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

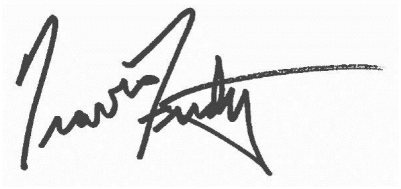
A regular meeting of the Faculty Council of the Faculty of Science will be held on Wednesday, March 16, 2022, at 1:00 p.m. by Webex.

AGENDA

1. **Regrets**
2. **Adoption of the Minutes of February 16, 2022**
3. **Business Arising from the Minutes**
4. **Correspondence:** None
5. **Reports of Standing Committees**:
   - **A. Undergraduate Studies Committee**: No business
   - **B. Graduate Studies Committee:**
     - **a.** Scientific Computing Program, request for additional special topics course numbers, CMSC 7000-7009, 5.B.a. (pages 6 to 9)
     - **b.** Scientific Computing Program, Special Topics Course, CMSC 7000, Special Topics: Quantitative Models of Physical Phenomena I, Paper 5.B.b. (pages 10 to 14)
     - **c.** Scientific Computing Program, Special Topics Course, CMSC 7001, Special Topics: Quantitative Models of Physical Phenomena II, Paper 5.B.c. (pages 15 to 18)
     - **d.** Department of Computer Science, Special Topics Course, COMP 6983, Special Topics in Advanced Interaction Techniques, Paper 5.B.d. (pages 19 to 23)
     - **e.** Department of Computer Science, Request for Approval of a Graduate Course, COMP 6983, Advanced Interaction Techniques, Paper 5.B.e. (pages 24 to 28)
     - **f.** Department of Computer Science, proposal for a calendar amendment to change the treatment of courses failed for the course-based MSc program, Paper 5.B.f. (pages 29 to 31)
   - **C. Library Committee:** No business
6. **Reports of Delegates from Other Councils**
7. **Report of the Dean**

. . . /2

8. **Question Period**
9. **Adjournment**



Travis Fridgen, Ph.D.
Acting Dean of Science

MEMORIAL UNIVERSITY

Faculty of Science

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Tel: 709 864 8154 Fax: 709 864 3316
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FACULTY OF SCIENCE
FACULTY COUNCIL OF SCIENCE
Minutes of Meeting of February 16, 2022

A meeting of the Faculty Council of the Faculty of Science was held on Wednesday, February 16, 2022, at 1:00 p.m. using Webex.

FSC 2917 **Present**

Biochemistry
M. Berry, J. Brunton, M. Longjohn, S. Mayengbam

Biology
A. Chaulk, Y. Wiersma

Chemistry
C. Bottaro, H. Grover, M. Katz, F. Kerton, C. Kozak, S. Pansare, H. Therien-Aubin

Computer Science
S. Bungay, M. Emshey, M. Hamilton, C. Hyde, O. Meruvia-Pastor,

Earth Sciences
G. Dunning, D. Guzzwell, A. Langille, G. Layne, P. Morrill, K. Welford

Mathematics & Statistics
I. Booth, C. Evans, D. Harvey, R. Haynes, J.C. Loredo-Osti, S. MacLachlan, E. Martinez-Pedroza, T. Stuckless, S. Sullivan, H. Usefi, Y. Yilmaz-Cigsar

Ocean Sciences
I. Fleming, E. Ignatz, D. Nichols, C. Parrish, J. Santander,

Physics & Physical Oceanography
D. Coombs, E. Demirov, R. Goulding, E. Hayden, M. Morrow, L. Zedel

Psychology
A. Anand, F. Bambico, C. Fitzpatrick, D. Hallett, J. LaMarre, C. Quinn-Nilas, C. Thorpe, C. Walsh

Dean of Science Office
S. Dufour, T. Edmunds, M. Fitzpatrick, K. Foss, T. Fridgen, L. Frizzell, G. Jackson, J. Kavanagh, G. Kenny, P. MacCallum, T. Mackenzie, J. Major, R. Newhook, J. Whalen

