MEMORIAL UNIVERSITY

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 15, 2021, at 1:00 p.m. by Webex.

AGENDA

1. **Regrets**
2. **Adoption of the Minutes of June 16, 2021**
3. **Business Arising from the Minutes**
4. **Correspondence:** None
5. **Dr. Donna Hardy-Cox, Associate Vice-President (Academic) Students – Student supports**
6. **Dr. Xianta Jiang – proposed Human Neuroscience Center**
7. **Reports of Standing Committees**:
   - **A. Undergraduate Studies Committee**: No business.
   - **B. Graduate Studies Committee:**
     - **a.** Department of Chemistry, Special Topics course, CHEM 6292, Selected Topics in Inorganic Chemistry, Carbon Dioxide: A Scientific Perspective, approved by the committee and presented to Faculty Council for information only, Paper 5.B.a (pages 5-10)
     - **b.** Department of Computer Science, Request for Approval of a Graduate Course, COMP 700A/B, Extended Research Project, Paper 5.B.a (pages 11-14)
   - **C. Library Committee:** No business
8. **Reports of Delegates from Other Councils**
9. **Report of the Dean**
10. **Question Period**
11. **Adjournment**

Travis Fridgen, Ph.D.
Acting Dean of Science

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FACULTY OF SCIENCE
FACULTY COUNCIL OF SCIENCE
Minutes of Meeting of June 16, 2021

A meeting of the Faculty Council of the Faculty of Science was held on Wednesday, June 16, 2021, at 1:00 p.m. using Webex.

FSC 2846 **Present**

Biochemistry
V. Booth, J. Brunton, D. Hunt

Biology
J. Burke, E. Edinger, B. Staveley, Y. Wiersma

Chemistry
S. Pansare, J. Pittman

Computer Science
S. Bungay, Oscar Meruvia Pastor

Earth Sciences
G. Layne

Mathematics & Statistics
E. Cardoso-Bihlo, D. Harvey, R. Haynes, J.C. Loredo-Osti, S. Mantyka, D. Pike, T. Sheel, S. Sullivan

Ocean Sciences
G. Fletcher, P. Gagnon, D. Nichols, C. Parrish, J. Santander

Physics & Physical Oceanography
E. Hayden, E. Merschrod, M. Morrow, K. Poduska

Psychology
D. Hallett, A. Swift-Gallant

Dean of Science Office
D. Bennett, N. Bishop, J. Blundell, S. Dufour, K. Foss, T. Fridgen, G. Jackson, G. Kenny, P. MacCallum, V. MacNab, J. Major, R. Newhook

FSC 2847 **Regrets**:
F. Kerton, T. Mackenzie, D. McIlroy

FSC 2848 **Adoption of Minutes**
Moved: Minutes of the meeting of April 21, 2021, be adopted. (Sullivan/Sheel) **Carried.**

FSC 2849 **Business Arising:**
I was asked about ventilation at the last Faculty Council meeting. I spoke with Greg McDougall, the Chief Risk Officer. As part of the controls used to protect against COVID-19 transmission, Facilities Management is ensuring that the HVAC systems are working as per their design and in accordance with the American Society of Heating, Refrigerating and Air-Conditioning Engineers. HVAC is one of the controls, including masking, barriers, vaccination, etc. that are expected to make our workplace safe.

FSC 2850 **Correspondence:** None

FSC 2851 **Reports of Standing Committees:**

A. Undergraduate Studies Committee: No Business

B. Graduate Studies Committee:

a. Department of Psychology, proposed calendar changes (Layne/Haynes) **Carried**

C. Library Committee: No business.

FSC 2852 **Reports of Delegates from Other Councils:** None

FSC 2853 **Report of the Dean**
Presented by Dr. Travis Fridgen, Acting Dean

1. There will be an On the Menu session entitled: NSERC Discovery Grant Session – scheduled for Wednesday, June 23rd at 1 for anyone planning to apply for an NSERC DG this fall or any time in the future.
   Dr. Kris Poduska will present the top 10 tips for a successful application. In addition, several NSERC panel members, the Faculty of Science grants facilitation officers, and the associate dean (research and graduate studies) will be present to answer any questions that arise.

