



Faculty of Science

Office of the Dean
St. John's, NL Canada A1B 3X7
Tel: 709 864 8154 Fax: 709 864 3316
deansci@mun.ca www.mun.ca/science

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, September 20, at 1:00 p.m. by WebEx and in-person (Room: C- 2045).

AGENDA

1. **Regrets** - Travis Fridgen
2. **Adoption of the Minutes of May 17, 2023** (pages 2-5)
3. **Business Arising from the Minutes**
4. **Correspondence:** No Correspondence
5. **Reports of Standing Committees:**
 - A. **Undergraduate Studies Committee:**

Presented by Shannon Sullivan, Chair, Undergraduate Studies Committee

 - a. Department of Chemistry – Special Topics Undergraduate Course, CHEM4390 - Special Topics in Physical Chemistry approved by FOSCUGS committee and presented to Faculty Council for information only. Paper 5.A.a. (pages 13-19)
 - b. Department of Biology – Special Topics Undergraduate Course, BIOL4917 - Special Topics in Paleolimnology & Long-Term Environmental Change approved by FOSCUGS committee and presented to Faculty Council for information only. Paper 5.A.b. (pages 20-28)
 - B. **Graduate Studies Committee:**

Presented by Alison Leitch, Chair, Graduate Studies Committee

 - a. Department of Biochemistry - Calendar Changes, – BIOC6590, Cellular, Molecular and Developmental Biology Paper 5.B.a. (page 29)
 - b. Department of Biochemistry - Calendar Changes, BIOC6999, Seminars in Biochemistry and Food Science Paper 5.B.b. (pages 30-31)
 - c. Department of Chemistry, Special Topics Graduate Course, CHEM6382, Selected Topics in Physical Chemistry, approved by the Faculty Council Graduate Studies Committee and presented to Faculty Council for information only. Paper 5.B.c. (pages 32-35)
 - C. **Library Committee:** No business
6. **Report of the Dean:**
7. **Question Period**
8. **Adjournment**

Travis Fridgen, Ph.D.
Interim Dean of Science



Faculty of Science

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**FACULTY OF SCIENCE
FACULTY COUNCIL OF SCIENCE
Minutes of Meeting of May 17, 2023**

A meeting of the Faculty Council of the Faculty of Science was held on Wednesday, May 17, 2023, at 1:00 p.m. using a hybrid model of Webex and in-person (C-2045).

FSC 3011 Present

Biochemistry

M. Berry, V. Booth, J. Brunton, S. Christian, S. Harding, A. Todd

Biology

D. Bignell, S. Carr, A. Chaulk, A. Hurford, Y. Wiersma

Chemistry

C. Bottaro, L. Cahill, M. Katz, S. Pansare, S. Smith, J. Stockmann, H. Therien-Aubin

Computer Science

L. Careen, N. Esfahani, A. Fiech, M. Hatcher, C. Hyde, O. Meruvia-Pastor, V. Prado de Fonseca

Earth Sciences

A. Leitch, A. Malcolm, K. Welford

Mathematics & Statistics

I. Booth, A. Hatefi, R. Haynes, J.C. Loredó-Osti, C. Ou, T. Sheel, S. Sullivan, A. Variyath

Ocean Sciences

I. Fleming, P. Gagnon, E. Ignatz, M. Rise

Physics & Physical Oceanography

E. Hayden, J. LeBlanc, H. Neilson, I. Saika-Voivod, L. Zedel

Psychology

S. Blandford, K. Hourihan, A. Swift-Gallant, C. Thorpe, S. Walling, C. Walsh

Dean of Science Office

J. Blundell, S. Garasym, C. Hussey, S. Dufour, K. Foss, T. Fridgen, G. Jackson, J. Kavanagh, R. Newhook, P. MacCallum

Student Representatives

E. Dormody, C. Quinn-Nilas, J. Lamarre

Regrets

G. Dunning, K. Poduska

FSC 3012 Adoption of Minutes

Moved: Minutes of the meeting of March 15, 2023, be adopted. (Sullivan/Berry) **Carried.**
Notes for correction: Item # FSC 3009:Shannon Sullivan “ensures” should change to “assures”.

FSC 3013 Business Arising:

Shannon Sullivan informed Faculty Council that the 2023-2024 University Calendar changes have been approved and will be published in this year’s calendar; this year’s Calendar will be in circulation approximately a month later than normal and will not be sent to the departments for proofing, the Registrar’s Office will be proofing before circulation.

FSC 3014 Correspondence: No Report

FSC 3015 Reports of Standing Committees:

A. Undergraduate Studies Committee:

Presented by Shannon Sullivan, Chair, Undergraduate Studies Committee

- a. Department of Mathematics and Statistics - Calendar Changes, New Course – M1006, (Sullivan/ Blundell) **Carried.**

B. Graduate Studies Committee:

Presented by Alison Leitch, Chair, Graduate Studies Committee

- a. Scientific Computing Program, proposal for changes to the MSc in Scientific computing, (Leitch/Stockmann) **Carried.** The wording “providing research funding” be removed from requirements section before submission to SGS.
- b. Department of Computer Science, Request for Approval of a Graduate Course, COMP 6984, Future Networks and Applications of Machine Learning, Paper 5.B.b. (Leitch/Fiech) **Carried.**
- c. Department of Mathematics and Statistics, Special Topics Graduate Course, M6114, Mathematics of Numerical Relativity, approved by the committee and presented to Faculty Council for information only.
- d. Department of Mathematics and Statistics, Special Topics Graduate Course, M6115, Mathematical Epidemiology, approved by the committee and presented to Faculty Council for information only.