Student Representatives:
T. Durgut, W. Kinden, A. Meyer,

FSC 2918 **Regrets**:
M. Abrahams, D. Boyce, D. McIlroy, M. Miskell, K. Poduska, N. Ryan, T. Sheel, D. Smith, N. Vanasse

FSC 2919 **Adoption of Minutes**
Moved: Minutes of the meeting of January 19, 2022, be adopted. (Sullivan/Yilmaz-Cigsar)
Carried Correction to minutes of December 1, 2021: D. Nichols was present**.**

FSC 2920 **Business Arising:**

FSC 2921 **Correspondence:** None

FSC 2922 **Reports of Standing Committees:**

A. Undergraduate Studies Committee:
Presented by Shannon Sullivan, Chair, Undergraduate Studies Committee:

a. Department of Chemistry, proposal to amend pre-requisites and/or co-requisites for CHEM 2400, Introductory Organic Chemistry I, and CHEM 2401, Introductory Organic Chemistry II (Sullivan/Pansare) **Carried**

B. Graduate Studies Committee:
Presented by Graham Layne, Chair Graduate Studies Committee:

a. Department of Computer Science, Request for Approval of a Graduate Course, COMP 6935, Computer Vision (Layne/Bungay) **Carried**

b. Department of Computer Science, Request for Approval of a Graduate Course, COMP 7000, Masters Project II (Layne/Bungay) **Carried**

C. Library Committee: None.

FSC 2923 **Reports of Delegates from Other Councils:** None

FSC 2924 **Report of the Dean:** None

FSC 2925 **Question Period**
There was some discussion about the Faculty of Science Academic Program Officer position that was advertised recently. The person hired will work on prescreening applications, and providing the usual academic service similar to other APOs for the Master of Data Science and the interdisciplinary graduate programs. Once the MDSc program is up and running, the hired person will offer support to the departments.

There has been no communication from the President regarding the recent call for funding initiatives.

The Faculty has been working with The Blundon Centre to offer low density settings for those students who have requested accommodations for this semester. For situations where students cannot come to campus, ProctorU will be used. Dr. Dufour has been working to find places for immunocompromised students to write exams so that they are safe, and she will continue to work to resolve any issues around this question.
R. Haynes expressed concern that the facilitation of online exam invigilation has not been dealt with well by the university, and he feels there have been few supports for departments who are dealing directly with the students. Specifically, he feels the University has had two years to put together a plan and no one's bothered to do it, and he suggested that departments have been left to cobble together solutions on their own and that is not good enough and it is not practical.

Students who indicate to their instructor that they need an accommodation because of either being immunocompromised or living with someone who is immunocompromised do not have to provide documentation to that effect. Instructors can insist that they write the exam in person, and then the student can request a deferred exam. This is the accommodation.

If a student misses tests or has not completed assignments, instructors can ask for documentation in the form of a doctor's note. However, if the student has COVID, documentation is not provided for that 14 day period of isolation. For any other illness, in principle, after five days instructors can ask for a note.

Concerns were expressed about the lack of clear communication from the PMO regarding deficiencies in the new Core Science Facility, and how and when these significant deficiencies will be addressed. Departments are being asked to identify deficiencies and provide this information to the PMO, and this has been done multiple times since the move to the building.

A reminder to everyone of the upcoming SEA conference. This will be a three day, in person conference. Please encourage your students to sign up and faculty should consider participating as well. Details will be posted on the website.

Our next On the Menu is Wednesday, March 23, and the topic is "How do I partner with industry". The Science Scoop will have more information.

FSC 2926 **Adjournment**

The meeting adjourned at 1:34 p.m.

From: Graham Layne
To: Kenny, Gail
Cc: rhaynes@mun.ca; idscience
Subject: CMSC - Calendar Change - Selected Topics Course Number Reservation
Date: Wednesday, March 9, 2022 11:27:59 AM
Attachments: CMSC_Special_Topics_Number_Reservation_Request_v2022-02-22_P_OPT.pdf

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Gail-

The above request has been approved by GSC.