2. I would like to formally introduce Dr. Suzanne Dufour as acting associate dean of science for a little over a month now and thank her for taking on this position. Dr. Dufour was most recently the Deputy Head of Undergraduate Studies in the Department of Biology.
   Joining Dr. Lynn Frizzell on the Grants Facilitation Team is Dr. Jennifer Major and Mr. Phillip MacCallum. Jenn completed her MSc and PhD in Cellular and Molecular Medicine at the University of Ottawa with a research focus on the molecular mechanisms of cardiac development and disease. Following her PhD she completed a postdoctoral fellowship in the Cardiology department at the University of Colorado Anschutz Medical Campus. Phillip has an MSc degree from Memorial

and is currently completing his PhD (part-time) in Experimental Psychology. While his research has primarily focused on the neurobiology of learning and memory, he has also worked on a diversity of projects ranging from the social and emotional wellbeing of educators in Newfoundland and Labrador to clinical trials in neurorehabilitation.
Please ensure that your applications are submitted by the Faculty of Science deadline so that your grants facilitation support team can best support you!
Ms. Melanie Fitzpatrick will be joining us on June 22 as secretary and front desk receptionist in the Dean of Science Office.
Dr. Len Zedel has been appointed for a three-year term beginning September 1, 2021 as the Head of the Department of Physics and Physical Oceanography. I would like to thank Len for his work for the last 9 years as the Associate Dean (Graduate and Research). I thank everyone for their very positive feedback, and I have recommended the appointment of Dr. Jacqueline Blundell as the Interim Associate Dean (Graduate and Research) beginning immediately and until a search can be conducted.

FSC 2854 Question Period

The issue of adequate ventilation in the buildings was discussed, and the Acting Dean indicated he would follow up with Facilities Management to ensure this work is completed and the information disseminated to units.

The Acting Dean would like to be invited to departmental meetings as early as possible in the Fall semester in order to discuss the Faculty of Science Strategic Plan, and to begin work on that as quickly as possible.

With a return to campus for students in September, meetings with graduate students can take place in person. If the meeting is with a group, classrooms will be available and masking and distancing should be maintained. One-on-one meetings in offices are appropriate with the same conditions.

Classes of 100+ students will be remote this Fall 2021 semester. Ideally, mid-terms and other evaluations will be remote as well. Instructors would need permission to hold evaluations in-person. The pandemic situation is an evolving one, and as things change through the semester, so will recommendations on such things as in-person exams for larger classes.

The Acting Dean visited the core science facility on Friday and posted some pictures on Twitter. It really looks good and it’s going to be exciting to welcome students into those lab spaces.

FSC 2855 Adjournment

The meeting adjourned at 1:34 p.m.

MEMORIAL UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Request for Approval of a Graduate Course

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.: Chem 6292

Course Title: Selected Topics in Inorganic Chemistry, Carbon Dioxide: A Scientific Perspective

I. To be completed for all requests:

A. Course Type:
☐ Lecture course
☐ Laboratory course
☐ Directed readings
☐ Lecture course with laboratory
☐ Undergraduate course[1]
☑ Other (please specify) Co-taught remotely with Laval U. part of CREATE training network

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.)? If yes, please specify: ☐ Yes ☑ No

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: 3 credit hours

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

This is a remote lecture course on utilization of carbon dioxide. Please see course outline (There are 13 modules/chapters of lectures in the course, each will be 2 to 3 hours in length divided into multiple 20-30 min videos accessible remotely). Lecturers are all experts in their fields.