C. Library Committee: No business.

FSC 3016 Presentation on the GSO funding (outbound mobility funding)

Presented by Chris Hibbs, Internationalization Office

Chris Hibbs presented a presentation on Global Skills Opportunity (GSO) funding to help support Canadian students who are interested in studying abroad.

Contact information:

General: goabroad@mun.ca

Outbound Advisor: Dayna Vey, dayna.vey@mun.ca

Partnerships: Chris Hibbs, chibbs@mun.ca

Study Abroad: www.mun.ca/goabroad

<https://www.mun.ca/goabroad/go-global-outbound/global-skills-opportunity-fund/>

COIL stands for Collaborative Online International Learning. COIL provides a pathway for students and faculty to interact with two classrooms at the same time online. This program is set up to help support Canadian students based on needs: low income students, indigenous students, students with accessibility needs.

Power Point Presentation is attached.

FSC 3017 Report of the Dean:

COI Memo. The memo to Heads about the University COI policy is meant to remind heads of the policy and ensure that they are following it when it comes to student supervisory and examination committees. This is not a FoS policy, it is not new policy, and it is not a policy that only the FoS are required to follow. Nor is it even policy that only Memorial University follows as there are many examples of very similar University policies and language from UBC, UCalgary, McGill, and UVic as examples. I do apologize as the back-and-forth re-writing of the original document which was sent to departments did look like we were suggesting new policy. We are not suggesting new policy. In general, the FoS has not been consistently following the policy with respect to family members being on student committees and in some case comprehensive exams for graduate students and undergraduate theses. It is not something punitive, it protects faculty as much as it does students. Therefore, I have written a memo to heads to remind them of the policy and that it is their job to ensure that it is adhered to. This memo was attached to today's FoS agenda.

NSERC Results. I was at the Canadian Council of Deans of Science meeting this past weekend and we received the results of the previous NSERC competition. Our success rates for established researchers was 60% and for ECRs it was 65%. This is in line with the national average for established researchers and better than the national average for ECEs. NSERC made the decision to increase the average grant size by some \$10K but in doing so, the success rate was decreased substantially. For example, bin J-SSS was not funded for established researchers. There is another statistic that I want to share and that is that 90% of ECRs get funded, not the first time, but during the time that they qualify as ECRs. I hope that provides some sense of reassurance anyone who was not funded this year.

Bouchard Report. Dr. Frederik Bouchard attended the CCDS meeting to present the core findings of the advisory panel report on the federal research support system, and I have sent this report to departments. The key recommendations were: 1) a 10% increase to the federal research budget per year just to get back to what has been lost with inflation and not increasing the budget over the past years, 2) that NSERC/SSERC support investigator

driven research rather than mission-driven research, 3) the creation of a Canadian Knowledge and Science Foundation, mostly to piggy-back on the success of the National Science Foundation. He also suggested that it would be enormously beneficial if we were to ask non-academic friends to write their MPs and/or government Ministers such as Chrystia Freeland, Randy Boissonnault (who helps Minister Freeland write the budget), Dominic LeBlanc from Atlantic Canada, and Francois-Philippe Champagne etc. The message could say something to the effect that they have heard about the Bouchard Report and the government should implement the full report to support research and innovation in Canada. Dr. Bouchard feels non-academics writing their MPs and Ministers will provide more impact on government policy than academics writing.

Teaching Retreat. We are planning a faculty/staff teaching retreat toward the end of summer close to the beginning of classes. We will send out a request for suggestions of topics you would like to see covered and perhaps topics you might like to present—things that will be on everyone’s minds come Fall like getting used to artificial intelligence that our students, and everyone now, has access to.

Budget. The Board of Governors will be meeting in the next few days to look at the University’s budget proposal. If passed by the board, there will be a short amount of time before we know the impact to the Faculty of Science. I am planning to hold a special meeting of Faculty Council to present the budget situation to the faculty in mid-June.

FSC 3018 Question Period:

Statements from three Chemistry Faculty members that could not attend the Faculty Council meeting were presented by Dr. Pansare about concerns with Memorial’s COI and how it affects supervision of students. Dr. Fridgen explained that this is not a Faculty of Science Policy, it does not discriminate and we cannot pause it because it is not our policy.

Dr. Blundell will be attending a meeting with the Dean of the School of Graduate Studies to discuss MUN policy of having a supervisory committee different than an examining committee to discuss the possibility of merging the two committees.

Dr. Blundell asked if the NSERC will be funding only SSVS for non-ECRs next year.

Dr. Blundell suggested that anyone applying for NSERC next year makes sure to review the table for very strong, and mirror the language for very strong rather than strong, if appropriate.

FSC 3019 Adjournment

Meeting adjourned at 2:20 p.m.

