion in one and two dimensions, forces and Newton's ~~the~~ laws of motion ~~and their applications~~, circular motion, work and energy, electric forces and fields, electric potential, electric~~DC~~ circuits, and magnetic forces~~fields~~ and ~~magnetic~~ fields~~forces~~. Students with credit in Physics 12 require permission of the Program Chair.

~~Prerequisites: Students with credit in Physics 12 require permission of the Program Chair~~
Precluded: Physics 12 and PHYS 100-4

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:06

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 **Date**

Chair's Signature

For recommendation to ✓ **, or information of** _____ **Senate.**

Rationale – changes to Biology degree.

The Biology curriculum committee recently reviewed the general degree requires of BIOL 410 – Population and Community Ecology. Rather than a general upper-division course in ecology, BIOL 410 is a highly specialized course largely in population modelling. This is required for the Wildlife & Fisheries degree, and is designed specifically as a segue course into Wildlife Management (BIOL 413) and Fisheries Management (BIOL 414). However, its utility is questionable for Biology majors specializing in cellular biology. Yet, along with BIOL 411 (Conservation Biology) it was listed as the only required 400 level biology course required for all majors. The Biology curriculum committee therefore recommends moving BIOL 410 from the Upper-division Requirements for all Biology majors. Instead, this course will remain as a required course only for the students wishing to complete the Area of Specialization in Applied Ecology within the Biology degree. We have added it to the required courses for this Area of Specialization, and changed the optional course list from "two of the following" to "one of the following". Otherwise, it will be listed as an optional course (within the "two of the following" lists) within other areas of specialization where it was deemed appropriate - Ecology & Evolution, Botany & Mycology, and Zoology. Other changes are simply house-keeping as we noticed NREM 400 is listed with the wrong number of credit hours in the calendar.

Associated changes to BIOL 409 and Biol 411

BIOL 411 – Conservation Biology, is deemed by ESM to be a capstone course for several of our degrees. It remains as the only required 400 level Biology course for all Biology majors, and is also required in the Wildlife & Fisheries and Conservation Science and Practice degrees. It is intended to be taken in fourth year as the culmination content they have learned in their other courses, and it is indicated in the calendar description this is to be taken in fourth year. However in recent years we have had a number of students in third year sign into the course who are not prepared for the level of instruction. We are recommending adding a pre-requisite of 90 credit hours, or permission of the Chair, to take the course.

BIOL 409 – Conservation of Aquatic Ecosystems. In the review of these courses, we realized part of the influx of 3rd year students into BIOL 411 may be due to one of our newer courses (BIOL 409) listing BIOL 411 as a pre- or co-requisite. However, BIOL 409 is always scheduled in the fall semester, and BIOL 411 in the winter semester. In order for students to be eligible to take BIOL 409, students may have been trying to take BIOL 411 in the winter semester of their third year. We are removing this pre-requisite/co-requisite so that students take the two courses in their intended sequence.

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.38

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the requirements to the 400-level of the Biology B.Sc. and to several specializations associated with the degree, on pages 61-62 (in the print or PDF calendar accessible on the UNBC web page) of the 2022/2023 undergraduate calendar, be approved as proposed.

1. **Effective date:** September 2022

2. **Rationale for the proposed revisions:** Over the years the emphasis in BIOL 410-3 Population and Community Ecology has become more focused on population ecology and less on community ecology. This, and other changes have meant that the course is not as universally relevant to all Biology B.Sc. students as it was in the past. It is still relevant to students in the Applied Ecology specialization and may be relevant to students in several other specializations. We have removed it as a 400-level requirement for all students, retained it as a requirement for Applied Ecology specialization students, and included it as a potential course choice for students completing several other specializations. We have adjusted the subject requirement to ensure students continue to take the same number of 400-level credit hours and total upper-division credit hours, and we have adjusted the Applied Ecology specialization to maintain the usual five-course requirement. All Biology B.Sc. students may still take the course a part of their regular degree. We also took this opportunity to correct a calendar error regarding credit hours for NREM 400-4.

3. **Implications of the changes for other programs, etc., if applicable:** None

4. **Reproduction of current Calendar entry for the item to be revised:** Please see attached sheet.

5. **Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":** Please see attached sheet.