I attach the version of the request that was approved, for inclusion on the next Faculty Council agenda.

Regards,
Graham

MEMORIAL UNIVERSITY

Dean of Science Office
Scientific Computing Program
St. John's, NL Canada A1B 3X7
Tel: 709-864-3414; Fax: 709-864-3316
www.mun.ca

11 February 2022

TO: Faculty of Science Graduate Studies Committee

FROM: R. Haynes, Chair, Scientific Computing Program

SUBJECT: Calendar Changes Special Topics

The Board of the Scientific Computing MSc and PhD programs is requesting a sequence of ten course numbers, CMSC 7000-7009, to use as special topics course numbers for a general calendar entry for Selected Topics in Scientific Computing. These numbers would allow us to accommodate reading courses and special offerings as the need and opportunity arises, especially for situations where the course does not fit well within the offerings of existing departments.

Ron Haynes

40.35 Scientific Computing

- www.mun.ca/sgs/contacts/sgscontacts.php
- www.mun.ca/science
- www.mun.ca/become/graduate/apply/app_deadlines.php

40.35.4 Courses

- ~~**Computational Science**~~ **Scientific Computing**
  - 6910 Matrix Computations and Applications or COMP 6732 Matrix Computations (*credit may be obtained for only one CMSC 6910 and COMP 6732)*
  - 6920 Scientific Programming
  - 6930 Algorithms for Distributed and Shared Memory Computers
  - 6950 Computer Based Tools and Applications *(credit may be obtained for only one of CMSC 6950 and the former CMSC 6940)*
  - 7000-7009 Selected Topics in Scientific Computing
- **Computer Science**
  - 690I6 Topics In Numerical Methods *(credit may be obtained for only one of COMP 6906 and COMP 6731)*
- **Mathematics**
  - 6201 Numerical Methods for Time Dependent Partial Differential Equations
  - 6202 Nonlinear and Linear Optimization
  - 6204 Iterate Methods In Numerical Linear Algebra
  - 6210 Numerical Solutions of Differential Equations

40.35 Scientific Computing

- www.mun.ca/sgs/contacts/sgscontacts.php
- www.mun.ca/science
- www.mun.ca/become/graduate/apply/app_deadlines.php

40.35.4 Courses

- **Scientific Computing**
  - 6910 Matrix Computations and Applications or COMP 6732 Matrix Computations (*credit may be obtained for only one CMSC 6910 and COMP 6732)*
  - 6920 Scientific Programming
  - 6930 Algorithms for Distributed and Shared Memory Computers
  - 6950 Computer Based Tools and Applications *(credit may be obtained for only one of CMSC 6950 and the former CMSC 6940)*
  - 7000-7009 Selected Topics in Scientific Computing
- **Computer Science**
  - 690I6 Topics In Numerical Methods *(credit may be obtained for only one of COMP 6906 and COMP 6731)*
- **Mathematics**
  - 6201 Numerical Methods for Time Dependent Partial Differential Equations
  - 6202 Nonlinear and Linear Optimization
  - 6204 Iterate Methods In Numerical Linear Algebra
  - 6210 Numerical Solutions of Differential Equations

From: Graham Layne
To: Kenny, Gail
Cc: rhaynes@mun.ca; idscience
Subject: CMSC 7000/7001 Quantitative Models of Physical Phenomena I/II - Approved
Date: Thursday, March 10, 2022 9:44:28 AM
Attachments: CMSC_7000_Special_Topics_Final_RH_2022-02-21v2022-03-10.pdf
CMSC_7001_Special_Topics_Final_RH_2022-02-21v2022-03-10.pdf

Gail-

The above pair of Special Topics courses has been approved by GSC.

I attach the revised versions of the proposals that were approved, for inclusion on the next Faculty Council agenda.

