

**Faculty of Science**

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**MEETING OF THE FACULTY COUNCIL OF THE FACULTY OF SCIENCE**

A regular meeting of the Faculty Council of the Faculty of Science will be held on Wednesday, March 20, 2019 at 1 p.m. in C-2045.

**AGENDA**

- 1. Regrets**
- 2. Adoption of the Minutes of February 20, 2019**
- 3. Business Arising from the Minutes**
- 4. Correspondence:** None
- 5. Teaching and Learning Framework** – Dr. Gavan Watson, Associate Vice-President, Teaching and Learning & Director, CITL, and Dr. Kim Myrick, Assistant Director, Teaching and Learning, CITL (Paper 5, pages 6-26)
- 6. Reports of Standing Committees:**
  - A. Undergraduate Studies Committee:**
    - a.** Department of Ocean Sciences, Special Topics Course: OCSC 4920, Special Topics in Crustacean Biology (Paper 6.A.a, pages 27-39)
  - B. Graduate Studies Committee:** None
  - C. Nominating Committee:** None
  - D. Library Committee:** None
- 7. Report of Teaching Consultant**
- 8. Reports of Delegates from Other Councils**
- 9. Report of the Dean**
- 10. Question Period**
- 11. Adjournment**



Mark Abrahams, PhD  
Dean of Science



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**FACULTY OF SCIENCE  
FACULTY COUNCIL OF SCIENCE  
MINUTES OF MEETING OF FEBRUARY 20, 2019**

A meeting of the Faculty Council of the Faculty of Science was held on Wednesday, February 20, 2019, at 1:00 p.m. in room C-2045.

**FSC 2654**

**Present**

**Biochemistry**

M. Berry, R. Bertolo, S. Harding

**Biology**

T. Chapman

**Chemistry**

C. Bottaro, E. Merschrod, S. Pansare

**Computer Science**

S. Bungay

**Mathematics & Statistics**

T. Baird, D. Dyer, R. Haynes, S. Sullivan

**Physics & Physical Oceanography**

S. Curnoe

**Psychology**

K. Fowler, C. Walsh

**Dean of Science Office**

K. Foss, G. Jackson

**CITL**

A. Todd

**FSC 2655**

**Regrets**

G. Fletcher, S. Mantyka, B. Staveley

- FSC 2656 Adoption of Minutes**  
**Moved:** Minutes of the January 16, 2019, meeting be adopted (Sullivan/Bertolo). **Three Abstentions. Carried.**
- FSC 2657 Business Arising:**  
In response to the minutes of January 16, 2019, Item number FSC 2648, it was stated that the work on the roof of the Henrietta Harvey building was finished, and the construction debris was removed from the front of the building.
- FSC 2658 Correspondence: None**
- FSC 2659 Reports of Standing Committees:**
- A. Undergraduate Studies Committee:**  
Shannon Sullivan presented the memo from the Chair of the SCUgS Sub-Committee on Take-Home Examinations. Any comments on this document can be submitted directly to SCUgS before March 8<sup>th</sup>, 2019, and a copy sent to Travis Fridgen for information.
  - B. Graduate Studies Committee:**
    - a.** Department of Mathematics and Statistics, special topics course, MATH 6423, Stochastic Differential Equations, approved by the committee and presented to Faculty Council for information only.
  - C. Nominating Committee: None**
  - D. Library Committee: None**
- FSC 2660 Report of Teaching Consultant**  
CITL strategic planning consultation - CITL is tasked with moving forward as a major “nexus point” in the new Teaching and Learning Framework. As such, CITL is undergoing major strategic planning. Given the direct impact on teaching support for the Faculty of Science and wider university, participation in the consultation process is encouraged. The face-to-face session is being held Monday, Feb. 25, 10-11:30am, Jr. Common Room. There is also an online survey for those who cannot attend. Registration and the online survey can be found at <https://citl.mun.ca/news.php?id=11838&type=news>
- President’s Teaching Awards – Nomination deadlines for the President's Awards for Excellence in Teaching and Graduate Supervision are coming up in mid-March. In particular, they are seeking more nominations in the categories for Lecturers and Instructional Staff, and Early Career Faculty. For more information regarding the awards visit <https://citl.mun.ca/TeachingSupport/PresidentAwards.php>
- Faculty of Science Teaching Retreat – Registration is still open for the retreat, taking place on Friday, February 22. We recognize that this is a busy time, so please ensure that instructors are aware that partial registration is also welcome.

**FSC 2661****Report of the Dean**

Presented by Mark Abrahams, Dean.

1. I have now received updates from the Provost on replacement positions associated with the Voluntary Retirement Program. The affected departments have been advised on the number of faculty they will be able to recruit, and the availability of start-up support that is currently available so that some units should be able to begin their searches this academic term.
2. Phase 2 funding for the Ocean Frontier Institute has been announced. A total of \$16.3M is available of which \$7.9M is targeted to research at Memorial, and \$600K is for cross-cutting activities including indigenous and EDI training and workshops. More information is available at the OFI website ([www.oceanfrontierinstitute.com](http://www.oceanfrontierinstitute.com)) on the Phase 2 funding tab, but key details are that these are intended as large research consortia applications that are four years in duration, and the deadline for submitting an expression of interest is April 11, 2019, and full proposals by June 25, 2019.

**FSC 2662****Question Period**

The Dean was questioned about faculty replacement on a go forward basis and the attrition plan. At this point it is uncertain about future faculty hires, and there is no guarantee that future retirements will be replaced.

The Department of Mathematics and Statistics still has ongoing issues regarding the Henrietta Harvey Building. Some computers in the server room are still not back online and research may potentially be lost. A classroom in the building has a bad smell that has not dissipated since the flood. This has been reported through the MUN app many times but there is still no report on an assessment of the room. Dr. Abrahams offered his assistance to help with escalating this issue.

In addition, 4 Clarke Place, which has been used as graduate student space for the Department of Mathematics and Statistics, has been closed since late in the fall semester due to flooding. Facilities Management is completing a final check on this space today, and it should be opened to students in the next few days. Unfortunately, lack of communication from FM resulted in the department not knowing the status of the space.

There is a long-term infrastructure plan for MUN, which can be found on the President's website, but this does not address immediate issues. To address long-term building problems, seed money is needed through fundraising/donors. This may be able to help secure a new building.

The Dean is hoping to meet with Stephen Green to discuss the ITS space in the Henrietta Harvey building.

**Motion:** A motion of support to the Department of Mathematics and Statistics in light of their infrastructure issues. (Merschrod/Craighead). **Carried**

**FSC 2663**

**Adjournment**

The meeting adjourned at 1:33p.m.

## **Strong, Melissa Eva-Marie**

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**From:** Jackson, Gina  
**Sent:** March-13-19 2:12 PM  
**To:** Strong, Melissa Eva-Marie  
**Subject:** FW: Teaching and Learning Framework Presentation to Faculty of Science  
**Attachments:** TLF At a Glance.pdf; TLF 2023.pdf

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Gina Jackson, B.Sc., MBA  
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Faculty of Science  
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(709) 864-8659

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**From:** "White, Gladys" <gwhite@mun.ca>  
**Date:** Wednesday, March 13, 2019 at 8:37 AM  
**To:** Gina Jackson <gjackson@mun.ca>  
**Cc:** "Watson, Gavan" <gwatson@mun.ca>, "Myrick, Kim" <kmyrick@mun.ca>, "Moran, Jennifer" <jmoran@mun.ca>, "Todd, Amy M." <amy.todd@mun.ca>  
**Subject:** Teaching and Learning Framework Presentation to Faculty of Science

Good Morning Gina,

Dr. Gavan Watson (AVPA, Teaching and Learning & Director, CITL) and Dr. Kim Myrick (Assistant Director, Teaching and Learning, CITL) are attending your Academic Council meeting on **Mar. 20<sup>th</sup>**. The purpose is to introduce the renewed Teaching and Learning Framework (TLF) and begin to learn how CITL could work with you to implement the goals of the Framework.

The following two questions will guide the discussion:

- What is the Teaching and Learning culture of the Faculty of Science?
- How can the Faculty of Science work to implement the three spheres of the TLF (i.e., student accessibility, student engagement, and student success)?

Attached is a one-page overview of the TLF and the full TLF document for your reference.

We would appreciate if you could circulate the two questions, the one-page TLF overview and the full TLF with your Academic Council members before our meeting.

Other CITL members who will be in attendance include Ms. Jennifer Moran as administrative support to take notes and Ms. Ms. Amy Todd as the CITL representative on your Academic Council.