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

   Program / Academic / Administrative Unit: Ecosystem Science and Mgmt. (ESM)

   Faculty: Faculty of Environment

   Faculty Council Motion Number: FEFC 2022:10:13:01

   Faculty Council Approval Date: OCTOBER 13, 2022 EVOTE

   Senate Committee on First Nations and Aboriginal Peoples Motion Number: N/A

   Senate Committee on First Nations and Aboriginal Peoples Meeting Date: N/A

7. **Other Information**

   Attachment Pages: 7 pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 _____
Date **Chair's Signature**

For recommendation to ✓ **, or information of _____ Senate.**

4. Reproduction of current Calendar entry for the item to be revised:

400 Level

BIOL 410-3	Population and Community Ecology
BIOL 411-3	Conservation Biology

One of the following:

BIOL 404-3	Plant Ecology
BIOL 406-3	Fish Ecology
BIOL 412-3	Wildlife Ecology

Subject Requirements

Fifteen additional credit hours chosen from the following, of which at least 6 credit hours must be at the 400 level:

Any 300 or 400 level BIOL courses

ENSC 406-3	Environmental Modelling
FSTY 307-3	Disturbance Ecology and Forest Health

Additional Requirements

At least one course with Social Sciences content must be taken from the following list:

BIOL 304-3, BIOL 350-3, BIOL 420-3, or BIOL 421-3 (these may also count as Subject Requirements); or any course with the following prefixes: ANTH, COMM, ECON, EDUC, ENPL, ENVS, FNST, INTS, NORS, ORTM, POLS, or PSYC.

Elective Requirement

Elective credit hours must be taken as necessary to ensure completion of a minimum of 125 credit hours.

Biology BSc Areas of Specialization

Biology BSc students have the option to complete one Area of Specialization. Students must take five courses in an Area of Specialization. There is no limit to the number of courses taken within a specialization that may be used to fulfill both common biology requirements and specialization requirements. Students who are considering an Area of Specialization are strongly encouraged to talk to an advisor early in their second year in order to ensure that the prerequisites are met for upper-division courses.

Field Biology and Natural History

BIOL 301-3	Systematic Botany
BIOL 318-3	Fungi and Lichens
BIOL 333-3	Field School

(Students may substitute another biology-oriented field experience course for BIOL 333 at the discretion of the Chair)

Two of the following:

BIOL 302-3	Limnology
BIOL 304-3	Plants, Society, and the Environment
BIOL 315-3	Animal Diseases and Parasites
BIOL 322-3	Entomology
BIOL 350-3	Ethnobotany
BIOL 402-3	Aquatic Plants
BIOL 420-3	Animal Behaviour
BIOL 421-3	Insects, Fungi, and Society
ORTM 332-3	Outdoor, Environmental, and Experiential Education

Applied Ecology

BIOL 304-3	Plants, Society, and the Environment
NREM 400-3	Natural Resources Planning

One of the following:

BIOL 404-3	Plant Ecology
BIOL 406-3	Fish Ecology
BIOL 412-3	Wildlife Ecology

Two of the following:

BIOL 350-3	Ethnobotany
BIOL 409-3	Conservation of Aquatic Ecosystems
BIOL 413-3	Wildlife Management
BIOL 414-3	Fisheries Management
BIOL 421-3	Insects, Fungi, and Society
ENSC 406-3	Environmental Modelling
FSTY 405-3	Forest Ecosystem Modelling
NREM 303-3	Aboriginal Perspectives on Land and Resource Management
NREM 306-3	Society, Policy, and Administration

NREM 409-3	Conservation Planning
ORTM 300-3	Recreation and Tourism Impacts
ORTM 400-3	Conservation Area Design and Management

Ecology and Evolution

BIOL 423-3	Molecular Evolution and Ecology

Two of the following:

BIOL 404-3	Plant Ecology
BIOL 406-3	Fish Ecology
BIOL 412-3	Wildlife Ecology

Two of the following:

BIOL 302-3	Limnology
BIOL 420-3	Animal Behaviour
BIOL 425-3	Applied Genetics and Biotechnology
ENSC 406-3	Environmental Modelling
FSTY 307-3	Disturbance Ecology and Forest Health

Zoology

BIOL 307-3	Ichthyology and Herpetology
BIOL 308-3	Ornithology and Mammalogy
BIOL 321-3	Animal Physiology

Two of the following:

BIOL 350-3	Ethnobotany
BIOL 409-3	Conservation of Aquatic Ecosystems
BIOL 413-3	Wildlife Management
BIOL 414-3	Fisheries Management
BIOL 421-3	Insects, Fungi, and Society