G. Method of evaluation:

	Percentage	
	Written	**Oral**
Class tests	65	
Assignments		
Other (specify): Term paper (video)	35	
Final examination:		
Total	100	

[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	FK
2.	double credit	FK
3.	work that is a faculty research product	FK
4.	overlap with existing courses	FK

Recommended for offering in the Fall Winter Spring 20 22_

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

Digitally signed by Francesca Kerton
Date: 2021.07.09 14:26:50 -02'30'

Course instructor — Date: July 9 2021

Digitally signed by Christina Bottaro
Date: 2021.07.19 12:50:53 -02'30'

Approval of the head of the academic unit — Date: July 19, 2021

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

Secretary, Faculty/School/Council — Date

UNIVERSITÉ LAVAL | Department of chemistry

CIRCUIT

CO_2: a scientific and social perspective

Objective: This multidisciplinary course main objective is to learn about the social and scientific concepts behind CO_2 utilization. The participants will learn the basic chemistry of CO_2 and the current ways to sequester and use CO_2 at the laboratory and industrial scales. They will also learn about the impact of CO_2 on society and climate change, the economic advantages of CO_2 utilization and the legal and political aspects related to this modern challenge.

This online course will consist of 12 lectures of 2-3 hours given by specialists in the field of CO_2 utilization. They are members and collaborators of the CREATE center on CO_2 utilization and are professors in chemistry, chemical engineering, geological engineering, economy and law.

Chapter 1. What is carbon dioxide? *(Frédéric-Georges Fontaine)*

a. Bonding and chemical structure

b. Chemical and physical properties

c. Phase behaviour

d. Spectroscopic properties of carbon dioxide

Chapter 2. Carbon dioxide a green-house gas and its role on climate and marine environments *(Raoul-Marie Couture)*

TBD

Chapter 3. CO_2 and life (*Normand Voyer)*

a. Role and impact of CO_2 in natural ecosystems

b. Impact on life forms and metabolism

c. Biochemistry of CO_2

d. CO_2 management in living organisms

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e. Biomimetic conversion of CO_2

Chapter 4. Intensified processes for CO2 capture and valorization by catalytic conversion (Industrial CO_2 capture) (*Maria Iliuta)*

a. CO_2 production and transport

b. CO_2 industrial capture

c. CO_2 purification

Chapter 5. CO_2 utilization without conversion (*Philip Jessop*)

a. CO_2 as a solvent (liquid, supercritical)

b. CO_2-expanded liquids

c. CO_2 as a trigger for stimuli-responsive materials

d. Other applications of CO_2 (e.g. as a coolant, propellant, etc.)

Chapter 6. Geological sequestration of CO_2 (*Georges Beaudoin)*

a. Geological sinks

b. Mineralization reactions and dissolution of carbon

c. Environmental risks of geological sequestration

Chapter 7. Utilization of CO_2 in concrete and construction materials (*Josée Duchesne)*

a. What is concrete?

b. Carbon footprint of concrete materials

c. Mechanism of CO_2 sequestration in concrete

d. Effect of CO_2 uptake in concrete (reduced carbon emissions, acceleration of early strength, improve durability).

Chapter 8. Green catalysis for CO_2 conversion (*Francesca Kerton)*

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UNIVERSITÉ LAVAL | Department of chemistry

CIRCUIT

a. Concepts of green chemistry related to CO_2 conversion

b. Interaction of CO_2 with catalysts

c. Organometallic and organic catalytic CO_2 conversion

Chapter 9. Industrial catalytic CO_2 reduction processes (*Faïçal Larachi)*

a. Hydrogenation of CO_2 (formic acid, formaldehyde, methanol, methane)

b. Photochemical reduction

c. Electrolytic reduction

d. Reductive coupling

Chapter 10. Catalytic non-reductive CO_2 conversion *(Louis Fradette)*

a. Urea and substituted ureas

b. Organic carbonates (dimethylcarbonate, cyclic carbonates, carbamates)

c. CO_2-containing polymers and biomaterials (polycarbonates)

Chapter 11. *Life-cycle assessment (Anne-Marie Boulay)*

a. Life cycle thinking and LCA overview

b. Life cycle inventory and databases

c. Life cycle impact assessment

d. Examples and applications related to CO_2 utilization

Chapter 12. *Economic perspective on CO_2 utilization (Patrick González)*

a. The chemical industry in Canada. Portrait.

b. Social cost of carbon. Definition and measurement.

c. Cost of abatement. Definition and measurement.