GLOBAL SKILLS
OPPORTUNITY (GSO)
FUNDING SUPPORT
STUDY ABROAD

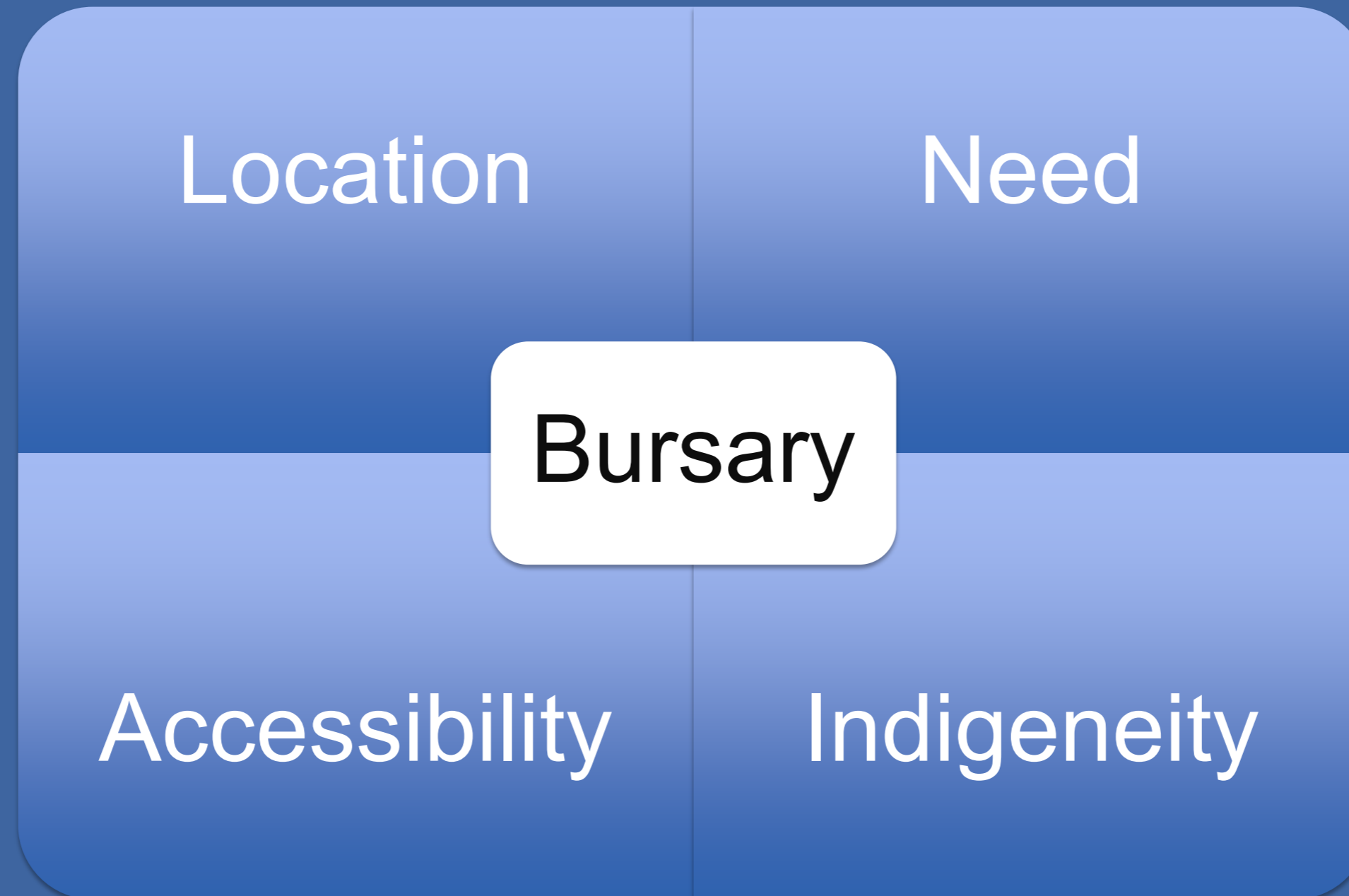
GLOBAL SKILLS OPPORTUNITY BACKGROUND

- International Education Strategy
- Employment and Social Development Canada (ESDC)
- Multi-Year Funding
- \$25,000 Innovation fund (2019-2020)
- \$500,000 awarded to Memorial (2020 – 2025) GSO

GLOBAL SKILLS OPPORTUNITY “MINDING THE GAP”

- Pan-University Steering Committee
- The GAP – Global Ambassador’s Program
- Holistic supports for study abroad
 - Enhanced pre-departures
 - Financial support for study abroad
 - Support for re-entry
 - Peer support and mentoring

GLOBAL SKILLS OPPORTUNITY ELIGIBILITY



GLOBAL SKILLS OPPORTUNITY CRITERIA

- Canadian Citizens Exclusively
- Undergraduate Students
- 2 weeks + duration of international experience
- Committee evaluation
- Funding dependent on categories (intersectionality considered)
- Funding period through Winter 2025
- General exchange criteria

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GLOBAL SKILLS OPPORTUNITY CONTACT US

General: goabroad@mun.ca

Outbound Advisor: Dayna Vey, dayna.vey@mun.ca

Partnerships: Chris Hibbs, chibbs@mun.ca

Study Abroad: www.mun.ca/goabroad

[https://www.mun.ca/goabroad/go-global-outbound/
global-skills-opportunity-fund/](https://www.mun.ca/goabroad/go-global-outbound/global-skills-opportunity-fund/)

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): CHEM 4390
- 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

CHEM 4390 SPECIAL TOPICS IN PHYSICAL CHEMISTRY

ABBREVIATED TITLE

BIOPHYSICAL CHEMISTRY

RATIONALE

Physical chemistry techniques such as nuclear magnetic resonance, electron paramagnetic resonance, electron microscopy, and ultrasound biomicroscopy are critical for the study of biological systems and processes. This course will introduce the physical principles that underlie each of these techniques and present applications in the fields of chemistry and medicine.