We thank you for the opportunity to speak with your Faculty. Please let me know if you need further information.

kindest Regards,  
 Gladys

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**Gladys White | Administrative Assistant**  
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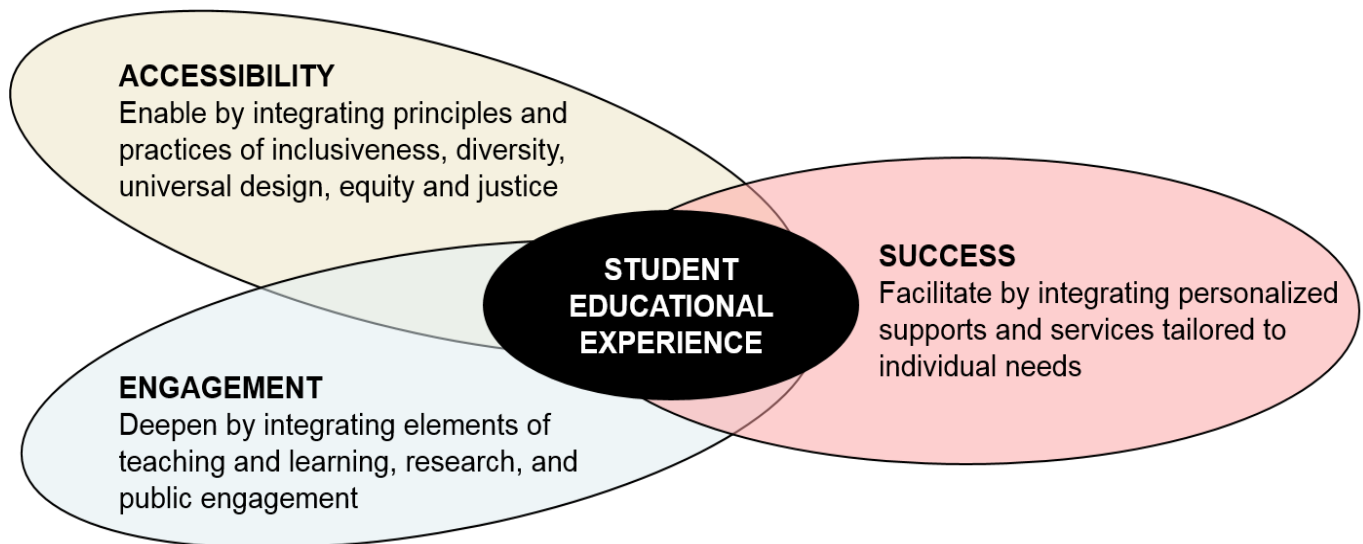
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**“Tell me and I forget. Teach me and I remember. Involve me and I learn.” – Ben Franklin**

# MEMORIAL UNIVERSITY

## TEACHING AND LEARNING FRAMEWORK 2023



### Outcome

The Teaching and Learning Framework (TLF) states that by the end of 2023 Memorial University will have strengthened the student educational experience, achieved in part through an increase in collaborative and interdisciplinary teaching and learning initiatives.

### Vision for Teaching and Learning

**Memorial University continues its commitment to innovation and excellence in teaching and learning.**

Memorial connects learners and educators to each other, the community, and the world to create and exchange knowledge and advance the greater good of society. Students transform into graduates with superior qualities to contribute knowledge and expertise locally, nationally and internationally.



## FRAMEWORK IMPLEMENTATION

The TLF calls on staff, instructors, faculty and academic leaders to articulate and undertake work to strengthen the student learning experience through initiatives that aim to: **enable accessibility; deepen learners' engagement; and facilitate student success.**

Achieving the intended outcome for the TLF will require actions across academic units at the level of the classroom, the program and the Faculty or School. Implementation could include a variety of strategies:

- **Faculty and instructors** designing and facilitating engaging learning experiences;
- **Academic units** innovating in program design and delivery methods;
- **Support units** collaborating with academic units on initiatives addressing student success; and
- **Academic leaders** guiding the definition of their unit's work and supporting the implementation of initiatives.

**The Centre for Innovation in Teaching and Learning (CITL)** will offer the institution expertise in: strategies for developing engaging learning experiences (across the domains of face-to-face or online learning); the incorporation of educational technologies to engage learners; the facilitation of course and program curriculum development and; faculty development.

## FRAMEWORK EVALUATION

- At the institutional level, the Senate Committee on Teaching and Learning will establish measures for evaluating the framework, set policies and practices for evaluation, and monitor the outcomes of the framework.
- Key measures of evaluation include student accessibility, student engagement, and student success.
- CITL will collect evaluation data and prepare annual reports on the framework.
- CIAP will play an important role in guiding data-gathering processes associated with the framework, providing institutional data on student accessibility, engagement, retention, and success.
- Academic and support units will be called on to communicate their outcomes related to the TLF.



MEMORIAL UNIVERSITY OF NEWFOUNDLAND

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TEACHING INNOVATION  
LEARNING EXCELLENCE

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2023

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## MESSAGE FROM THE PROVOST AND VICE-PRESIDENT (ACADEMIC)

Dr. Noreen Golfman

This Teaching and Learning Framework is the product of extensive consultation over the last year. We realized most of the objectives of the first framework but are carrying forward the spirit of collaboration and ingenuity that inspired it into this reboot. The first framework rightly stressed Memorial's commitment to enhancing the teaching and learning environment through a number of initiatives. First, I put together a committee chaired by Dr. Rob Shea to assess the effectiveness of that framework and to draft a full outline for a renewed version with recommendations. I had also recommended an ambitious timeline which, thankfully, they met. Rob and his team conducted a multi-campus consultation process that resulted in an ambitious draft report. Much of what you see emphasized in this document is the result of their good work. I am deeply grateful to Rob and the committee members for dedicating so much time and interest in this project, including Jennifer Browne, Kelly Anne Butler, Vashti Campbell, Dr. Danine Farquharson, Dr. Matthew Janes, Evan Lewis, Dr. Kim Myrick, Dr. Janna Rosales, and Beth Ryan.



At the heart of their work is some fresh thinking about our Centre for Innovation in Teaching and Learning (CITL). Long the pride of online/program course delivery, CITL is well equipped to help take the university even further to advancing this century's instructional innovations. CITL has, in effect, been the heart of our teaching and learning practices, supporting faculty and students in harnessing technology and designing courses to keep pace with the changing nature of learning itself. Recognizing that history but also reinforcing the potential of CITL to take us forward is a big piece of this new framework.

This document captures some of the changes already in place in the teaching and learning environment—our commitment to strengthening interdisciplinary programming, to providing more opportunities for experiential learning, to the indigenization of curricula, and to ensuring Memorial is both a welcoming and stimulating site of post-secondary education. This last theme speaks to the importance of the Student Success Collaborative (SSC) project, an ambitious but proven initiative directed at keeping our students on track and encouraging their success. Everything ultimately depends on our staff and faculty's engagement with this effort, and we are encouraged by the commitment of our team leaders and advisors across the whole university system who have already been active in ensuring the healthy outcomes promised by the SSC.

I wish to extend a huge thanks to Dr. Kim Myrick at CITL for her outstanding support in drafting this final version and helping to carry it forward to being the bold and exciting framework I believe it is. I hope the university community feels the same way and takes on the challenges and goals described herein with as much gusto.

## INTRODUCTION

*Memorial University is an **inclusive community** dedicated to **innovation and excellence** in teaching and learning, research, scholarship, creative activity, service and public engagement. Memorial welcomes and **supports students and scholars** from all over the world and **contributes knowledge and expertise locally, nationally and internationally.***

Teaching and Learning at Memorial University is making a strong, renewed and critical commitment to the university's mission. Inspired by university consultations, a renewed Teaching and Learning Framework (TLF) continues Memorial's commitment to innovation and excellence in teaching and learning, with the aim to transform students into graduates with superior qualities to contribute knowledge and expertise locally, nationally and internationally. The framework outlined in this document goes far to integrate activities of Memorial's three frameworks – teaching and learning, research, and public engagement – which serve to fulfill the university's mission under the guidance of its institutional values.

Importantly, the renewed TLF addresses institutional challenges in the recruitment and retention of students. The higher education environment is rapidly changing and Memorial is facing new challenges. Student success and retention is a major concern. The university must strengthen its student educational experience with new and integrated approaches that support students and scholars and promote innovation and excellence.

The intention of the framework is to promote greater integration of the entire university community, while valuing and supporting every individual. Memorial has a tremendous opportunity to integrate the diverse disciplines, knowledges, experiences and strengths of its multiple campuses and unique geographic locations, including the St. John's Campus, Grenfell Campus, Marine Institute, Harlow Campus, and the Labrador Institute. A vast range of online courses and programs makes the university even more accessible to populations of the province and beyond. The framework is inclusive of all environments and members of Memorial.

This document outlines:

- Important background and environmental information that gave direction for a renewed framework.
- The framework that will guide teaching and learning initiatives until the end of 2023.
- Leadership of the implementation and evaluation of the framework.
- New initiatives that will start the university at implementing the framework.
- Ongoing initiatives that will continue to support innovation and excellence in teaching and learning.

## BACKGROUND

Teaching and Learning at Memorial University has been evolving formally since the development of the first TLF, in 2011, through a comprehensive process including: the needs of diverse learner populations; evidence-based and innovative practices in teaching and learning; institutional plans and data; and results of consultation sessions with the university community (educators, students, staff and the external community), engaging as many stakeholders as possible. The evolution of teaching and learning is largely inspired by thoughts, ideas and feedback from the Memorial community.