Botany and Mycology

BIOL 301-3	Systematic Botany
BIOL 318-3	Fungi and Lichens
BIOL 404-3	Plant Ecology

Two of the following:

BIOL 304-3	Plants, Society, and the Environment
BIOL 350-3	Ethnobotany
BIOL 402-3	Aquatic Plants
BIOL 421-3	Insects, Fungi, and Society
FSTY 307-3	Disturbance Ecology and Forest Health

Cell Biology and Genetics

BCMB 306-3	Intermediary Metabolism
BIOL 312-3	Molecular Cell Physiology
BIOL 425-3	Applied Genetics and Biotechnology

Two of the following:

BCMB 340-3	Physical Biochemistry
BCMB 401-3	Basic Science of Oncology
BCMB 402-3	Macromolecular Structure
BCMB 403-3	Advanced Nucleic Acids
BCMB 404-3	Proteins and Enzymology
BIOL 321-3	Animal Physiology
BIOL 423-3	Molecular Evolution and Ecology

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

400 Level

~~BIOL 410-3 Population and Community Ecology~~
BIOL 411-3 Conservation Biology

One of the following:
BIOL 404-3 Plant Ecology
BIOL 406-3 Fish Ecology
BIOL 412-3 Wildlife Ecology

Subject Requirements

~~Fifteen~~ Eighteen additional credit hours chosen from the following, of which at least ~~6~~ 9 credit hours must be at the 400 level:

Any 300 or 400 level BIOL courses
ENSC 406-3 Environmental Modelling
FSTY 307-3 Disturbance Ecology and Forest Health

Additional Requirements

At least one course with Social Sciences content must be taken from the following list:

BIOL 304-3, BIOL 350-3, BIOL 420-3, or BIOL 421-3 (these may also count as Subject Requirements); or any course with the following prefixes: ANTH, COMM, ECON, EDUC, ENPL, ENVS, FNST, INTS, NORS, ORTM, POLS, or PSYC.

Elective Requirement

Elective credit hours must be taken as necessary to ensure completion of a minimum of 125 credit hours.

Biology BSc Areas of Specialization

Biology BSc students have the option to complete one Area of Specialization. Students must take five courses in an Area of Specialization. There is no limit to the number of courses taken within a specialization that may be used to fulfill both common biology requirements and specialization requirements. Students who are considering an Area of Specialization are strongly encouraged to talk to an advisor early in their second year in order to ensure that the prerequisites are met for upper-division courses.

Field Biology and Natural History

BIOL 301-3	Systematic Botany
BIOL 318-3	Fungi and Lichens
BIOL 333-3	Field School

(Students may substitute another biology-oriented field experience course for BIOL 333 at the discretion of the Chair)

Two of the following:

BIOL 302-3	Limnology
BIOL 304-3	Plants, Society, and the Environment
BIOL 315-3	Animal Diseases and Parasites
BIOL 322-3	Entomology
BIOL 350-3	Ethnobotany
BIOL 402-3	Aquatic Plants
BIOL 420-3	Animal Behaviour
BIOL 421-3	Insects, Fungi, and Society
ORTM 332-3	Outdoor, Environmental, and Experiential Education

Applied Ecology

BIOL 304-3	Plants, Society, and the Environment
BIOL 410-3	Population and Community Ecology
~~NREM 400-3~~	~~Natural Resources Planning~~
NREM 400-4	Natural Resources Planning

One of the following:

BIOL 404-3	Plant Ecology
BIOL 406-3	Fish Ecology
BIOL 412-3	Wildlife Ecology

~~Two~~ One of the following:

BIOL 350-3	Ethnobotany
BIOL 409-3	Conservation of Aquatic Ecosystems
BIOL 413-3	Wildlife Management
BIOL 414-3	Fisheries Management
BIOL 421-3	Insects, Fungi, and Society
ENSC 406-3	Environmental Modelling

FSTY 405-3	Forest Ecosystem Modelling
NREM 303-3	Aboriginal Perspectives on Land and Resource Management
NREM 306-3	Society, Policy, and Administration
NREM 409-3	Conservation Planning
ORTM 300-3	Recreation and Tourism Impacts
ORTM 400-3	Conservation Area Design and Management

Ecology and Evolution

BIOL 423-3	Molecular Evolution and Ecology

Two of the following:

BIOL 404-3	Plant Ecology
BIOL 406-3	Fish Ecology
BIOL 412-3	Wildlife Ecology

Two of the following:

BIOL 302-3	Limnology
BIOL 410-3	Population and Community Ecology
BIOL 420-3	Animal Behaviour
BIOL 425-3	Applied Genetics and Biotechnology
ENSC 406-3	Environmental Modelling
FSTY 307-3	Disturbance Ecology and Forest Health

Zoology

BIOL 307-3	Ichthyology and Herpetology
BIOL 308-3	Ornithology and Mammalogy
BIOL 321-3	Animal Physiology

Two of the following:

BIOL 350-3	Ethnobotany
BIOL 409-3	Conservation of Aquatic Ecosystems
BIOL 410-3	Population and Community Ecology
BIOL 413-3	Wildlife Management
BIOL 414-3	Fisheries Management
BIOL 421-3	Insects, Fungi, and Society

Botany and Mycology

BIOL 301-3	Systematic Botany
BIOL 318-3	Fungi and Lichens
BIOL 404-3	Plant Ecology

Two of the following:

BIOL 304-3	Plants, Society, and the Environment
BIOL 350-3	Ethnobotany
BIOL 402-3	Aquatic Plants
BIOL 410-3	Population and Community Ecology
BIOL 421-3	Insects, Fungi, and Society
FSTY 307-3	Disturbance Ecology and Forest Health

Cell Biology and Genetics

BCMB 306-3	Intermediary Metabolism
BIOL 312-3	Molecular Cell Physiology
BIOL 425-3	Applied Genetics and Biotechnology

Two of the following:

BCMB 340-3	Physical Biochemistry
BCMB 401-3	Basic Science of Oncology
BCMB 402-3	Macromolecular Structure
BCMB 403-3	Advanced Nucleic Acids
BCMB 404-3	Proteins and Enzymology
BIOL 321-3	Animal Physiology
BIOL 423-3	Molecular Evolution and Ecology

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.39

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the changes to the prerequisites for BIOL 411-3, on page 206 of the 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2022

2. Rationale for the proposed revisions: BIOL 411-3 Conservation Biology was initially envisioned as a capstone course for both the Biology B.Sc. and the Wildlife and Fisheries B.Sc. This course has also become a capstone course in the Conservation Science and Practice degrees. The course, offered in the Winter semester, is still treated this way as it allows student to integrate their previous learning during their final semester. However in recent years students, particularly Biology B.Sc. students, have been taking it earlier in their degree program which changes the tenor of the course and reduces the ability of the instructor to teach it as a capstone. We are proposing to include a stipulation for at least 90 credit hours of study prior to taking this course, ensuring that students taking it will be taking it in their final semester of study. We do recognize that under certain circumstances this stipulation may cause issues with timely degree completion, so we have also included admission with permission of the Chair.

3. Implications of the changes for other programs, etc., if applicable: BIOL 411-3 is a required course for both the Biology B.Sc. and the Wildlife and Fisheries B.Sc., and these degrees are requesting this change. It also appears in pick lists of courses for several other degrees. BIOL 411-3 is also a prerequisite/co-requisite for BIOL 409-3 (Conservation of Aquatic Ecosystems), which students in the Major in Landscape Conservation and Management may take as a requirement in their fourth year – however BIOL 411-3 is still available to them as a co-requisite or with permission from the Chair. The relevant curriculum committees in ESM been consulted and this motion was also presented to the entire Department and was passed by majority vote.

4. Reproduction of current Calendar entry for the item to be revised:

BIOL 411-3 Conservation Biology This course provides a broad exposure to the theory and techniques necessary for understanding and preventing threats and declines to biological diversity. The science and application of conservation biology draw from a wide range of disciplines; thus, course and lab materials integrate perspectives from both the natural and social sciences. Students are advised to take this course in their final year of studies.

Prerequisites: BIOL 201-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

BIOL 411-3 Conservation Biology This course provides a broad exposure to the theory and techniques necessary for understanding and preventing threats and declines to biological diversity. The science and application of conservation biology draw from a wide range of disciplines; thus, course and lab materials integrate perspectives from both the natural and social sciences. Students are advised to take this course in their final year of studies.