This course already exists as a graduate course, CHEM 6340 – Biophysical Chemistry. The intent is to offer this course for undergraduate students without requiring special sign-in permissions, such that it would meet the requirements of a 4000-level course without using a course substitution. We currently do not offer any undergraduate courses in biophysical chemistry and there are no undergraduate course offerings in physical chemistry at the 4000-level for the 2023-2024 academic year.

CALENDAR CHANGES

N/A

CALENDAR ENTRY AFTER CHANGES

N/A

SECONDARY CALENDAR CHANGES

Nil

Memorial University of Newfoundland Undergraduate Calendar Change Proposal Form Appendix Page

CONSULTATIONS SOUGHT

Academic Unit	Response Received
Humanities and Social Sciences	None
Business Administration	None
Education	None
Engineering and Applied Science	None
Human Kinetics and Recreation	None
Marine Institute	None
Medicine	None
Music	None
Nursing	None
Pharmacy	None
Science	
Biochemistry	None
Biology	None
Computer Science	None
Earth Sciences	Yes
Mathematics and Statistics	None
Ocean Sciences	None
Office of the Dean	Yes (grad studies committee)
Physics and Physical Oceanography	None
Psychology	None
Social Work	None
Library	None
Grenfell - Arts and Social Science	None
Grenfell - Science and the Environment	None
Grenfell - Fine Arts	None

From: Alison Leitch <aleitch@mun.ca>

Sent: Tuesday, July 4, 2023 1:26 PM

To: Department of Chemistry Consult <chemconsult@mun.ca>

Cc: deansciassistant <deansciassistant@mun.ca>

Subject: FW: Chemistry - Special topics - Calendar Change Proposals

Hello Chemistry,

I sent these proposals around the graduate committee, and we just have two comments on your excellent courses.

1. As for all new proposals, a rationale is needed for offering these graduate courses at an undergraduate level.
2. Graduate courses are supposed to be more work than undergraduate courses. When we go the other way and add a graduate component to an upper undergraduate course, we generally add 25% more material, for example, a research paper, to the usual undergraduate requirements. So, you should indicate what less is required of your undergraduate students.

Regards,
Alison

--

Alison Leitch
Faculty of Science Graduate Committee (Chair)
Associate Professor of Geophysics
Department of Earth Sciences
Memorial University
St John's NL A1B 3X5

From: "Morrill, Penny L" <pmorrill@mun.ca>
Date: June 27, 2023 at 17:06:02 NDT
To: "Katz, Michael" <mkatz@mun.ca>
Subject: Re: Chemistry - Special topics - Calendar Change Proposals

Hi Mike,

These courses look great. I wish that I had the time to take them.

As Chair of the Earth Sciences Department's Undergraduate Matters Committee, I have no comments on these proposals.

Cheers,

Penny

--

Penny Morrill, Ph.D. (Pronouns: She/her)
Professor, and Deputy Head (Undergraduate)
Department of Earth Sciences
Memorial University of Newfoundland
St. John's, NL A1B 3X5
Canada
phone: (709) 864-6729
fax: (709) 864-2589
Webpage: <https://www.esd.mun.ca/wordpress/deltasresearch/>

RESOURCE IMPLICATIONS

None. This is not a new course and has been taught previously as the graduate course CHEM 6340. The intention is to make the course available to undergraduates as a special topics course.

ADDITIONAL INFORMATION REQUIRED FOR NEW COURSE PROPOSAL

CHEMISTRY 4390 – Special Topics in Physical Chemistry

Biophysical Chemistry (same as CHEM 6340) Fall 2023

Instructor: Dr. Lindsay S. Cahill

Office: Core Science Facility, CSF-3336

E-mail: lcahill@mun.ca

Note: All email correspondence must be through my @mun.ca email account.

Please do not use D2L mail.

In-Person Lectures: 3 lecture hours/week

Labs: No labs are associated with this course

Course Description:

Physical chemistry techniques such as nuclear magnetic resonance, electron paramagnetic resonance, electron microscopy, and ultrasound biomicroscopy are critical for the study of biological systems and processes. This course will introduce the physical principles that underlie each of these techniques and present applications in the fields of chemistry and medicine.

Required Materials

There is no textbook required for this course

Evaluation Scheme (tentative)

<i>CHEM 4390</i>		<i>CHEM 6340</i>	
40%	<i>Assignments</i>	30%	<i>Assignments</i>
20%	<i>In-class participation</i>	10%	<i>In-class participation</i>
20%	<i>Research Paper</i>	20%	<i>*Research Paper</i>
20%	<i>Final Exam</i>	20%	<i>Presentation</i>
		20%	<i>Final Exam</i>

**Research paper – 6000 level will be approximately double the length of 4000 level*

Prerequisite course: Chem 2301

Mission statement: You have worked hard to be here; you belong here. I'm excited you are here and I hope it will be a great semester for everyone. My goal is to have designed a course to help you succeed and thrive. I welcome your feedback so that I can make this experience better for you and all students. The Brightspace shell has an anonymous survey that is available all semester for you to provide feedback at any point during the course.

Course Outline (tentative): Each topic (below) will be covered by in-person lectures.