**2011:** Approximately 65 broad consultation sessions were held with stakeholders (internal and external) and a number of advisory committees were formed to develop the first TLF of Memorial University. To respond to the recommendations of the initial TLF, funding was provided for initiatives undertaken by the university community including: the First Year Success pilot program; research on vulnerable populations (Aboriginal students, international students, and students with disabilities); enhanced educator development programming; and teaching awards.

**2014:** A one-day retreat was held with more than 60 participants to review initiatives and priorities in teaching and learning. A three-year plan was developed to deploy an annual funding allocation of \$1.2 million. The plan included: campus/faculty/school chairs in teaching and learning; a funding competition for pilot projects in teaching and learning; a self-directed student learning award; and the naming of the Centre for Innovation in Teaching and Learning (CITL) to be the primary support unit for teaching and learning, with a contractual position for a Manager of the Teaching and Learning Framework embedded in the unit.

**2017:** Prior to the expiration of the TLF plan in 2017, the Provost and Vice-President (Academic) established a teaching and learning review committee with a mandate to assess the outcomes of the first TLF and make recommendations for a renewed framework. Approximately 60 consultations were held with stakeholders, including educators, students, and staff. The Centre for Institutional Analysis and Planning (CIAP) supported the review process with relevant institutional data.

The 2017 review process produced an initial draft of a renewed framework (*Higher Expectations*) based on remarkable consistency in the broad views about teaching and learning and the desire to focus on Indigenization, academic programming, leadership for teaching and learning, and institutionalizing the value of teaching and learning. Key findings of the 2017 review process are summarized below.

- For students, a **student-centered environment is critical**. Students asked for more accessible and engaging opportunities to **make their university experience truly transformative**. Students need and expect **support to be successful** on their pathways to graduation. They believe that the most important factor influencing their success is the quality of the interaction they have with instructors and the support they receive from them. While many found their instructors knowledgeable, approachable and caring, they **want more accessible, supportive and engaging experiences**, in and out of the classroom, and more opportunity to apply new knowledge in practical ways.
- For educators, reward comes from the teaching experience and the dynamic interaction it generates with students. However, **support for faculty and instructors is critical to help them enhance their student interactions**. They need support on their professional development and on the services and programs that are available to help them and students achieve success, with particular attention to culturally diverse

and vulnerable populations. It is important to note that educators believe that there is a need for greater recognition of the value of teaching in the university environment. They suggested that **teaching should be more valued** in institutional policies and processes such as the promotion and tenure process.

- **Leadership** in teaching and learning is an ongoing priority for both educators and staff. Educators and staff emphasized that there are rich resources for teaching and learning at Memorial and they recognized organizational advancements that have been made in the last few years. However, they stressed the need for a **more integrated, visible and clearly defined structure** to support teaching and learning that is comparable to the offices for research and public engagement. Memorial needs to develop **structures that better align resources in teaching and learning**.
- The Memorial community recognized that many great initiatives have been undertaken by educators and staff to explore new approaches in teaching and learning. While serving to create a pan-university interest in teaching and learning, the initiatives were generally conducted independently of each other, each having a separate set of objectives and different evaluation processes. Memorial will realize greater advancement in teaching and learning by building on these activities with **more integrated and interdisciplinary initiatives** focused on the student. Student-centered approaches to teaching and learning that reach far and deep require **greater levels of collaboration and collegiality**.
- There was an overwhelming interest within the university community to **understand, support and embrace Indigenization in tangible ways**. As the only university in a province that is home to a variety of distinct Indigenous groups, Memorial's special obligation to the people of Newfoundland and Labrador must place a priority on the **inclusiveness of Indigenous people** of the province. For many students at Memorial, it **will fill an important gap** in their knowledge, which is detailed in the *Report on the Knowledge of Aboriginal People and Topics by First Year Students at Memorial*. Just as importantly, learning about Indigenous peoples can help build intercultural competence and expand the diversity experiences for all Memorial students (as well as educators and staff).

Some of the points above represent ongoing concerns of the university community since the first TLF. The 2017 consultations underscore the need for Memorial to be more aggressive in pursuit and support of new and integrated initiatives. The advancement of 21st century views, attitudes, and ways of knowing in the university community, in the last few years especially, pushes for a bolder shift toward greater support of students and scholars, an environment of innovation and excellence, and an enhanced educational experience for students.

Following the 2017 review process, the draft framework was posted on the Provost's website for feedback from the university community. A wide range of comments were received and integrated into the final framework in this document. During this period, the university had to turn its attention to some major fiscal challenges. In the absence of a finalized framework, the review process helped to inform new initiatives in teaching and learning. These initiatives support the final framework and are also outlined in this document.

Realizing that the environment is rapidly changing, it is important to acknowledge that the university's efforts will continue to evolve. The renewed TLF represents a phase in the evolution of teaching and learning. Future consultations and new knowledge about learner needs, teaching and learning practices, and institutional priorities will highlight other issues relevant to the times more forcefully. Teaching and Learning at Memorial will continue to evolve.

## MEMORIAL'S ENVIRONMENT

Memorial University operates in a complex and changing environment. The university is challenged in its recruitment and retention of students. Globally, participation rates in post-secondary education have increased and shifted, including the number of adult students, international students, Aboriginal students, online students, and students with disabilities enrolling in courses and programs. Institutional data available at Memorial shows that enrolments of graduate, international, and online students have increased or remained relatively steady between 2014 and 2018, while enrolment of undergraduate students has experienced a gradual decline.

Enrolments	2014	2015	2016	2017	2018
<i>Undergraduate</i>	13,971	13,894	13,663	13,564	13, 572
<i>Graduate</i>	3,597	3,687	3,759	3,774	3,834
<i>International</i>	2,123	2,318	2,457	2,744	3,067
<i>Online</i>	2,307	2,482	2,325	2,370	2,244

*Source: Memorial's Fact Book*

**21<sup>st</sup> century students:** At its core, recruitment and retention of students in the 21<sup>st</sup> century is a complex issue, representing an interplay of personal, institutional, and societal factors. Students who are able to integrate into the academic and social systems of a university are more likely to have greater success. Students seek more learning experiences that are personally fitting, accessible, engaging and relevant to today's world.

Today's students have greater access to and more choice in activities and resources to pursue their own learning styles and goals than did previous generations. Aided by an emphasis on experiential learning, opportunities afforded by the Internet and digital technologies, and engagement with the wider community, many students can gain knowledge and skills outside of traditional classroom environments. Students look for opportunities to customize their learning, pursue independent research and contribute meaningfully to projects relevant to employers and communities. They want more accessible and engaging learning experiences that traverse the sectors of teaching and learning, research, and public engagement.

Overall, the key areas of importance for students include accessibility, engagement, and support for success. Students demand stimulating choices with equitable support for inclusion and success as they plan their studies, especially interdisciplinary and experiential options, and programs and supports that help them transition knowledge into action, and negotiate their transformation from students to graduates.

**Challenges for Memorial:** The major challenges facing Memorial today include funding constraints and a critically weakening infrastructure. The shifting student demographics and evolving needs of the university community directly inform these challenges. The heavy budget and resource constraints that the university encounters, resulting largely from a decline in government funding coupled with growing issues with deferred maintenance of an aging physical infrastructure, make stepping up to advancing a 21<sup>st</sup> century teaching and learning environment especially difficult. The university endeavours to address the changes in its environment, including:

- Increased needs for success of diverse student populations – e.g., first-year students, Aboriginal students, international students, and students with disabilities.
- New expectations, communications, interests, and values of students.



- Changes in career goals and credential requirements of students and educators.
- Requirements of employers for graduates with diversified knowledge and skill sets.
- Competition with universities – Canadian and beyond – with greater teaching and learning resources.
- New paradigms of knowledge that focus on integrated ways of learning.
- Concerns about the value of teaching in promotion and tenure.

**Strengths and opportunities of Memorial:** Memorial perseveres to advance its teaching and learning environment. The university has many programs and services available to support educators and students. Advancements were made in educator development programming under the first framework. Academic programs aim to demonstrate clear goals crucial to meet the needs of students. Students, particularly in professional programs, have the ability to identify the core competencies that are directly relevant to their development.

Going forward, the university has a number of strengths and opportunities on which to draw, including:

- Diverse disciplines, knowledge populations, and unique experiences of its multiple environments.
- Faculty innovation and expertise as demonstrated in ongoing initiatives in teaching and learning.
- CITL with academic support expertise and resources, including curriculum and assessment development, educator and instructional development, and online and educational technologies application.
- Student support resources including Student Life, the Libraries, the Library Commons, Registrar's Office, Internationalization Office, Aboriginal Resource Office, Writing Centre, and Student Unions.
- Research on the needs of vulnerable populations, including first-year students, Aboriginal students, international students, and students with disabilities.
- Institutional plans and strategies for enrolment, internationalization, research, infrastructure, and technology transfer and commercialization.
- The Battery Facility as Memorial's newest location, located on iconic Signal Hill, is developed to be a pan-provincial innovation and public engagement hub enabling and supporting economic and social innovation, commercialization, entrepreneurship, leadership, regional development, and public and civic engagement. It is an integrated learning environment linking public engagement, research, and teaching and learning.