Regards,
Graham

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.: CMSC 7000

Course Title: Special Topics: Quantitative Models of Physical Phenomena I

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)

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

F. Course description (reading list required):

Recent measuring devices of a cyclist power output lead to a plethora of theoretical and computational studies, whose purpose is to account for that power in both the kinematic and dynamic contexts. We focus on road cycling where -- due to varying terrain -- the gravitational effects are crucial.

G. Method of evaluation:

	Percentage	
	Written	**Oral**
Class tests		
Assignments	50	
Other (specify):	50	
Final examination:		

Total Assigs & Project: 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	MS
2.	double credit	MS
3.	work that is a faculty research product	MS
4.	overlap with existing courses	MS

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

M.A.Slawinski Digitally signed by M.A.Slawinski DN: cn=M.A.Slawinski, o=Memorial University, ou=Dept of Earth Science, email=mslawins@mac.com, c=CA Date: 2021.06.16 20:12:15 +02'00'

Course instructor

17 February 2022

Date

Approval of the head of the academic unit

21 February 2022

Date

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

Secretary, Faculty/School/Council

Date

CMSC7000 Special topics: Quantitative models of physical phenomena I

Professor: Dr. Michael A. Slawinski

Purpose

The purpose of this course is to gain an insight into mathematical/computational modelling of physical phenomena. Particular attention is payed to such issues as

- correctness of mathematical formulations, including appropriate approximations, in the context of the accuracy of measurements
- reasonableness of physical assumptions, in the context of the accuracy of measurements
- efficiency of computational codes
- empirical adequacy of the model for prediction or retrodiction of measurements
- sensitivity of predictions or retrodictions to errors in model parameters
- inference of model parameters from measurements, including the Bayesian Information Criterion

A variety of model–versus–physics situations can be considered as a special topic. This special topic focusses on modelling power-meter measurements in competitive road cycling, which offers high-quality measurements to account for conditions that influence the performance, among them, air resistance, rolling resistance, driv-etrain resistance, gravity, etc. Only physical and mechanical aspects that affect performance are considered, for instance, disk wheels versus spoked wheels; no examination of physiological, psychological or biomechan-ical aspects is included. The course is designed to provide insights into scientific computing for phenomenological modelling, including examinations of empirical adequacy by comparing computational results with available measurements.

Prerequisite or corequisite

Background in numerical analysis, mathematics and physics

Reading material

General readings are to familiarize the student with computational aspects of mathematical physics for phenomena in question. Since, herein, the dominant effect is the air resistance, these readings include computational aspects of fluid mechanics. Also, to proceed towards optimal performance, the readings include computational aspects of the calculus of variations, including the brachistochrone problem.

Specific readings are to be selected from, as well as references in,

- Bos, L., Slawinski, M.A., Stanoev, T. (2020) On maximizing VAM for a given power: Slope, cadence, force and gear-ratio considerations, 2006.15816 [physics.pop-ph]

- Danek, T., Slawinski, M.A., Stanoev, T. (2020) On modelling bicycle power-meter measurements: Part I. Estimating effects of air, rolling and drivetrain resistance, 2005.04229 [physics.pop-ph]
- Danek, T., Slawinski, M.A., Stanoev, T. (2020) On modelling bicycle power-meter measurements: Part II. Relations between rates of change of model quantities, 2005.04480 [physics.pop-ph]
- Martin, J., Milliken, D., Cobb, J., McFadden, K., Coggan, A. (1998) Validation of a mathematical model for road cycling power. Journal of Applied Biomechanics: 276-291.

Professor-student interactions

In Class

Evaluation Scheme

Assignments: 50 %
Project: 50 %

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.: CMSC 7001

Course Title: Special Topics: Quantitative Models of Physical Phenomena II

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)

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

F. Course description (reading list required):

Recent measuring devices of a cyclist power output lead to a plethora of theoretical and computational studies, whose purpose is to account for that power in both the kinematic and dynamic contexts. We focus on velodrome cycling where -- due to leaning -- the motion of the centre of mass is crucial.