- Basic physics of nuclear magnetic resonance (spectroscopy and imaging)
- Multidimensional spectra, molecular dynamics computations
- Basic physics of electron paramagnetic resonance, electron microscopy, ultrasound biomicroscopy
- Image formation, noise contrast, resolution and information content
- Different contrast mechanisms (diffusion-weighted imaging, GlucoCEST imaging, quantitative susceptibility imaging)
- Applications: e.g. biomolecules (proteins and protein complexes), materials chemistry, fetal and placental imaging, diagnostic imaging and guiding intervention in minimally invasively procedures
- Exciting new developments: e.g. high-speed, plane-wave ultrasound imaging

Learning Outcomes

- Develop a general understanding of physical methods to understand biological systems and processes
- Interpret data obtained by various spectroscopic techniques (including statistical analysis)
- Develop a critical approach to reading peer-reviewed journal articles
- Develop abilities for participation in group discussion

Academic integrity: Cheating is not permitted. The act of cheating includes, but is not limited to, the copying of assignments and lab reports from previous or current years, or failing to cite information used in a lab report. University regulations pertaining to cheating are found in the University Calendar in section 6.12 (<https://www.mun.ca/regoff/calendar/sectionNo=REGS-0748>). Plagiarism is a very serious academic offense that may result in severe penalties such as expulsion from the University.

Accommodations: Memorial University of Newfoundland is committed to fostering equitable and accessible learning environments for all students. Accommodations for students with disabilities are provided in accordance with Accommodations for Students with Disabilities Policy (www.mun.ca/policy/site/policy.php?id=239) and its related procedures. Students who feel that they may require formal academic accommodations to address barriers or challenges they are experiencing related to their learning are encouraged to contact Accessibility Services (the Blundon Centre) at the earliest opportunity to ensure any required academic accommodations are

provided in a timely manner. You can contact Accessibility Services (the Blundon Centre) by emailing blundon@mun.ca.

Copyright: The lectures and all material delivered or provided in Chemistry 4390 by Dr. L. Cahill are subject to copyright. Students must not publish, send, post on an internet site, sell, rent, or otherwise distribute this content without the instructor's express permission.

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): **BIOL 4917 – Special Topics in Paleolimnology & Long-Term Environmental Change**
- 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

BIOL 4917 – Special Topics in Paleolimnology & Long-Term Environmental Change

ABBREVIATED COURSE TITLE

Sp Top Paleolim & Env Chng

RATIONALE

The proposed special topics course has been developed as an independent study opportunity for students interested in gaining research experience outside of our honours program. Dr. Kathryn Hargan has proposed the below course that aligns with her expertise.

CALENDAR CHANGES

No calendar change associated with a special topics course.

CALENDAR ENTRY AFTER CHANGES

No calendar change associated with a special topics course.

SECONDARY CALENDAR CHANGES

No calendar change associated with a special topics course.

Memorial University of Newfoundland Undergraduate Calendar Change Proposal Form Appendix Page

CONSULTATIONS SOUGHT

Academic Unit	Email Address	Response Received?
St. John's Campus		
Humanities and Social Sciences	hss@mun.ca	
Business Administration	eoldford@mun.ca	
Education	efurey@mun.ca	
Engineering and Applied Science	enrconsult@mun.ca	
Human Kinetics and Recreation	hkrdean@mun.ca	
Medicine	deanofmedicine@med.mun.ca	
Music	musicdean@mun.ca	
Nursing	deanNurse@mun.ca	
Pharmacy	pharinfo@mun.ca	Yes
Science	deansci@mun.ca	
Social Work	adeanugradswk@mun.ca	
Library	univlib@mun.ca	Yes
Grenfell Campus		
Arts and Social Science	kjacobse@grenfell.mun.ca	
Science and the Environment	ssedean@grenfell.mun.ca	
Fine Arts	pride@grenfell.mun.ca	
Marine Institute		
	miugconsultations@mi.mun.ca	
Labrador Institute		
Arctic and Subarctic Studies	ashlee.cunsolo@mun.ca	

From: Davis, Erin
Sent: Thursday, May 25, 2023 10:24 AM
To: Biology Academic Program Officer
Subject: FW: Consultation request on Calendar Change Proposal - BIOL 4917
Special Topics in
Paleolimnology & Long-Term Environmental Change
Attachments: Course Proposal_BIOL 4917_Sp Top Paleolim & Long-Term Env
Chng.docx

Hi Andrew,

Pharmacy has no concerns and this should not affect our students or our programs.

Thanks,
Erin

--

Dr. Erin Davis BSc (Pharm), PharmD
Associate Dean Undergraduate Studies
Associate Professor
Memorial University School of Pharmacy
T 709 864 8815
E emdavis@mun.ca

LIBRARY REPORT

From: Rose, Kathryn
Sent: Friday, May 26, 2023 2:30 PM
To: Biology Academic Program Officer
Subject: RE: Consultation request on Calendar Change Proposal - BIOL 4917
Special Topics in
Paleolimnology & Long-Term Environmental Change

Good afternoon,

Thank you for the opportunity to provide feedback on BIOL4917: special topics in
Paleolimnology and
Long-Term Environmental Change. MUN Libraries has been supporting course work
and research in

aquatic biology and environmental change for some time, and we will continue to do so under existing budgetary allocations.

The following resources are a few examples of the resource we have to assist students locate scholarly and research literature:

Biological Abstracts
Scopus
Web of Science Core Collection
ASFA: Aquatic sciences and fisheries abstracts

We have also recently purchased updated versions of *Pollution of Lakes and Rivers: A Paleoenvironmental Perspective* and *Encyclopedia of Inland Waters* in perpetual electronic formats with licenses for unlimited users.