Memorial is committed to meaningful inclusive and accessible education for all learners with support for issues of equity and justice. In fall 2017, Universities Canada adopted Inclusive Excellence Principles whereby universities commit to student-centeredness, creating opportunities for student success as well as developing accessible learning environments for all learners. These principles target under-represented groups in Canada such as Indigenous peoples, visible minorities, persons with disabilities, LGBTQ2 and non-binary people.

The adoption of Principles on Indigenous Education by Universities Canada's and the 2015 Truth and Reconciliation Commission: Calls to Action make the inclusion of Indigenous peoples a priority. Indigenous peoples are a growing population. However, a small percentage have university education. Indigenous education will help improve recruitment and retention of Indigenous people. It will fill an important gap in the knowledge of students, educators, staff and communities, and help improve relationships of the province.

In sum, the challenges, strengths and opportunities of Memorial play a critical role in the evolution of teaching and learning at Memorial.

## TEACHING AND LEARNING FRAMEWORK 2023

Memorial operates in a rapidly changing and challenging environment with some major areas of strength. The 2017 consultations highlighted that the university should be aspirational about the future and build on its advancements in teaching and learning. To this end, the TLF 2023 is designed to adapt to the environment and guide the university in times of challenge and opportunity.

### VISION FOR TEACHING AND LEARNING

**Memorial University continues its commitment to innovation and excellence in teaching and learning.**

Memorial connects learners and educators to each other, the community and the world to create and exchange knowledge and advance the greater good of society. Students transform into graduates with superior qualities to contribute knowledge and expertise locally, nationally and internationally.

### QUALITIES OF MEMORIAL GRADUATES

The qualities of Memorial graduates are carried forward from the first TLF with minor modifications to reflect the changing environment of teaching and learning. In developing the first TLF, 90 members of the university community, including deans and directors, educators, students, and staff, identified these qualities.

**Memorial University graduates will:** be knowledgeable and competent in their field; be critical and practical thinkers; be responsible citizens; demonstrate ethical, moral and intellectual integrity; appreciate diversity and promote equity, fairness and justice; be creative and responsive problem solvers; have enthusiasm for learning; be supportive collaborators with particular regard to diversity of interests; communicate effectively; be passionate and industrious individuals; and demonstrate self-awareness and confidence in convictions.

### GUIDING VALUES AND PRINCIPLES

In pursuing the vision for teaching and learning, Memorial is guided by its institutional values as they apply to teaching and learning.

**Excellence:** Promoting excellence through innovation and creativity, rigour and pragmatism.

**Integrity:** Being honest and ethical in all interactions, maintaining the highest ethical standards.

**Collegiality:** Engaging others with respect, openness and trust in pursuit of a common purpose.

**Inclusiveness and diversity:** Embracing and acting on responsibility to guarantee diversity and equity.

**Responsiveness:** Being receptive to individuals and communities.

**Accountability:** Accepting responsibility for achievement of common goals and objectives.

**Freedom and Discovery:** Supporting the freedom to pursue knowledge.

**Recognition:** Acknowledging, tangibly, all aspects of the teaching and learning enterprise.

**Responsibility to place:** Fulfilling the special obligation to the people of Newfoundland and Labrador.

**Responsibility to learners:** Recognizing students as a first priority.

**Interdisciplinary collaboration:** Supporting overarching themes that cut across academic units.

**Sustainability:** Acting in a manner that is environmentally, economically and socially sustainable.

The principles below are standards of practice by which Memorial achieves its vision for teaching and learning.

**Focus on student outcomes:** Students of Memorial undertake personal and professional journeys of transformation with a clear understanding of their learning outcomes. Curricula and learning outcomes are continually renewed through research, public engagement and the perspectives of educators and students.

**Facilitate success:** The university integrates personalized support and tailors services to the needs of diverse learners to support their achievement from first year to graduation. Policies, systems and resources are aligned to facilitate student success.

**Deepen engagement:** Memorial integrates elements of teaching and learning, research, and public engagement in programming and course offerings. Students and educators engage in interdisciplinary experiences integrated with experiential learning and community collaboration.

**Enable accessibility:** The university integrates practices of inclusive excellence, diverse knowledges, universal design, equity and justice in curricula, support services and spaces to address student needs. Students, educators and staff identify and address barriers to, and provide supports for, recruitment and retention.

**Be innovative:** Memorial enhances the quality of its courses, programs and instruction through continuous innovation. The university is guided in its efforts by evidence of what works in addressing any barriers and obstacles to student success, engagement, and accessibility.

**Promote excellence:** Memorial supports educators with access to professional development. Teaching and learning, as an equal partner of research and public engagement, is rewarded in a manner that is concrete and public. Research and public engagement are valued elements in the excellence of teaching and learning.

**Demonstrate leadership:** Memorial models leadership by investing in the scholarship of teaching and learning and the co-creation of knowledge through research and public engagement. The university is committed to the personal and professional development of its members (students, educators, staff, and the community).

**Practice collaboration and interdisciplinarity:** Memorial maximizes the benefits of its teaching and learning environment through collaboration of individuals from different disciplines and backgrounds. The university establishes connections among educators, students, staff and members of the broader community.

**Share responsibility:** Memorial as a whole shares responsibility and accountability for achieving the vision for teaching and learning. Educators assume responsibility for effective teaching and evaluation. Students are responsible for their own learning. The university provides support to students and educators.

## GOALS

The primary goal of the framework is to strengthen the student educational experience through accessibility, engagement and student success. To achieve this goal, Memorial will increase collaborative and interdisciplinary initiatives in teaching and learning.

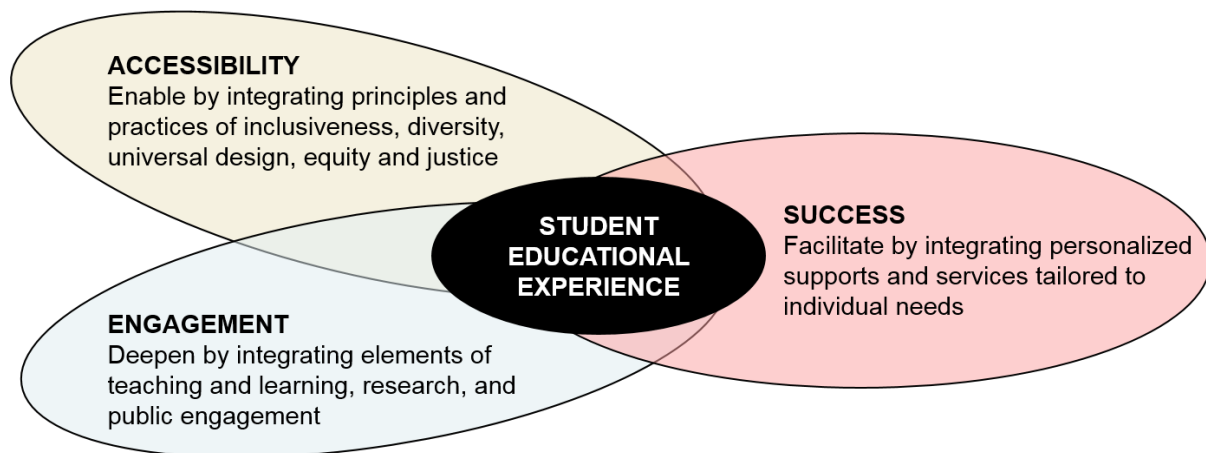
## STUDENT EDUCATIONAL EXPERIENCE

The vision, values and principles for teaching and learning are deliberately aspirational to motivate Memorial to strengthen its student educational experience. Operating in an increasingly complex environment with heavy funding constraints challenges the university's ability to be innovative and achieve excellence. However, an impressive amount of expertise in teaching and learning resides within the university community. It is the shared responsibility of the community to harness its expertise in a cohesive, collaborative manner.

An institution has a strategic advantage when its key resources and capabilities are valuable, rare, difficult to imitate, and organized in a manner that realizes their potential. Memorial's strengths constitute a set of key resources and capabilities, including multiple environments, unique facilities, diverse disciplines, faculty innovation and expertise, CITL's expertise and resources in teaching and learning, comprehensive student support resources, and institutional plans and research initiatives covering areas of interest to teaching and learning.

These resources and capabilities are valuable, rare and difficult to imitate as they apply to Memorial. They can be better organized through **collaborative and interdisciplinary initiatives that integrate approaches to accessibility, engagement and success into the student educational experience**. Student transformative experiences take place at the intersection of accessibility, engagement, and student success. The model below depicts that the vision, values and principles of teaching and learning are implemented by integrating initiatives of accessibility, engagement and success into the student educational experience.

### INTEGRATED MODEL OF MEMORIAL'S STUDENT EDUCATIONAL EXPERIENCE



This approach requires that Memorial's resources and capabilities come together more formally and effectively on collaborative and interdisciplinary initiatives, marking a shift in the evolution of the university's teaching and learning environment. Ultimately, this approach strengthens the university's commitment to innovation and excellence in teaching and learning, with the aim to transform students into graduates with superior qualities to contribute knowledge and expertise locally, nationally and internationally.