Prerequisites: 90 credit hours or permission of Chair, BIOL 201-3

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Ecosystem Science and Mgmt. (ESM)

Faculty: Faculty of Environment

Faculty Council Motion Number: FEFC 2022:10:13:02

Faculty Council Approval Date: OCTOBER 13, 2022 EVOTE

Senate Committee on First Nations and Aboriginal Peoples Motion Number: N/A

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: N/A

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 **Date** **Chair's Signature**

For recommendation to ✓**, or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.40

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the changes to the prerequisites for BIOL 409-3, on page 206 of the 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2022

2. Rationale for the proposed revisions: The course instructors no longer feel that a pre-/co-requisite of BIOL 411 is required for students to succeed in this course. Removal of this stipulation provides more flexibility for students and may help to incrementally reduce scheduling issues.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

BIOL 409-3 Conservation of Aquatic Ecosystems Aquatic ecosystems face many challenges requiring diverse conservation approaches. This course introduces students to the structure and functioning of aquatic ecosystems and exposes them to the myriad of conservation challenges being faced by these systems. Common approaches used to address conservation issues in aquatic ecosystems are presented and discussed using a series of case studies illustrating their successes and failures.

Prerequisites: BIOL 201-3
Prerequisites or co-requisites: BIOL 411-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

BIOL 409-3 Conservation of Aquatic Ecosystems Aquatic ecosystems face many challenges requiring diverse conservation approaches. This course introduces students to the structure and functioning of aquatic ecosystems and exposes them to the myriad of conservation challenges being faced by these systems. Common approaches used to address conservation issues in aquatic ecosystems are presented and discussed using a series of case studies illustrating their successes and failures.

Prerequisites: BIOL 201-3
~~*Prerequisites or co-requisites:* BIOL 411-3~~

6. Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)

Program / Academic / Administrative Unit: Ecosystem Science and Mgmt. (ESM)

Faculty: Faculty of Environment

Faculty Council Motion Number: FEFC 2022:10:13:03

Faculty Council Approval Date: OCTOBER 13, 2022 EVOTE

Senate Committee on First Nations and Aboriginal Peoples Motion Number: N/A

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: N/A

7. Other Information

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) _____ (**Chair's Signature**)

For recommendation to ✓**, or information of _____ Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.41

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description and course prerequisite for ASTR 121-3, Introduction to Astronomy II: The Universe on page 201 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

ASTR 121-3 Introduction to Astronomy II: The Universe

This is a one-semester introductory course in Astronomy that is general enough to be of interest to science and non-science majors with a proper background in mathematics. This course is complementary to ASTR 120-3. Topics include: the origins of stars and planetary systems; the sun; properties and structures of stars; stellar interiors; the evolution of stars; stellar remnants; white dwarfs; neutron stars; black holes, worm holes and warped spacetime; the Milky Way; the universe of galaxies; distance scales and indicators; active galaxies and quasars; cosmology: past, present, and future of the universe, "Is 'Anyone' Out There?". ASTR 121 and ASTR 120 may be taken in either order.

Prerequisites: Principles of Math 11 or Pre-calculus 11 or Foundations of Mathematics 11
Precluded: PHYS 121-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

ASTR 121-3 Introduction to Astronomy II: The Universe

This is an ~~one-semester~~ introductory course in astronomy ~~that is~~ general enough to be of interest to science and non-science majors with a proper background in mathematics. This course is complementary to ASTR 120-3. Topics include~~:~~ the origins of stars and planetary systems; the Sun; properties and structures of stars; stellar interiors; the evolution of stars; stellar remnants; white dwarfs; neutron stars; black holes, ~~worm holes and~~ warped spacetime; the Milky Way; the universe of galaxies; distance scales and indicators; active galaxies and quasars; and cosmology and astrobiology~~: past, present, and future of the universe, "Is 'Anyone' Out There?"~~. ASTR 121 and ASTR 120 may be taken in either order.

Prerequisites: Principles of Math 11 or Pre-calculus 11 or Foundations of Mathematics 11 or permission of the instructor

Precluded: PHYS 121-3

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:05

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.42

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the course description and course prerequisite for ASTR 120-3, Introduction to Astronomy I: The Solar System on page 201 of the PDF 2022/23 undergraduate calendar, be approved as proposed.

1. Effective date: September 2023

2. Rationale for the proposed revisions: Revisions to Physics courses have been made to update the calendar to follow current SCCC standards as well as reflect the courses as they are currently taught.