We also recommend that course instructors who wish to place items on reserve for their students reach out prior to the start of term. For more information, please see:
<https://www.library.mun.ca/usingthelibraries/borrowrenewreturn/reserves/>

Kathryn Rose

Kathryn Rose, MLIS, PhD (she/her) | Acting Head, Collection Strategies
Humanities Research Liaison Librarian – History
Memorial University Libraries
St. John's, Newfoundland, A1B 3Y1
+1 709 864-3139
www.library.mun.ca

We acknowledge that the lands on which Memorial University's campuses are situated are in the traditional territories of diverse Indigenous groups, and we acknowledge with respect the diverse histories and cultures of the Beothuk, Mi'kmaq, Innu, and Inuit of this province.

RESOURCE IMPLICATIONS

The proposed special topics course will allow a relatively new faculty member to explore offering a course in their primary research area. The course could potentially alternate with BIOL 3630 (Freshwater Biology) which is currently offered every other year.

ADDITIONAL INFORMATION REQUIRED FOR NEW COURSE PROPOSALS

Paleolimnology - *long-term environmental change*

Spring 2023

Time: TBD

Instructor: Dr. Kathryn Hargan

E-mail: khargan@mun.ca

Office: CSF4225

Class location: TBD + hands-on work in CSF4322 + several field trips

Course Overview

There is a growing realization that long-term data are vital for understanding many ecological and environmental problems. Unfortunately, such data are rarely available, and so indirect proxy methods must be used to reconstruct long-term records. One of the leading approaches for inferring long-term environmental trends is paleolimnology and related paleoenvironmental fields. Paleolimnology is a multi-disciplinary science that uses physical, chemical, and biological information preserved in sedimentary profiles from aquatic systems to reconstruct past environmental conditions.

Paleolimnological reconstructions of environmental change are being used increasingly in a large number of projects around the world. For example, paleolimnology played a key role in recent international environmental problems, such as lake acidification, eutrophication, and climate change.

The main focus of this course will be to review and assess the many techniques currently available to track long-term environmental change. An emphasis will be placed on biological approaches dealing with sedimentary analyses, particularly using diatoms (unicellular algae with a siliceous cell wall) to track long-term environmental change including salinization of freshwaters, climate change, and eutrophication.

Recommended Literature:

There is no set textbook, although we do read much of "Pollution of Lakes and Rivers: A Paleoenvironmental Perspective". I provide a list of readings (book chapters and articles, see below) that we read and discuss through the course.

All the microscopes that we will use to view the biological taxa are within a shared lab space that requires lab training. Students must have their lab safety training and WHMIS training, providing certificates of completion to the instructor. These training modules can be accessed through D2L.

Introduction to paleolimnological methods:

[1] Smol John P. (2022) Paleolimnology: Long-Term Reconstructions of Environmental Change. In: Mehner, Thomas and Tockner, Klement, Encyclopedia of Inland Waters 2nd edition. vol. 1, pp. 401-409. Oxford: Elsevier.

[2] Pollution of Lakes and Rivers: A Paleoenvironmental Perspective, 2nd Edition
(*paper copy only; pdfs and paper copies provided to students*).

1. There is no substitute for water.
2. How long is long?
3. Sediments: an ecosystem's memory.
4. Retrieving the sedimentary archive and establishing the geochronological clock: collecting and dating sediment cores.
5. Reading the records stored in sediments: the present is a key to the past.
6. The paleolimnologist's Rosetta Stone: calibrating indicators to environmental variables using surface-sediment training sets.

Introduction to diatoms:

[3] The Diatoms: Applications for the Environmental and Earth Sciences [digital and paper copy]
Part I: Introduction

Diatoms tracking long-term environmental change:

We focus on three examples for lakes and ponds: salinity, climate change, and nutrients.

a. Salinity

[4] Part IV in *'The Diatoms'*: Diatoms as indicators of marine and estuarine environments
- Parts of these sections could be of interest, and papers that are cited in some sections could be pulled from the journals to give an idea of more saline diatoms.

[5] Stenger-Kovacs et al. Diatom community response to inland water salinization: a review. 2023. Hydrobiologia <https://doi.org/10.1007/s10750-023-05167-w>

[6] Vallau et al. 2022. Using diatoms to track road-salt seepage into small, shallow, softwater Ontario lakes. Can. J. Fish. Aquat. Sci. 79: 1514–1528. dx.doi.org/10.1139/cjfas-2021-0072

b. Climate change

[7] Williamson et al. 2009. Lakes and reservoirs as sentinels, integrators, and regulators of climate change. Limnol. Oceanogr, 54: 2273–2282

[8] Ruhland et al. 2008. Hemispheric-scale patterns of climate-related shifts in planktonic diatoms from North American and European lakes. Global Change Biology 14: 2740-2754

c. Nutrients

[9] Davidson and Jeppesen 2013. The role of palaeolimnology in assessing eutrophication and its impact on lakes, Journal of Paleolimnology 49: 391–410

Course structure:

The course will consist of lectures, student presentations, in-class discussions, and an independent study project supported by the instructor with time during classes to identify different biological taxa in sediment cores using the instructor's microscopes.

Assessment of Learning:

Evaluation scheme

Take home Midterm	20%
Research presentation	20%
Course participation activities (discussion & field trips)	10%
Independent research report	50%
-Broken down as follows:	
1-page proposal (5%)	
Introduction (10%)	
Methods (10%)	
Results (15%)	
Discussion (10%)	

Regulations & Policies:

Accommodations for students with disabilities

All students with a disability are encouraged to contact the Glenn Roy Blundon Centre. This includes online students. The Blundon Centre assists students with disabilities who seek academic accommodation (e.g. extended time for tests and exams). Students are encouraged to contact the Blundon Centre **at least six weeks** prior to the start of a course to discuss your needs.