## LEADERSHIP AND GOVERNANCE

While teaching and learning is ultimately the responsibility of the Office of the Provost and Vice-President (Academic), a well-defined structure across the university is required to support the implementation of the framework. Collaborative and interdisciplinary initiatives will require new processes of decision, approval and execution. To maximize the effort, a pan-university leadership network will include CITL, a CITL Advisory Council, the Deans Council, and the Senate Committee on Teaching and Learning.

### CENTRE FOR INNOVATION IN TEACHING AND LEARNING (CITL)

CITL will be repositioned to be the central office for teaching and learning, taking on a more central role and a broader vision in teaching and learning to support the Provost and Vice-President (Academic) and academic leadership across the university with the implementation of the TLF. CITL will consolidate its expertise in online education offerings, educational technologies, curriculum development, and educator and instructional development to enhance support for students and scholars and realize innovation and excellence in teaching and learning in every area of the university. As the central office for teaching and learning, CITL will:

- Consult academic units and faculty on the integration of new teaching and learning initiatives into programs and courses (on campus and online) and on the evaluation of the initiatives.
- Support academic units and faculty to enhance programs and courses through curriculum and assessment development, educator and instructional development, and online and educational technologies application.
- Enable collaborative and interdisciplinary initiatives in teaching and learning by facilitating relationships among academic units, academic support units, and external communities.
- Be the administrative home for undergraduate offerings that are truly interdisciplinary (not owned by one academic unit) by coordinating the development, integration, implementation and evaluation of such offerings with Senate, the Deans Council and academic units.
- Develop the scholarship of teaching and learning, encouraging research of innovations and fostering excellence in teaching and learning.
- Promote synergies and joint initiatives with offices of research and public engagement.

### CITL ADVISORY COUNCIL

CITL has an important role to support academic programming and create links among a wide network of partners in teaching and learning. A formal entity must exist to help CITL foster critical relationships and build capacity to support the implementation of the framework. An Advisory Council to CITL will be the primary network in teaching and learning, offering guidance and support to the Director and senior management of CITL. The Council will:

- Advise on new and integrated initiatives in teaching and learning.
- Facilitate integration of new initiatives into academic programming.
- **Promote opportunities for collaborative and interdisciplinary initiatives in teaching and learning.**
- Encourage a community of scholars and professionals in teaching and learning.
- Foster the relationship between academic units and CITL, enabling expert support in curriculum and assessment development, educator and instructional development, and online and educational technologies application.

## TEACHING AND LEARNING

In addition to the Director and senior management representatives of CITL, the Advisory Council will comprise members from senior positions across the university, including leaders of academic programming (e.g., Associate Deans of programming), the Libraries, Student Life, Registrar's Office, student unions as well as teaching award winners. Senior administrators of the offices of research and public engagement will hold *ex officio* seats on the council. Members are appointed by the Provost and Vice-President (Academic). Fiduciary responsibility will remain with CITL and the Office of the Provost and the Vice-President (Academic).

## DEANS COUNCIL

As the body that provides academic leadership for the university, the Deans Council will need to play an important role in overseeing the advancement of the framework. Notably, new undergraduate interdisciplinary initiatives will require a governing academic body and new processes for approval and integration across the university. The Secretary of Senate, in consultation with the Office of the General Counsel, advises that an academic decision-making body other than a traditional faculty council can govern an undergraduate course or program in instances where the course or program is interdisciplinary in nature (i.e., not owned by one academic unit). The Deans Council is the most relevant body to govern interdisciplinary courses and programs because it is a truly interdisciplinary decision-making body. The Deans Council will:

- Oversee integration of new initiatives in teaching and learning into academic programming.
- Review new interdisciplinary initiatives, and upon approval, propose them to Senate.
- Advise the Provost and Vice-President (Academic) on the means by which the university enhances the capacity and raises the profile of teaching and learning.

## SENATE COMMITTEE ON TEACHING AND LEARNING

A complete leadership network requires an entity of a broad range of partners to monitor the progress of the framework. The Senate Committee on Teaching and Learning at Memorial brings together faculty members from across campuses and representatives of CITL, CIAP, Student Life, the Libraries, the Registrar's Office and Student Unions. Based on the Terms of Reference for this committee, the committee has the capacity:

- To monitor and support the TLF.
- To provide feedback and make recommendations on current and proposed regulations, policies and practices that relate to teaching and learning.
- To develop and recommend to Senate policies and practices to promote excellence in teaching and learning.
- To receive regular updates from CITL on innovations in teaching and learning, and to advise Senate on such matters.
- To review qualitative and quantitative data on student engagement and the student educational experience and to make recommendations to Senate based on such data.

It is important to note that realizing the vision for teaching and learning requires all of Memorial (leadership, educators, staff, and students across campuses) working together with CITL, undertaking collaborative and interdisciplinary initiatives in programming that integrate principles of accessibility, engagement, and student success. The university will shift its environment by integrating the vision for teaching and learning into all its activities, developing an environment in which all students have equitable support to succeed and gain the qualities of a Memorial graduate.

## NEW INITIATIVES SUPPORTING THE FRAMEWORK

Memorial's initial investments in implementing the TLF 2023 are designed to make an aggressive start at shifting its environment toward more collaborative and interdisciplinary initiatives in teaching and learning. The university will support the three new initiatives described below. These initiatives are intended to motivate the university to come together in new ways, and create opportunities for more new initiatives.

### STUDENT SUCCESS COLLABORATIVE

The Education Advisory Board's Student Success Collaborative (SSC) is a program that combines technology, consulting, and best practice research to help universities improve student success. The SSC platform increases student achievement and retention by connecting students with the right services and supports at the right time. It presents data for decision-making at a university-level as well as on a student-level so that proper support to the student can be provided using a personalized and coordinated approach.

Through SSC Campus, a comprehensive advising platform that includes tools for scheduling advising appointments and enabling communications between advisors and students, Memorial can provide the right support to students at the right time, and eliminate barriers to persistence and degree completion. SSC provides advisors with powerful communication and workflow tools to transform insight to action and administrators with customized change management guidance to support institutional transformation.

SSC's student success management system has two major components: the Campus platform (for faculty and staff use); and the Guide mobile application (for student use). The Office of the Registrar in collaboration with the Office of the Provost is leading the implementation of a five-year pilot project at Memorial. The primary focus of the first phase of SSC is first-year undergraduate students on the St. John's campus in 2018-2019.

Memorial has adopted the SSC with the objective of providing the highest level of support to students along their academic journey, ultimately increasing retention by connecting students with the right services and supports at the right time during their studies. These services include enhanced and more cohesive university-wide student advising practices.

### PROGRAMMING FOR INNOVATIVE INTERDISCIPLINARY COMMUNITY COLLABORATION

Inspired by initiatives of the teaching and learning funding competition at Memorial, the university is committed to developing new and innovative approaches to interdisciplinary community-collaborative studies. Extensive consultations across the Memorial campuses and throughout communities in St. John's, Corner Brook, and Labrador provide the basis to create new and innovative models of programming.

Models of new programming that have been explored bring together students from across disciplines to work intensely on public policy/topics that are relevant to local communities. Students have opportunities to work in both small teams and with the full cohort, engage in public-facing events/dialogues, and collaborate with, learn from, and be mentored by relevant stakeholders, decision-makers, policy advisors, opinion leaders, the university community, and communities at large.

These models of programming require new structures and processes for implementation. The models are designed and delivered by a team of faculty and staff in collaboration with community leaders and partners with relevant expertise and experience, and depending upon the topic being explored. Students participate

for credit toward their degree programs in a manner approved by their faculty or school. The models also require new approaches to pedagogical methods and student assessment as they integrate elements of teaching and learning, research, and public engagement.

Memorial will work to develop immersive opportunities for students to engage in various forms of learning such as dialogue, experiential learning, interdisciplinary research, and action within community-based projects. Students will gain both individual and team-based skills and competencies in areas such as leadership, communications, civic engagement, dialogue, facilitation and presentation skills, research, project management, and personal/professional development. A key component of programs will focus on the application of academic knowledge and skills within diverse, community-based contexts and diverse ways of knowing and doing. The programs will be developed and lead by both university and community-based thought leaders.

CITL will coordinate the development and integration of new programs with the Deans Council and academic units throughout Memorial's campuses. CITL will provide support on curriculum development, assessment, instructional and educator development, community engagement, and the design and use of new and emerging technologies.

### INDIGENIZATION STRATEGY FOR MEMORIAL

The Office of Aboriginal Affairs is leading the development of a comprehensive Indigenization strategy for Memorial, which will include priorities for teaching and learning. The approach is broad and deep, one that integrates Indigenous ways of knowing, doing and being into all areas of the university including practices of teaching and learning. The TLF 2023 supports the development of the strategy and commits to integrating its priorities for teaching and learning, acknowledging the value to the educational experience of students.

Through adopting the approaches to teaching and learning of the Indigenization strategy, there are tremendous opportunities for Indigenous students at Memorial. The strategy builds on the *2009 Report of the Presidential Task Force on Aboriginal Initiatives*, which provided strong direction regarding enhancing the recruitment and success of Indigenous students. It also builds on the 2015 *Truth and Reconciliation Commission: Calls to Action*, and Memorial's 2015 report titled *Celebrating Aboriginal Culture and Cultivating Inclusion at Memorial University*.