3. Implications of the changes for other programs, etc., if applicable: None

4. Reproduction of current Calendar entry for the item to be revised:

ASTR 120-3 Introduction to Astronomy I: The Solar System

This is a one-semester introductory course in Astronomy that is general enough to be of interest to science and non-science majors with a proper background in mathematics. This course is complementary to ASTR 121-3. Topics include: an overview of our solar system; the Sun; Earth and Moon; the inner planets: Mercury, Venus, and Mars; the gas giants: Jupiter, Saturn, Uranus, and Neptune; moons and ring structure of the gas giants; Pluto and Charon; asteroids, comets, meteors, and meteorites; the origin and evolution of our solar system; the origin and evolution of the sun; other solar systems and exoplanets. ASTR 120 and ASTR 121 may be taken in either order.

Prerequisites: Principles of Math 11 or Pre-calculus 11 or Foundations of Mathematics 11
Precluded: PHYS 120-3

5. Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":

ASTR 120-3 Introduction to Astronomy I: The Solar System

This is an ~~one-semester~~ introductory course in ~~A~~astronomy that is general enough to be of interest to science and non-science majors with a proper background in mathematics. This course is complementary to ASTR 121-3. Topics include~~:~~ an overview of our solar system; the Sun; Earth and Moon; the inner planets~~: Mercury, Venus, and Mars~~; the gas giants~~: Jupiter, Saturn, Uranus, and Neptune;~~ and their ring structures and moons ~~and ring structure of the gas giants~~; Pluto and Charon; asteroids, comets, meteors, and meteorites; the origin and evolution of our solar system; the origin and evolution of the ~~s~~Sun; and other solar systems and exoplanets. ASTR 120 and ASTR 121 may be taken in either order.

Prerequisites: Principles of Math 11 or Pre-calculus 11 or Foundations of Mathematics 11 or permission of the instructor
Precluded: PHYS 120-3

6. **Authorization: (Please ignore — Section to be completed by Committee Recording Secretaries)**

Program / Academic / Administrative Unit: Physics

Faculty: Science and Engineering

Faculty: Council Motion Number: FSE FC 2022:10:27:04

Faculty Council Approval Date: Oct 27, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: n/a

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: n/a

7. **Other Information**

Attachment Pages: **0** pages

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ACADEMIC AFFAIRS MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAAF: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Motion Number (assigned by Steering Committee of Senate): S-202211.43

SENATE COMMITTEE ON ACADEMIC AFFAIRS

PROPOSED REVISION OF CALENDAR ENTRY

Motion: That the change(s) to the prerequisites for HHSC105 be approved as proposed.

1. **Effective date: September 2022**

2. **Rationale for the proposed revisions:** To provide greater flexibility for students wishing to take this course, specifically international students.

3. **Implications of the changes for other programs, etc., if applicable: n/a**

4. **Reproduction of current Calendar entry for the item to be revised:**
HHSC 105-3 Functional Anatomy The purpose of this course is to provide a macroscopic examination of the human body. Lecture topics include musculoskeletal system and mobility, and major organ systems including cardiovascular, digestive and neurological, with emphasis on how these systems integrate for body function. A laboratory component is included. This course is appropriate for students who intend to enter health profession fields. Prerequisites: Biology 12 and Chemistry 11

5. **Proposed revision with changes underlined and deletions indicated clearly using "~~strikethrough~~":**
HHSC 105-3 Functional Anatomy The purpose of this course is to provide a macroscopic examination of the human body. Lecture topics include musculoskeletal system and mobility, and major organ systems including cardiovascular, digestive and neurological, with emphasis on how these systems integrate for body function. A laboratory component is included. This course is appropriate for students who intend to enter health profession fields. Prerequisites: Biology 12 and Chemistry 11 **or Chemistry 12 or equivalent.**

6. **Authorization:**

Program / Academic / Administrative Unit: School of Health Sciences

Faculty: FHHS

Faculty Council Motion Number: Motion: 2022.10.20.03

Faculty Council Approval Date: October 20, 2022

Senate Committee on First Nations and Aboriginal Peoples Motion Number: (if applicable, or state "not applicable")

Senate Committee on First Nations and Aboriginal Peoples Meeting Date: (if applicable, or state "not applicable")

7. Other Information

Attachment Pages: **0** pages (fill in number of pages, or indicate "0" if there are no attachments)