If you have a disability and currently receive accommodation through the Blundon Centre, please let me know at the start of the course (in Week 1 preferably). If you have an auditory disability, please let me know and we can work together to find the best close-captioning software for the lecture slides.

Academic misconduct

Please do not cheat or plagiarize. If you are feeling like something is hard or confusing or if you are feeling like you don't have time to complete an assignment, PLEASE TALK TO ME. I will work with you. You might get something wrong or get deductions for late work, but that is trivial in the grand scheme of things. If you get caught cheating, on the other hand, the consequences will be huge. You could fail the class or get expelled.

Please read Memorial's regulations on academic misconduct here:

<https://www.mun.ca/regoff/calendar/sectionNo=REGS-0748>

Misconduct appears in several forms including:

- Cheating on examinations or any other tests, theses, assignments, work term reports, projects, laboratory assignments, laboratory reports or internship reports
- Impersonating another student or allowing oneself to be impersonated
- Plagiarism

- Theft of examination papers or other material
- Use and/or distribution of stolen material
- Submitting false information
- Submitting work for one course or work term which has been or is being submitted for another course or work term at this or any other institution without express permission to do so
- Prevention or obstruction of access to works or materials provided by the University needed by others for academic purposes
- Attempt of bribery, and/or threat of blackmail to influence the award of any credit, grade, honour or academic decisions
- Failure to follow relevant University/Faculty/School guidelines on ethics.
- Failure to follow the Memorial University of Newfoundland Code.

Syllabus modification

This syllabus may be modified at any time during the semester as needed to improve the course. All such changes will be clearly announced, and you are responsible for being aware of any changes.

University Policies and Support

- The Commons (QEII library) provides access to print, electronic and technology resources.
- The Counselling Centre (UC-5000) helps students develop their personal capabilities, ranging from study strategies to assisting distressed students.
- The Glenn Roy Blundon Centre (UC-4007) serves students whose disabilities involve conditions affecting mobility, vision, hearing, learning (disabilities), chronic illness, or mental health; support is also provided to students with documented temporary illnesses and injuries.
- Student Life (ASK, UC-3005) answers questions about such things as courses, housing, books, financial matters and health.
- The Writing Centre (SN-2053) is a free, drop-in facility for students and helps them become better writers and critical thinkers.
- The Sexual Harassment Office provides a safe, anonymous opportunity for members of the University community to report sexual harassment and sexual assault by other members of the community (<https://www.mun.ca/sexualharassment/>).

BIOC 6590 Cellular, Molecular and Developmental Biology

Background

Medicine 6590 is credit restricted with Biochemistry 6590 but Med 6590 is now Imaging and Spectroscopy for Biomedical Science and unrelated to Bioc 6590. Biology has completely dropped Biology 6590, which was previously credit restricted to 6590. Therefore, neither credit restriction is relevant to Bioc 6590.

CHANGES WITH MARK-UP

31.5.3 Courses

A series of advanced courses in the areas outlined below will be offered. Other than Biochemistry 6999 and Biochemistry 7000, normally only one course will be offered per semester.

- 6000 Advanced Topics in Lipid and Lipoprotein Metabolism
- 6001-6009 Special Topics in Biochemistry
- 6010-6019 Special Topics in Nutrition and Metabolism
- 6020-6029 Special Topics in Food Science
- 6400 Control of Intermediary Metabolism
- 6460 Structural Biochemistry
- 6520 Nutritional Biochemistry
- 6530 Food Biochemistry
- 6590 Cellular, Molecular and Developmental Biology (~~credit restricted with Biology 6590 and Medicine 6590~~)
- 6630 Marine Biochemistry
- 6680 Processing and Quality of Foods
- 6999 Seminars in Biochemistry and Food Science
- 7000 Graduate Skills

CLEAN VERSION

31.5.3 Courses

A series of advanced courses in the areas outlined below will be offered. Other than Biochemistry 6999 and Biochemistry 7000, normally only one course will be offered per semester.

- 6000 Advanced Topics in Lipid and Lipoprotein Metabolism
- 6001-6009 Special Topics in Biochemistry
- 6010-6019 Special Topics in Nutrition and Metabolism
- 6020-6029 Special Topics in Food Science
- 6400 Control of Intermediary Metabolism
- 6460 Structural Biochemistry
- 6520 Nutritional Biochemistry
- 6530 Food Biochemistry
- 6590 Cellular, Molecular and Developmental Biology
- 6630 Marine Biochemistry
- 6680 Processing and Quality of Foods
- 6999 Seminars in Biochemistry and Food Science
- 7000 Graduate Skills

Biochemistry- Calendar changes to clarify attendance in BIOC 6999

BACKGROUND

The seminar course 6999 is only required for the first two years and first four years of the MSc and PhD programs, respectively. However, this was not clear in the calendar language and so students were registering when they did not need to. In addition, seminars are only run from September to April so two/four years translates to four semesters and 8 semesters, respectively. Part-time students are pro-rated for these requirements, hence, the inclusion of 'equivalent'. The proposed changes are to clarify these requirements.