G. Method of evaluation:

	Percentage	
	Written	**Oral**
Class tests		
Assignments	50	
Other (specify):	50	
Final examination:		

Total Assgs & Project: 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	MS
2.	double credit	MS
3.	work that is a faculty research product	MS
4.	overlap with existing courses	MS

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

M.A.Slawinski Digitally signed by M.A.Slawinski DN: cn=M.A.Slawinski, o=Memorial University, ou=Dept of Earth Science, email=mslawins@mac.com, c=CA Date: 2021.08.16 20:11:16 +02'00'

Course instructor — 17 February 2022 (Date)

Approval of the head of the academic unit — 21 February 2022 (Date)

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

Secretary, Faculty/School/Council — Date

CMSC7001 Special topics: Quantitative models of physical phenomena II

Professor: Dr. Michael A. Slawinski

Purpose

The purpose of this course is to deepen the insights into mathematical/computational modelling of physical phenomena gained in CMSC7000. Further aspects are considered for such issues as

- correctness of mathematical formulations, including appropriate approximations, in the context of the accuracy of measurements
- reasonableness of physical assumptions, in the context of the accuracy of measurements
- efficiency of computational codes
- empirical adequacy of the model for prediction or retrodiction of measurements
- sensitivity of predictions or retrodictions to errors in model parameters
- inference of model parameters from measurements, including the Bayesian Information Criterion

A variety of model–versus–physics situations can be considered as a special topic. This special topic focusses on modelling power-meter measurements in competitive track cycling, which offers high-quality measure-ments to account for conditions that influence the performance, among them, air resistance, rolling resis-tance, drivetrain resistance, centre-of-mass motion, etc. In contrast to road cycling, discussed in CMSC7000, the geometry of a velodrome introduces a conceptual and computational challange. Only physical and me-chanical aspects that affect performance are considered, for instance, disk wheels versus spoked wheels; no examination of physiological, psychological or biomechanical aspects is included. The course is designed to provide insights into scientific computing for phenomenological modelling, including examinations of empirical adequacy by comparing computational results with available measurements.

Prerequisite or corequisite

CMSC7000

Reading material

Assuming a familiarity with general readings of CMSC7000, herein, background reading consists of such subjects as computational aspects of differential geometry to model shapes of velodromes and the leaning of a cyclist.

Specific readings are to be selected from, as well as references in,

- Bos, L., Slawinski, M.A., Slawinski, R.A., Stanoev, T. (2020) On modelling bicycle power for velodromes: Part II Formulation for individual pursuits, 2009.01162 [physics.app-ph]

- Fitton, B., Symons, D. (2018) A mathematical model for simulating cycling: Applied to track cycling. Sports Engineering 21 (4):409-418.
- Lukes, R., Hart, J., Haake, S. (2012) An analytical model for track cycling. Proceedings of the Institution of Mechanical Engineers, Part P: Journal of Sports Engineering and Technology 226 (2):143-151.
- Lukes, R., Carre, M., Haake S (2006) Track Cycling: An Analytical Model. The Engineering of Sport 6:115-120.
- Slawinski, M.A., Slawinski, R.A., Stanoev, T. (2020) On modelling bicycle power for velodromes: Part I Formulation for individual pursuits, 2005.04691 [physics.pop-ph]
- Underwood, L., Jermy, M. (2014) Determining optimal pacing strategy for the track cycling individual pursuit event with a fixed energy mathematical model. Sports Engineering 17 (4):183-196.
- Underwood, L., Jermy, M. (2010) Mathematical model of track cycling: the individual pursuit. Procedia Engineering 2 (2):3217-3222

Professor-student interactions

In Class

Evaluation Scheme

Assignments: 50 %
Project: 50 %

From: Graham Layne
To: Kenny, Gail
Cc: Oscar Meruvia-Pastor; CS Grad Officer
Subject: COMP 6983 Advanced Interaction Techniques (Special Topics)
Date: Wednesday, March 9, 2022 11:34:13 AM
Attachments: COMP_6983(SpecialTopics)_v2022-02-16_P_OPT.pdf

Gail-

The above Special Topics course has been approved by GSC.
COMP 6983 is a Special Topics version recommended for offering in Spring 2022.