At the core of this initiative is the potential for renewed relationships with Indigenous peoples and the advancement of reconciliation. Memorial is committed to enabling Indigenous peoples to strive for self-realization, thus strengthening Indigenous communities and contributing to the province's social inclusion and economic success.

Additionally, Memorial's capacity to expand upon and advance knowledge about cultures and worldviews will increase, helping to build trust and understanding, as well as the capacity to inspire future students and generations. Indigenizing teaching and learning is diverse, and will strengthen the overall student experience. Memorial will further understand how to build intercultural competence and expand diversity experiences. Diverse ways of knowing, doing and being will enhance the qualities of students to raise critical questions and contribute knowledge and expertise locally, nationally and internationally.



## ONGOING INITIATIVES SUPPORTING THE FRAMEWORK

The new initiatives supported by the framework are just the beginning. Continuous innovation and excellence in teaching and learning is important to the future. The Promotion and Tenure process of the university should aim to help enhance the recognition of innovation and excellence in teaching and learning. Importantly, the entire university community should be motivated to integrate and collaborate in new and different ways. Initiatives will continue that promote new approaches to teaching and learning including accessibility, engagement, and student success.

### INNOVATION FUNDING COMPETITION

CITL will administer an annual university-wide funding competition to encourage exploration of new and integrated practices in teaching and learning across campuses. One-time (non-base) funding will be provided to support short-term pilot projects and proof of concept-type initiatives that align with the framework. The objectives of the competition are to identify teaching and learning initiatives that are evidence-based and have, for example, demonstrated capacity to:

- Involve multi-disciplinary, cross portfolio, cross campus and/or community collaboration.
- Contribute to student accessibility, engagement and success.
- Contribute to the development of the desired qualities of Memorial's graduates.
- Enhance the flexibility of program design, mode of delivery and scheduling.
- Facilitate interaction among learners, educators, staff and the community.
- Impact a significant number of students and/or educators.
- Create innovative use of online and educational technologies.

### AWARDS AND EVENTS

CITL will administer the annual Award for Outstanding Self-directed Learning to celebrate undergraduate students with the qualities and skills that enable them to manage their own learning and successfully undertake self-directed learning projects. Students recognized by this award are curious, creative, independent, confident, and persistent—well equipped to become life-long self-directed learners. Established in 2016, one award is bestowed annually. Read about the award recipients in [2016](#), [2017](#), and [2018](#).

CITL will organize an annual conference event to promote the practice and scholarship of teaching and learning at Memorial. The event will showcase projects and initiatives of the university community that demonstrate new and integrated approaches to teaching and learning. With an aim to foster innovation and excellence, the event will include conversations and community building centred on collaborative and interdisciplinary approaches to the student educational experience.

## COMMITMENT TO SUCCESS

Allocating sufficient funding to the initiatives that support the implementation of the framework will demonstrate an essential commitment to success. The Office of the Provost and Vice-President (Academic) will fund the initiatives supporting the framework, including: 1) the Student Success Collaborative; 2) innovative interdisciplinary community-collaborative programming; 3) partial support for an Indigenization strategy for the university; 4) an innovation funding competition; 5) the student self-directed learning award; and 6) an annual teaching and learning event.

The new initiatives outlined in this document provide the university with initial guidance in shifting its approach to more collaborative and interdisciplinary initiatives in teaching and learning. As these initiatives are expected to break new ground, it is crucial that they are set up for success. They will receive 80 per cent of the annual teaching and learning envelope of the Office of the Provost. The remaining 20 per cent will be allocated to the ongoing initiatives, continuing to invest in innovation and excellence in teaching and learning.

It is important to note that the success of all initiatives is dependent on the collaborative efforts of the entire university community, including educators, students and staff across campuses. All units are called to align their teaching and learning initiatives and resources with the framework.

## FRAMEWORK EVALUATION

Annual evaluation of Memorial's progress in implementing the initiatives of the framework is important for realizing the vision for teaching and learning. Critical components of evaluation include:

- The Senate Committee on Teaching and Learning will establish measures for evaluating the framework, set policies and practices for evaluation, and monitor the outcomes of the framework.
- Key measures of evaluation include student accessibility, student engagement, and student success.
- CITL will collect evaluation data and prepare annual reports on the framework.
- CIAP will play an important role in guiding data-gathering processes associated with the framework. CIAP will provide institutional data on student accessibility, engagement, retention, and success.
- Academic and support units of the university are called to support the evaluation of the framework.

## CONCLUDING COMMENTS

The TLF 2023 marks a shift in the evolution of teaching and learning at Memorial. The framework makes a renewed commitment to the university's mission and to strengthening the student educational experience. It reaffirms Memorial's commitment to have a transformative impact on students, in service to a greater social good, in keeping with the university's mission. Essential are a strong leadership network and collaborative and interdisciplinary initiatives that integrate approaches to accessibility, engagement and student success.

Through the initiatives supporting the TLF, Memorial will experience a transformation in its environment that will better attract and retain students. The initiatives will create an environment for ALL to thrive personally, academically, and professionally, promoting a culture where students and educators are creative, pushing their own limits and discovering new knowledge about their disciplines and themselves, and understanding what it means to be confident, bold and progressive. Memorial students will transform into graduates with superior qualities to contribute knowledge and expertise locally, nationally and internationally.



**Office of the Registrar**

St. John's, NL Canada A1C 5S7  
Tel: 709 864 8260 Fax: 709 864 2337  
[www.mun.ca](http://www.mun.ca)

**March 11, 2019**

TO: All Members of Faculty Council, Faculty of Science

FROM: Tracey Edmunds, Secretary, Committee on Undergraduate Studies  
Faculty of Science (Acting)

SUBJECT: **Proposals for Calendar Changes**

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At a meeting held on March 6<sup>th</sup>, 2019 the Faculty of Science Committee on Undergraduate Studies approved a proposal for a New Special Topics Course from the Department of Ocean Sciences, and agreed that the following items should be forwarded to Faculty Council for information:

**1. Department of Ocean Sciences**

- (a) Proposal for a New Special Topics Course: OCSC 4920 Special Topics in Crustacean Biology

*Tracey Edmunds*

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Tracey Edmunds

# Memorial University of Newfoundland Undergraduate Calendar Change Proposal Form Cover Page

## LIST OF CHANGES

Indicate the Calendar change(s) being proposed by checking and completing as appropriate:

- New course(s): OCSC 4920 Special Topics in Crustacean Biology
- Amended or deleted course(s):
- New program(s):
- Amended or deleted program(s):
- New, amended or deleted Glossary of Terms Used in the Calendar entries
- New, amended or deleted Admission/Readmission to the University (Undergraduate) regulations
- New, amended or deleted General Academic Regulations (Undergraduate)
- New, amended or deleted Faculty, School or Departmental regulations
- Other:

## ADMINISTRATIVE AUTHORIZATION

By signing below, you are confirming that the attached Calendar changes have obtained all necessary Faculty/School approvals, and that the costs, if any, associated with these changes can be met from within the existing budget allocation or authorized new funding for the appropriate academic unit.

Signature of Dean/Vice-President: \_\_\_\_\_

Date: \_\_\_\_\_

Date of approval by Faculty/Academic Council: \_\_\_\_\_

# Memorial University of Newfoundland Undergraduate Calendar Change Proposal Form Senate Summary Page for Courses

## **COURSE NUMBER AND TITLE**

OCSC 4920 Special Topics in Crustacean Biology

## **RATIONALE**

The proposed course will give students a comprehensive understanding of crustaceans, which are a large group of arthropods ranging in size from less than 1 mm to over 2 m, inhabiting nearly all environments on Earth, from deep-sea vents to the top of mountains. Topics to be covered include classification, functional morphology, behaviour, physiology, life in extreme environments, and fisheries and aquaculture. Although crustaceans are touched upon superficially in some other courses, this course will be unique in the depth of coverage and hands-on applications. Furthermore, given the broad diversity of species (67,000) and habitats involved, the course should be of interest to students in Ocean Sciences, Marine Biology and Biology. By the end of the course, students should have an understanding of basic crustacean classification, common behavioural and physiological reactions, as well as the economic imperatives of crustaceans.

## **CALENDAR CHANGES (new entry under 12.9 Ocean Sciences)**

**4920 Special Topics in Crustacean Biology** covers the classification, anatomy/morphology, physiology, behaviour, ecology, fisheries and aquaculture of members of subphylum Crustacea from all environments, with an emphasis on aquatic and marine species. The course combines regular lectures with a hands-on workshop, where students can get familiar with representative specimens (e.g. crabs, lobsters, shrimps), and learn through dissections or simple behavioural experiments.