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UNIVERSITÉ LAVAL | Department of chemistry

d. Optimal carbon pricing. Definition.

e. Carbon leakage. When pricing causes companies to relocate to more accommodating jurisdictions.

f. Emissions tax. For example, in British Columbia.

g. Tradable permits. For example, in Quebec.

h. The carbon market. Various forms of carbon markets, particularly the RGGI and WCI.

i. Internal carbon pricing. How companies can price carbon internally to minimize the cost of reducing their emissions.

j. Limits. Is carbon pricing a sufficient means to curb greenhouse gas emissions?

Chapter 13. *Legal and geopolitical impact of CO_2 emissions (Géraud de Lassus St-Geniès)*

TBD

Funding provided by NSERC

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MEMORIAL UNIVERSITY

School of Graduate Studies

Request for Approval of a Graduate Course

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School of Graduate Studies; Memorial University of Newfoundland; IIC-2012 (Bruneau Centre for Research and Innovation); St. John's, NL A1C 5S7 Canada Fax: 709.864.4702 eMail: sgs@mun.ca

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

Course No.: Comp 700A/B

Course Title: Extended Research Project

I. To be completed for all requests:

A. Course Type:

☐ Lecture course
☐ Laboratory course
☐ Directed readings
☐ Lecture course with laboratory
☐ Undergraduate course[1]
☑ Other (please specify) Project Course

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.)? If yes, please specify: ☐ Yes ☑ No

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: 6

F. Course description (reading list required):

This course is analogous to Comp 6999, but is designed to run over the course of two terms. Students are required, with supervision by a member of the Department, to prepare a research report in an area of Computer Science... (for the complete version of the course description please see the Appendix)

G. Method of evaluation:

	Percentage	
	Written	**Oral**
Class tests		
Assignments		
Other (specify):	100	
Final examination:		
Total	100% Report & Presentatio	

[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	OEMP
2.	double credit	OEMP
3.	work that is a faculty research product	OEMP
4.	overlap with existing courses	OEMP

Recommended for offering in the Fall Winter Spring 20 22-23

Length of session if less than a semester: Session is designed to run over two terms.

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

Oscar Meruvia (Deputy Head, Grad. Studies) — 23/Jun/2021

Course instructor — Date

2021-07-21

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

Appendix for Section F

MEMORIAL UNIVERSITY OF NEWFOUNDLAND
Department of Computer Science
Computer Science 700A/B
Extended Research Project

Summary:

This course is analogous to Comp 6999, but is designed to run over the course of two terms. Students are required, with supervision by a member of the Department, to prepare a research report in an area of Computer Science. Original research is not essential, but the student should demonstrate an ability to carry out research work independently. The report will be evaluated according to SGS regulations. A 20 to 30 minute presentation at the end of the second term will be given by the student. This course is open only to students in non-thesis-based programs in Computer Science.

Credit Restrictions:

Comp 6999, Comp691A/B

Calendar Entry:

Students are required, with supervision by a member of the Department, to prepare a research report in an area of Computer Science. Original research is not essential, but the student should demonstrate an ability to carry out research work independently.

Textbook:

N/A

Format:

Direct supervision with no lectures. Supervision will be remote or in person if Health & Safety regulations allow it. A 20-30 minute presentation at the end of the second term will be given by the student. The presentation will be done using Online Rooms or pre-recorded lectures, uploaded to the Computer Science Virtual Seminar Room on Brightspace/D2L and made publicly available.

Evaluation:

100% Course Report and Presentation

Memorial University Policies:

Memorial University of Newfoundland is committed to supporting inclusive education based on the principles of equity, accessibility and collaboration. Accommodations are provided within the scope of the University Policies for the Accommodations for Students with Disabilities (www.mun.ca/policy/site/policy.php?id=239). Students who may need an academic accommodation are asked to initiate the request with the Glenn Roy Blundon Centre at the earliest opportunity (www.mun.ca/blundon).

Students are expected to adhere to those principles which constitute proper academic conduct. A student has the responsibility to know which actions, as described under Academic Offences in the University Regulations, could be construed as dishonest or improper. Students found guilty of an academic offence may be subject to a number of penalties commensurate with the offence including reprimand, reduction of grade, probation, suspension or expulsion from the University. For more information regarding this policy, students should refer to the University Regulations for Academic Misconduct (Section 6.12) in the University Calendar.