I attach the version of the proposal that was approved, for inclusion on the next Faculty Council agenda.

Regards,
Graham

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.: COMP 6983

Course Title: Special Topics in Advanced Interaction Techniques

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)

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

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

This course provides an overview of the emerging field of advanced interaction techniques. Topics include fundamental knowledge in interaction and exploring the state-of-the-art research in this interdisciplinary area.

G. Method of evaluation:

	Percentage	
	Written	**Oral**
Class tests	12	0
Assignments	18	0
Other (specify):	45	
Final examination:	25	0
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	XJ, MH
2.	double credit	XJ, MH
3.	work that is a faculty research product	XJ, MH
4.	overlap with existing courses	XJ, MH

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

Xianta Jiang, Matthew Hamilton — December 31, 2021

Course instructor — Date

2022-02-16

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

Computer Science 6937/6983

Advanced Interaction Techniques /Special Topics in Advanced Interaction Techniques

MEMORIAL UNIVERSITY

Department of Computer Science

Instructor: Dr. Xianta Jiang, Dr. Matthew Hamilton
Office: EN-2010, EN-2029
Office Hours: TBD
e-mail: xiantaj@mun.ca, mhamilton@mun.ca

Course Description:
We are living in a world where interactions with computers and machines are ubiquitous. This course provides an overview of the emerging field of advanced interaction techniques. Topics include fundamental knowledge in interaction and exploring the state-of-the-art research in this interdisciplinary area including:

- Introduction
- Hand-Gesture based Interaction,
- Eye-tracking in Interaction Techniques,
- Body Gesture based Interactions,
- Facial Expression (Affective Computing) in Interaction
- Speech and Natural Language in Interaction,
- Haptics for Interactions
- Interactions in 3D, Virtual Reality and Augmented Reality
- Interactions for Game Control & Consumer Electronics
- Ergonomics and Human Factors for Interaction Techniques
- Considerations for Interaction Techniques for People with Disabilities

Classes will be held in the form of lectures, paper reading, seminars, and discussions. Students will work on a semester-long research project on the above research topics. Students have opportunities to get hands-on programming experience and using equipment and tools including inertial measurement units (IMUs), eye-trackers, electromyography and force myography, Leap Motion, Depth-Sensors, and AR/VR systems.

Course Objectives:
To give students basic knowledge on interactive technologies and their implementations. Students will learn the emerging field of advanced interactive technologies and understand its applications.

Expected Student Background:
A course in Human Computer Interaction.

Textbook and Resources:
"Human-Computer Interaction" by Alan Dix, Janet Finlay, Gregory Abowd, and Russell Beale. PRENTICE HALL © 1993, 1998, 2004. THIRD EDITION. e-book available at: https://hcibook.com/e3/plain/online/

Additional materials assigned throughout the course.

Evaluation:
The final grade in this course will be determined as follows:

Assignments (3)	18%
Literature Review Report	20%

Course Project	25%
Final Exam	25%
In-class Participation (quizzes)	12%

From: Graham Layne
To: Kenny, Gail
Cc: Oscar Meruvia-Pastor; CS Grad Officer
Subject: Re: COMP 6983 Advanced Interaction Techniques (Regular Course)
Date: Wednesday, March 9, 2022 1:08:55 PM
Attachments: COMP6983_Regular_22_0309_OM_2020-03-09_P_OPT.pdf

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Gail-

The above Regular Course has been approved by GSC.
COMP 6983 is a Regular Course version of COMP 6983 (Special Topics) as approved by GSC for offering in Spring 2022. It was originally approved by GSC as "COMP 6937", but has been re-numbered to allow the Special Topics course to be regularized under the same COMP 6983 number for inclusion in the Calendar going forward.