THE MOTION FORM IS NOW COMPLETE — PLEASE DISREGARD THE BLOCK BELOW

INFORMATION TO BE COMPLETED AFTER SENATE COMMITTEE ON ADMISSIONS AND DEGREES MEETING

Brief Summary of Committee Debate:

Motion No.: SCAAF

Moved by: **Seconded by:**

Committee Decision:

Approved by SCAD: November 9, 2022 (**Date**) (**Chair's Signature**)

For recommendation to ✓, **or information of** _____ **Senate.**

Motion Number (assigned by SCS): NA

SENATE COMMITTEE ON SCHOLARSHIPS AND BURSARIES (SCSB)

PROPOSED MOTION

Motion: That the revised Terms and Conditions for the Prkachin Award to Support Advanced Study in Psychology be approved.

Rationale: To revise the Prkachin Award to Support Advanced Study in Psychology commencing the 2023-2024 Academic Year.

Proposed By: Carolyn Chrobot, Development Officer – Community Engagement

Research & Innovation Contact: Carolyn Chrobot, Development Officer – Community Engagement

Faculty/Academic Department: N/A

Indigenous Content: No (Determined by the Development Officer)

Date to SCSB: Oct 24, 2022

TO BE COMPLETED AFTER SCSB MEETING

Brief Summary of Committee Debate: .

Motion No.: **SCSB20221026.03**

Moved by: Palmer **Seconded by:** Zogas

Committee Decision: CARRIED **Attachments: 2 pages**

Approved by SCSB: October 26 2022 Kathy Lewis

Date **Chair's Signature**

For Information of Senate & Board

AWARDS GUIDE INFORMATION:

Award Category: In-Course

Award Name: Prkachin Award to Support Advanced Study in Psychology

Awards Guide Description/Intent: This award has been established to support an accomplished and motivated Psychology undergraduate student in the Honours program who wishes to pursue a graduate degree in Psychology.

Donor: Drs. Ken and Glenda Prkachin

Value: $1,500

Number: One

Award Type: Award

Eligibility: Available to a full-time undergraduate Psychology student. First preference will be given to a student who has been accepted into the Honours program with the intention of pursuing a graduate degree in Psychology or a closely related field.

Criteria: Academic excellence

Effective Date: Endowed 2014, revised 2022

Recipient Selection: Senate Committee on Scholarships and Bursaries on recommendation by the Psychology Department

Motion Number (assigned by SCS): NA

SENATE COMMITTEE ON SCHOLARSHIPS AND BURSARIES (SCSB)

PROPOSED MOTION

Motion: That the revised Terms and Conditions for the Ricci Dalton Award be approved.

Rationale: To revise the Ricci Dalton Award commencing the 2023-2024 Academic Year.

Proposed By: Carolyn Chrobot, Development Officer – Community Engagement

Research & Innovation Contact: Carolyn Chrobot, Development Officer – Community Engagement

Faculty/Academic Department: N/A

Indigenous Content: No (Determined by the Development Officer)

Date to SCSB: Oct 14, 2022

TO BE COMPLETED AFTER SCSB MEETING

Brief Summary of Committee Debate: .Approved with minor editorial changes.

Motion No.: **SCSB20221026.04**

Moved by: Gehloff **Seconded by:** Palmer

Committee Decision: CARRIED **Attachments:** 2 pages

Approved by SCSB: October 26 2022 _____

Date **Chair's Signature**

For Information of Senate & Board

AWARDS GUIDE INFORMATION:

Award Category: In-Course

Award Name: Ricci Dalton Award

Awards Guide Description/Intent: This award was established in honour of long-time UNBC staff member, Ricci Dalton, who worked as a Practicum Placement Coordinator and Education Advisor in the "School of Education". This award is intended for a Bachelor of Education student who demonstrates a positive attitude, respect for individuality, acceptance of diversity, and dedication to the teaching profession.

Donor: UNBC School of Education and Friends of Ricci Dalton

Value: $500

Number: Two (1 to a student enrolled in Elementary Education, 1 to a student enrolled in Secondary Education)

Award Type: Award

Eligibility: Available to full time undergraduate students enrolled in their second year of the Bachelor of Education Program.

Criteria: Satisfactory academic standing and demonstrated financial need

Effective Date: Established 2015, revised 2022

Recipient Selection: Senate Committee on Scholarships and Bursaries on recommendation by the School of Education and the UNBC Awards Office