PROPOSED CHANGES

31.5.2 Program of Study

2. All students must enrol in Biochemistry 6999 (Seminars in Biochemistry and Food Science) for the equivalent of 4 semesters during the fall and winter semesters, and must complete Biochemistry 7000 (Graduate Skills) plus a minimum of 6 credit hours of graduate courses with a minimum 'B' grade. Depending on the background and/or area of specialization, a student's program may include additional courses taken for credit in Biochemistry, Food Science, or related subjects.

43.3.2 Program of Study

2. All students must enrol in Biochemistry 6999 (Seminars in Biochemistry and Food Science) for the equivalent of 8 semesters during the fall and winter semesters, and must complete Biochemistry 7000 (Graduate Skills) if they have not already done so. Depending on the background and/or area of specialization, a student's program may include additional courses taken for credit in Biochemistry, Food Science or related subjects.

CLEAN VERSION

31.5.2 Program of Study

2. All students must enrol in Biochemistry 6999 (Seminars in Biochemistry and Food Science) for the equivalent of 4 semesters during the fall and winter semesters, and must complete Biochemistry 7000 (Graduate Skills) plus a minimum of 6 credit hours of graduate courses with a minimum 'B' grade. Depending on the background and/or area of specialization, a student's program may include additional courses taken for credit in Biochemistry, Food Science, or related subjects.

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Request for Approval of a Graduate Course

SCHOOL OF GRADUATE STUDIES

Adobe Reader, minimum version 8, is required to complete this form. Download the latest version: <http://get.adobe.com/reader>. (1) Save the form by clicking on the diskette icon on the upper left side of the screen; (2) Ensure that you are saving the file in PDF format; (3) Specify where you would like to save the file, e.g. Desktop; (4) Review the [How to create and insert a digital signature](#) webpage for step by step instructions; (5) Fill in the required data and save the file; (6) Send the completed form by email to: sgs@mun.ca.

To: Dean, School of Graduate Studies
From: Faculty/School/Department/Program
Subject: Regular Course Special/Selected Topics Course

Course No.:

Course Title:

I. To be completed for all requests:

A. Course Type: Lecture course Lecture course with laboratory
Laboratory course Undergraduate course¹
Directed readings Other (please specify)

B. Can this course be offered by existing faculty? Yes No

C. Will this course require new funding (including payment of instructor, labs, equipment, etc.)? Yes No
If yes, please specify:

D. Will additional library resources be required (if yes, please contact munul@mun.ca for a resource consultation)? Yes No

E. Credit hours for this course:

F. Course description (please attach course outline and reading list):

G. Method of evaluation:	Written	Percentage	Oral
Class tests			
Assignments			
Other (specify):			
Final examination:			

Participation,
Term paper and
Presentation

Total

¹ Must specify the additional work at the graduate level

II. To be completed for special/selected topics course requests only

For special/selected topics courses, there is no evidence of:

Instructor's initials

1. duplication of thesis work _____
2. double credit _____
3. work that is a faculty research product _____
4. overlap with existing courses _____

Recommended for offering in the Fall Winter Spring 20 ____

Length of session if less than a semester:

III. This course proposal has been prepared in accordance with General Regulations governing the School of Graduate Studies

Course instructor

Date

Approval of the head of the academic unit

Date

IV. This course proposal was approved by the Faculty/School/Council

Secretary, Faculty/School/Council

Date

Chem 6382: Polymer materials

Instructor Information

Instructor	Email	Office Location and Hours
Dr. Heloise Therien-Aubin	htherienaubin@mun.ca	CSF 3340,

General Information

Lecture Times:	3 lecture hours / week
Labs:	NO LABS are associated with this course

Course Description:

Polymers are widely employed both as commodity materials and for specialty applications. Commodity materials include plastics such as polyethylene, or acrylic coatings. Polymers designed for specialty applications find application in diverse areas such as photoresists for microelectronic device fabrication, or microgels for drug delivery and other biomedical applications. In this course, students will be introduced to concepts of polymer structure and architecture, and how those properties affects the behavior of polymer solutions and melts, and polymers in the solid state.

Prerequisite:

Graduate student in Chemistry

Course Material and Resources

Texts (no textbook is required for this course)

Recommended textbooks on this subject:

- Rubinstein and Colby. Polymer Physics. Oxford University Press. 2007.
https://mun.primo.exlibrisgroup.com/permalink/01MUN_INST/1f101eq/alma99221919102511

Evaluation

The student performance in this course will be evaluated by the following scheme:

Assignments	20%
Term paper and presentation	40%
Midterm	15%
Final Exam	25%
Total Evaluation	100%

Evaluation notes: (1) Participation is based on active discussions during lecture and peer presentations, problem solving, and in class group work. (2) Midterm and final exams – 6000 level will be approximately double the length of 4000 level. (3) Assignments and presentations - the details will be discussed during class and instructions will be posted on Brightspace. (4) Full details of course evaluations will be discussed during class the first class.

Course Topics (Tentative)

Polymer in the solid state

- Phase transition in polymer materials
- Effect of glass transition on polymer properties
- Mechanical properties of polymers and time-temperature superposition

Polymer in solution

- Flory-Huggins theory
- Rheological behavior

Polymer characterization

- Molecular weight, structure and microstructure
- Phase separation and self-assembly
- Mechanical properties

Polymer processing

- Extrusion, molding
- Film formation and coating

Learning Outcomes

- Identify and describe different polymer structures (or structural elements) and understand how the structure affects the properties of a polymer in solution and in the solid state.
- Understand different techniques used to characterize polymer materials in the solid state and in solution.
- Understand different techniques to determine molecular weights and molecular weight distribution of polymers