I attach the relevant file, for inclusion on the next Faculty Council agenda.

Regards,
Graham

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.: COMP 6983

Course Title: Advanced Interaction Techniques

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)

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

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

This course provides an overview of the emerging field of advanced interaction techniques. Topics include fundamental knowledge in interaction and exploring the state-of-the-art research in this interdisciplinary area.

G. Method of evaluation:

	Percentage	
	Written	**Oral**
Class tests	12	0
Assignments	18	0
Other (specify):	45	
Final examination:	25	0
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	XJ, MH
2.	double credit	XJ, MH
3.	work that is a faculty research product	XJ, MH
4.	overlap with existing courses	XJ, MH

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

Xianta Jiang, Matthew Hamilton — December 31, 2021

Course instructor — Date

Dr. Oscar Meruvia-Pastor — 9 Mar2022

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

Computer Science 6983
Advanced Interaction Techniques

MEMORIAL UNIVERSITY

Department of Computer Science

Instructors: Dr. Xianta Jiang, Dr. Matthew Hamilton
Office: EN-2010, EN-2029
Office Hours: TBD
e-mail: xiantaj@mun.ca, mhamilton@mun.ca

Course Description:
We are living in a world where interactions with computers and machines are ubiquitous. This course provides an overview of the emerging field of advanced interaction techniques. Topics include fundamental knowledge in interaction and exploring the state-of-the-art research in this interdisciplinary area including:

- Introduction
- Hand-Gesture based Interaction
- Eye-tracking in Interaction Techniques
- Body Gesture based Interactions
- Facial Expression (Affective Computing) in Interaction
- Speech and Natural Language in Interaction
- Haptics for Interactions
- Interactions in 3D, Virtual Reality and Augmented Reality
- Interactions for Game Control & Consumer Electronics
- Ergonomics and Human Factors for Interaction Techniques
- Considerations for Interaction Techniques for People with Disabilities

Classes will be held in the form of lectures, paper reading, seminars, and discussions. Students will work on a semester-long research project on the above research topics. Students have opportunities to get hands-on programming experience and using equipment and tools including inertial measurement units (IMUs), eye-trackers, electromyography and force myography, Leap Motion, Depth-Sensors, and AR/VR systems.

Course Objectives:
To give students basic knowledge on interactive technologies and their implementations. Students will learn the emerging field of advanced interactive technologies and understand its applications with the following specific objectives:
Know a relatively full spectrum of interactive technologies
Understand well advantages/shortages of above listed interactive technologies
Choose appropriate interactive techniques for specific applications
Know how different interactive systems are implemented
Design and implement an interactive system

Expected Student Background:
A course in Human Computer Interaction.

Textbook and Resources:

"Human-Computer Interaction" by Alan Dix, Janet Finlay, Gregory Abowd, and Russell Beale. PRENTICE HALL © 1993, 1998, 2004. THIRD EDITION. e-book available at: https://hcibook.com/e3/plain/online/

"Eye Tracking Methodology: Theory and Practice" by Andrew T. Duchowski. Springer © 2017 THIRD EDITION.

"Human Computer Interaction Using Hand Gestures" by Prashan Premaratne. Springer © 2014.

Additional materials assigned throughout the course.

Evaluation:

The final grade in this course will be determined as follows:

Assignments	18%
Course Project (include literature review)	45%
Final Exam	25%
In-class Participation (quizzes)	12%

From: Graham Layne
To: Kenny, Gail
Cc: Oscar Meruvia-Pastor; CS Grad Officer
Subject: COMP - Calendar Change Request - Courses Failed (Course-Based MSc) - Approved
Date: Wednesday, March 9, 2022 11:47:37 AM
Attachments: COMP_Courses Failed Calendar Entry_21_0203_GDL_2022-03-07_P_OPT.pdf

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Gail-

The above proposal has been approved by GSC after discussion and some clarifying revisions to the original draft.

This is a proposal from COMP for a Calendar amendment to change the treatment of courses failed for their Course-based MSc route. I note that the Course-based MSc route in COMP was approved by Senate at their February 2022 meeting.