PR: OCSC 1000 and 2000 (or Biology 3710), and Biology 2122 and 2600

# Memorial University of Newfoundland Undergraduate Calendar Change Proposal Form Appendix Page

## CONSULTATIONS SOUGHT

<b>From</b>	<b>Response Received</b>
Grenfell campus	No
Faculty of Business Administration	Yes
Faculty of Education	No
Faculty of Engineering & Applied Science	Yes
Faculty of Humanities & Social Science	No
Faculty of Science	Yes
Department of Biochemistry	
Department of Biology	X
Department of Chemistry	X
Department of Computer Sciences	
Department of Earth Sciences	
Department of Economics	
Department of Geography	X
Department of Mathematics and Statistics	
Department of Physics and Physical Oceanography	
Department of Psychology	
Marine Institute	Yes
School of Medicine	Yes

***See Appendix for details on consultations***

## LIBRARY REPORT

Attached.

## RESOURCE IMPLICATIONS

Since this new course will be taught by an existing faculty member at the Department of Ocean Sciences, no additional instructional costs are required.

## ADDITIONAL INFORMATION REQUIRED FOR NEW COURSE PROPOSALS

### Sample Course Outline and Method of Evaluation

#### Proposed Course Outline

<b>DATE</b>	<b>SUBJECT</b>
Week 1	Classification, diversity and anatomy
Week 2	Reproduction, development and growth
Week 3	Feeding and social behavior
Week 4	Practical workshop/demonstration
Week 5	<b>Test 1</b>
Week 6	Crustaceans in extreme Environments 1 (polar, tropical and hydrothermal vents)
Week 7	Crustaceans in extreme Environments 2 (hypoxia and ephemeral pools)
Week 8	Crustaceans in extreme Environments 3 (intertidal zone and estuaries)
Week 9	<b>Test 2</b>
Week 10	Invasive crustaceans
Week 11	Land crabs
Week 12	Crustacean fisheries
Week 13	Crustacean aquaculture
Finals week	<b>Final test</b>

#### Format

Lecture format: 3 hours per week.

While this course does not have a laboratory component, one of the lecture blocks (week 4) will be taught in hands-on format, which may include the dissection and drawing of a fresh specimen, the examination and classification of preserved specimens, and/or behavioural experiments. The hands-on component is designed to provide a different, more interactive learning experience.

#### Evaluation

Exam 1 (25%)

Exam 2 (25%)

Final Exam (35%) Cumulative

Assignment (15%) Written critique of a paper from the current literature, this will be assigned after the second test and will be due in on the last day of class.

**Bibliography:** No specific book required as the course material will come from a number of different sources such as the Journal of Crustacean Biology, Invertebrate Zoology – Rupert and Barnes, Crustacean Farming – Wickens and Lee.

#### Instructors

Dr. Iain J. McGaw, Professor, Department of Ocean Sciences.

Email: [ijmcgaw@mun.ca](mailto:ijmcgaw@mun.ca)

New Course – OCSC 4920 – 28 Feb 2019

**APPENDIX - CONSULTATIONS**  
**Original message sent 14 January 2019**

**Subject:** New course OCSC 4920  
**Date:** Mon, 14 Jan 2019 18:10:15 +0000  
**From:** Fletcher, Garth <fletcher@mun.ca>  
**To:** Associate Dean of Science (Undergraduate) <adsu@mun.ca>, BiocDHundergrad <biocdhundergrad@mun.ca>, Business <fba.ad.undergrad@mun.ca>, chemconsult@mun.ca (chemconsult@mun.ca) <chemconsult@mun.ca>, 'cs-chair@mun.ca' <cs-chair@mun.ca>, Earth Sciences <eascugcon@mun.ca>, Locke, Wade <wlocke@mun.ca>, Hicks, Sue <shicks@mun.ca>, Engineering <enrconsult@mun.ca>, Alcock, Erin <ekalcock@mun.ca>, Grenfell Campus <associatevpooffice@grenfell.mun.ca>, Faculty of Humanities and Social Sciences <hss@mun.ca>, 'mathconsult@mun.ca' <mathconsult@mun.ca>, Medicine <deanofmedicine@med.mun.ca>, 'miugconsultations@mi.mun.ca' <miugconsultations@mi.mun.ca>, Catto, Norm <ncatto@mun.ca>, Physics Head <physicshead@mun.ca>, psychology.head@mun.ca <psychology.head@mun.ca>, Suzanne Dufour <sdufour@mun.ca>, Chapman, Tom <tomc@mun.ca>  
**CC:** amercier@mun.ca <amercier@mun.ca>

Colleagues could you please review our new course proposal OCSC 4920 entitled “Crustacean Biology” and send your comments back to me at your convenience.

Regards  
Garth

Garth L. Fletcher  
Head and Professor Emeritus  
Department of Ocean Sciences  
Ocean Sciences Centre  
Memorial University  
St John's NL  
Canada, A1C 5S7

TEL: 709-864-3276  
FAX 709-864-3220  
Email [fletcher@mun.ca](mailto:fletcher@mun.ca)



New Course – OCSC 4920 – 28 Feb 2019

**Replies received**

**BUSINESS**

**From:** Associate Dean of Under Graduate Faculty of Business Administration  
[mailto:adundgradfba@mun.ca]  
**Sent:** January-14-19 3:07 PM  
**To:** Fletcher, Garth <fletcher@mun.ca>  
**Subject:** Re: New course OCSC 4920

Hello:

Thank you for the opportunity to comment on this proposal. The Faculty of Business Administration has no concerns with the proposed changes.

--larry

---

**GEOGRAPHY**

**From:** Catto, Norm  
**Sent:** January-14-19 3:37 PM  
**To:** Fletcher, Garth <fletcher@mun.ca>  
**Subject:** RE: New course OCSC 4920

Dear Garth:

No issues from Geography

Norm Catto  
Head, Department of Geography  
Memorial University  
St. John's NL A1B 3X9  
Canada  
1-709-864-7463  
Fax 1-709-864-3119

---

**ENGINEERING**

**From:** Engineering Consult [mailto:enrconsult@mun.ca]  
**Sent:** January-15-19 10:52 AM  
**To:** Fletcher, Garth <fletcher@mun.ca>  
**Cc:** Fisher, Andrew <adfischer@mun.ca>; Edmunds, Jayde <edmundsj@mun.ca>; Bruce Quinton <bruce.quinton@mun.ca>  
**Subject:** Re: New course OCSC 4920

Dear Dr. Fletcher,

Thank you for the opportunity to comment on the proposed new course OCSC 4920 "Special Topics in Crustacean Biology".

If this is a special topics course, then it needs no approval beyond the Faculty of Science. If this is a regularization of an existing special topics course (or is a new regular course), then the title needs amendment, from "Special Topics in Crustacean Biology" to just "Crustacean Biology".

I see no impact on Engineering programs and I am happy to support this new course.

Yours sincerely,

Dr. Glyn George, Chair

New Course – OCSC 4920 – 28 Feb 2019

Committee on Undergraduate Studies  
Faculty of Engineering and Applied Science Memorial University of Newfoundland  
St. John's NL A1B 3X5

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**MARINE INSTITUTE**

**From:** Bev Fleet [mailto:Bev.Fleet@mi.mun.ca]  
**Sent:** January-15-19 11:55 AM  
**To:** Fletcher, Garth <fletcher@mun.ca>  
**Subject:** FW: New course OCSC 4920

Hi Garth,

See below for some positive comments.

Bev

**From:** Joy Blundon  
**Sent:** Tuesday, January 15, 2019 11:48 AM  
**To:** Mary Pippy <[Mary.Pippy@mi.mun.ca](mailto:Mary.Pippy@mi.mun.ca)>  
**Subject:** RE: New course OCSC 4920

Mary,  
No issues- a needed addition for marine biology studies.  
Joy

Joy Blundon  
Instructor  
School of Fisheries, Marine Institute  
Telephone: 709-778-0312  
-----

**From:** Bev Fleet [mailto:Bev.Fleet@mi.mun.ca]  
**Sent:** January-15-19 11:32 AM  
**To:** Fletcher, Garth <fletcher@mun.ca>  
**Subject:** FW: New course OCSC 4920

Hi Garth,

See below for Cyr's comments and question on this course.

Regards,  
Bev

**From:** Cyr Couturier  
**Sent:** Tuesday, January 15, 2019 11:26 AM  
**To:** Mary Pippy <[Mary.Pippy@mi.mun.ca](mailto:Mary.Pippy@mi.mun.ca)>; Shawn Fortune <[Shawn.Fortune@mi.mun.ca](mailto:Shawn.Fortune@mi.mun.ca)>; Joy Blundon <[Joy.Blundon@mi.mun.ca](mailto:Joy.Blundon@mi.mun.ca)>; Jillian Westcott <[Jillian.Westcott@mi.mun.ca](mailto:Jillian.Westcott@mi.mun.ca)>  
**Cc:** Cyr Couturier <[Cyr.Couturier@mi.mun.ca](mailto:Cyr.Couturier@mi.mun.ca)>  
**Subject:** RE: New course OCSC 4920

No issues here, except that one of the topics in week 13 "Crustacean Aquaculture", is covered in OCSC 3000 most years.

Would also be good to know for which program this course is being developed for .... BSc Ocean Sciences, BSc Marine Biology, or some other.