I attach the version of the proposal that was approved, for inclusion on the next Faculty Council agenda.

Regards,
Graham

Proposal for a Calendar change to insert language in the calendar to allow course-based Master's students in CS to fail up to two courses during the life of the programs.

In the work-term route, we have had situations where students have failed two courses, creating the risk that the students are removed from the program if they were not allowed to late-drop the course. Once the course-based Master's route is approved, students interested in the work-term route will only be accepted into the course-based Masters route, as a first step to entering the work-term route. In the course-based Master routes, the probability that we will see students failing two courses is expected to increase, as the students are expected to complete 30 credit-hours, or an equivalent of 10 courses in total. To reduce the need for late drops, we would like to have the possibility of having students fail two courses, as already allowed in comparable course-based Masters programs at MUN. The most closely related example is the Master of Applied Science in Computer Engineering. This is a 33 credit-hour program that allows students to fail two courses (See under section 7.2.4- Evaluation: https://www.mun.ca/regoff/calendar/sectionNo=GRAD-4674). Another example is the Master of Business Administration, which is requires 30 credit hours in its shortest version (See under section 11.5 – Evaluation: https://www.mun.ca/regoff/calendar/sectionNo=GRAD-1265).

We are thus proposing the following addition to our non-thesis Master's programs (both workterm and course-based), under "28.10.4. Other regulations" of the recently approved Calendar version (or what would correspond to section "28.10.3. Other regulations" in the current calendar https://www.mun.ca/regoff/calendar/sectionNo=GRAD-0263)

Proposed changes:
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28.10.4 Other Regulations

1. Students from either **Option 1 - Thesis Route** or **Option 2 - Course-Based Route** may request to transfer to a different route once during their studies, after completing 4 courses (12 credit hours) in their original program upon admission to the School of Graduate Studies at Memorial.
2. All students are expected to take an active part in seminars and other aspects of the academic life of the Department of Computer Science.
3. Unless the work-term takes longer than one term, full-time students are expected to complete all program requirements in two years. Part-time students are expected to complete all program requirements in four years.
4. Students must obtain a grade of at least 65% in all program courses to receive credit for the course towards their program requirements. For the thesis-based route, the General Regulations for the Evaluation of Graduate Students apply. For non-thesis routes, any student who fails to receive 65% or more in a course must repeat the course in the case of required courses or must either repeat or replace the course with another program course in the case of other courses. Only two such repetitions/replacements shall be permitted in the student's program. Should a grade of less than 65% be obtained in a repeated or replacement course, the student shall be required to withdraw from the program.

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Please note that this language has been adapted from the language that governs the Master of Applied Science in Computer Engineering (33 credit hours), where students are currently allowed to fail two courses. For reference, https://www.mun.ca/regoff/calendar/sectionNo=GRAD-4674, section 7.2.4

The final/clean version of the Calendar after the changes follows:

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28.10.4 Other Regulations

1. Students from either **Option 1 - Thesis Route** or **Option 2 - Course-Based Route** may request to transfer to a different route once during their studies, after completing 4 courses (12 credit hours) in their original program upon admission to the School of Graduate Studies at Memorial.
2. All students are expected to take an active part in seminars and other aspects of the academic life of the Department of Computer Science.
3. Unless the work-term takes longer than one term, full-time students are expected to complete all program requirements in two years. Part-time students are expected to complete all program requirements in four years.
4. Students must obtain a grade of at least 65% in all program courses to receive credit for the course towards their program requirements. For the thesis-based route, the General Regulations for the Evaluation of Graduate Students apply. For non-thesis routes, any student who fails to receive 65% or more in a course must repeat the course in the case of required courses or must either repeat or replace the course with another program course in the case of other courses. Only two such repetitions/replacements shall be permitted in the student's program. Should a grade of less than 65% be obtained in a repeated or replacement course, the student shall be required to withdraw from the program.

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