New Course – OCSC 4920 – 28 Feb 2019

**Cyr Couturier**

Aquaculture Scientist and Chair Aquaculture Programs  
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**On 16/01/2019 7:50 a.m., Annie Mercier wrote:**

Hi Bev:

Please thank Cyr for his thoughtful comments.

We will certainly encourage the instructors of OCSC 3000 and the newly proposed course get together to ensure minimal overlap for that weekly topic. There should be more than enough material in crustacean aquaculture to ensure this.

As for the programs, we mention in the rationale that "...the course should be of interest to students in Ocean Sciences, Marine Biology and Biology."

All the best,  
Annie

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Annie Mercier, PhD  
Professor and Deputy Head,  
Department of Ocean Sciences  
Memorial University (Ocean Sciences Centre)  
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**MEDICINE**

**Sent:** January-16-19 1:46 PM  
**To:** Fletcher, Garth <[fletcher@mun.ca](mailto:fletcher@mun.ca)>  
**Cc:** [DeanofMedicine@med.mun.ca](mailto:DeanofMedicine@med.mun.ca)  
**Subject:** FW: New course OCSC 4920

Dr. Fletcher

The Faculty of Medicine is supportive of the proposed calendar changes for OCSC 4920 Special Topics in Crustacean Biology.

Regards

CATHY VARDY, MD, FRCPC | VICE DEAN AND PROFESSOR OF PEDIATRICS

Faculty of Medicine  
Health Sciences Centre  
Room M2M319  
Memorial University of Newfoundland  
St. John's, Newfoundland | A1B 3V6

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**BIOLOGY**

**From:** Suzanne Dufour [<mailto:sdufour@mun.ca>]  
**Sent:** January-29-19 10:26 AM  
**To:** Fletcher, Garth <[fletcher@mun.ca](mailto:fletcher@mun.ca)>

New Course – OCSC 4920 – 28 Feb 2019

**Subject:** Biology Undergraduate Studies Committee - review of new course proposal, OCSC 4920

Dear Garth,

The Biology Undergraduate Studies Committee has reviewed the proposal for a new course, OCSC 4920 - Crustacean Biology. We agree that the topic is of interest given the considerable ecological and commercial value of crustaceans, and we think the course should be attractive to students. In our discussion, several points were raised regarding the logistics of offering this course:

- 1) Would this course be offered in a 3h once-a-week format? If so, which time slot and semester will you propose to ensure that students will be able to schedule it amongst other courses and labs?
- 2) Given that this is listed as a Special Topics course, it is intended to be offered on an irregular basis, rather than yearly?
- 3) The single hands-on component does not appear to be evaluated (was this the intent)? Which facilities will be used for the hands-on component (will students be expected to go to the Ocean Sciences Centre?). Our committee felt that this course could be enhanced by including a weekly 3h lab, and that there is potential for including a variety of lab exercises beyond dissections (e.g. faculty at the Marine Institute are doing related work on crustacean fishing gear, sea lice, transformation of crustacean waste products; the course could make use of this expertise and the MI facilities in a dedicated weekly lab)
- 4) Is there an intent to use resources from the Department of Biology, such as lab space or preserved specimens that are used in Biology courses (e.g. BIOL 2122, Biology of Invertebrates)?
- 5) It is not clear why BIOL2600 is a pre-requisite. You might consider including BIOL 2900 (Principles of Evolution and Systematics) as a pre-requisite.
- 6) There is no need to list OCSC 1000 as a pre-requisite since it is required for OCSC 2000, which is also listed.
- 7) BIOL 3711 might be an alternative pre-requisite to BIOL 3710.
- 8) The proposed instructor (Dr. McGaw) currently teaches courses in the Department of Biology (BIOL 3640 - Environmental Physiology of Animals and courses at the Harlow campus); changes to Dr. McGaw's teaching should be noted as having an impact on the Biology Department's undergraduate program.

We would appreciate being pre-consulted on future proposals that involve Biology course as pre-requisites, as some of our courses are consistently at capacity, or nearly so, and we may not necessarily be able to accommodate additional students outside of our programs.

Best wishes,  
Suzanne

Dr. Suzanne Dufour  
Associate Professor and Deputy Head (Undergraduate) Department of Biology Memorial University of Newfoundland St. John's, NL A1B 3X9 Canada

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<http://www.mun.ca/biology/dufour/index.php>

New Course – OCSC 4920 – 28 Feb 2019

**On 06/02/2019 11:38 a.m., Annie Mercier wrote:**

Dear Suzanne:

We thank BUGS for supporting the course and raising a number of thoughtful points. The OSCUP has consulted with the prospective instructor to provide the following responses:

- 1) The 3-h format was requested by the instructor to accommodate the delivery style of the course and favour experiential learning (see response to #3). Scheduling of this course has yet to be confirmed but we are tentatively aiming for Fridays during the winter semester. This is an advanced course to be taken in third or fourth year, when students should have more flexible schedules. We will work to minimize any conflict with other senior OCSC and BIOL courses.
- 2) The frequency of offering will largely depend on the enrollment volume, but we are aiming to offer it annually if there is enough demand. If so, we would likely regularize the course.
- 3) While most of the course will be lecture-based and delivered on campus (with global assessment of learning), the 3-h block design was chosen primarily to accommodate hands-on workshops off campus (e.g. at the OSC or MI). At least one is planned but more could be added. We thank you for your suggestion of including a full lab section. However, this would require resources that we do not have, including the lack of dedicated space for teaching laboratories on campus. Moreover, holding weekly labs at the MI or the OSC would increase the potential for scheduling issues and make the course less accessible.
- 4) We would not presume to ask for any of Biology's resources, but would welcome them should they be offered.
- 5) Based on the syllabi you provided last year when we were developing the course, it was felt that BIOL 2600 was the most suitable PR to give students a foundation in ecology, especially since species interactions, environmental quality and natural management practices are covered. We had limited information on BIOL 2900, giving us the impression that it is largely centered on natural selection and genetic theories not required for the proposed course. If more details can be provided on BIOL 2900, we might consider changing the PR to BIOL 2600 or 2900.
- 6) We still need to list OCSC 1000 as a PR in case students take BIOL 3710 (instead of OCSC 2000).
- 7) BIOL 3710 is only listed as being an acceptable substitute PR because it is credit restricted with OCSC 2000.
- 8) Should teaching load become an issue, the impact on Biology would likely be considered during teaching assignments, which will be handled by our department's head.

All the best,

Annie

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Annie Mercier, PhD  
Professor and Deputy Head,  
Department of Ocean Sciences  
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New Course – OCSC 4920 – 28 Feb 2019

**On 11/02/2019 1:45 p.m., Suzanne Dufour wrote:**

Dear Annie,

Thanks for your response to our concerns. I'm following up on point 5 (below) by sending you this year's syllabus for BIOL 2900, for your information.

Best wishes,  
Suzanne

**On 28/02/2019 10:37 a.m., Annie Mercier wrote:**

Hi Suzanne:

Apologies for the delay; things have been quite busy with NSERC business. The instructor has reviewed the document you provided and still feels that BIOL 2600 is the most appropriate PR.

All the best,  
Annie

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## CHEMISTRY

**From:** Department of Chemistry Consult [<mailto:chemconsult@mun.ca>]

**Sent:** February-05-19 4:38 PM

**To:** Fletcher, Garth <[fletcher@mun.ca](mailto:fletcher@mun.ca)>

**Subject:** Re: New course OCSC 4920

Hi Garth,

I read through the proposal and it sounds like an interesting and well thought out course. I support the proposal on behalf of the undergraduate studies committee of the chemistry department.

Sincerely,

Chris Flinn  
Deputy Head, Undergraduate Studies  
Department of Chemistry



Collection Development Division  
Queen Elizabeth II Library

28 February 2019

**To:** Garth Fletcher, Department of Ocean Sciences  
**From:** Erin Alcock, Science Research Liaison Librarian  
**Subject:** New Course Proposal, OCSC 4920

I have reviewed the new course proposal for OCSC 4920 – Special Topics in Crustacean Biology. I have determined that the Memorial University Library system has adequate resources to support the objectives of this course.

Physical books and journals held by the system are primarily at the Queen Elizabeth II Library and to some extent at the Dr. C.R. Barrett Library at the Marine Institute. Online subscriptions to relevant journals are numerous. Items not currently in the collection can be ordered through Document Delivery or ordered for the collection in paper or e-format, based upon preference. Particular attention will be focused upon crustaceans in extreme environments in future purchasing as this appears to be a significant concentration in the course.

Table One outlines the results obtained with searches in our Catalogue and discovery system based upon the proposed course topics. Additional items will be discovered in subject specific databases such as ASFA (Aquatic Science and Fisheries Abstracts), as well as, Biological Abstracts, Web of Science and Scopus.

**Table One: OCSC 4920 Topics in OneSearch**

Course Topics	Library Holdings from OneSearch	
	Catalogue	Books, Articles & More...
Crustacea*	892	210000+
AND classification	109	38000+
AND morphology	40	61000+
AND behaviour	39	54000+
AND physiology	46	61000+
AND extreme (environments)	4	48000+
AND fisheries	125	80000+
AND aquaculture	46	23000+