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, October 20, 2021, at 1:00 p.m. by Webex.

AGENDA

1. **Regrets**
2. **Adoption of the Minutes of September 15, 2021**
3. **Business Arising from the Minutes**
4. **Committees of Science Faculty Council - Matrix**
5. **Research Data Management – Alison Randell, Office of the Chief Information Officer**
6. **Communities of Practice**
7. **Research Week Activities**
8. **Correspondence:** None
9. **Reports of Standing Committees**:

    A. **Undergraduate Studies Committee**:
        a. Department of Physics and Physical Oceanography, calendar change to amend pre-requisites for PHYS 1021, Paper 9.A.a (pages 8 to 13)
    B. **Graduate Studies Committee:**
        a. Department of Computer Science, proposal for a new course-based route, Paper 9.B.a (pages 14-20)
    C. **Library Committee:** No business
10. **Reports of Delegates from Other Councils**
11. **Report of the Dean**
12. **Question Period**
13. **Adjournment**

Travis Fridgen, Ph.D.
Acting Dean of Science

FACULTY OF SCIENCE
FACULTY COUNCIL OF SCIENCE
Minutes of Meeting of September 15, 2021

A meeting of the Faculty Council of the Faculty of Science was held on Wednesday, September 15, 2021, at 1:00 p.m. using Webex.

FSC 2856   **Present**
Biochemistry
M. Berry, R. Bertolo, V. Booth, J. Brunton, S. Harding, S. Mayengbam, M. Mulligan

Biology
T. Chapman, E. Edinger, C. Hussey, J. Roncal, Y. Wiersma

Chemistry
C. Bottaro, L. Cahill, H. Grover, M. Katz, F. Kerton, S. Pansare, B. Power, T. Jane Stockmann

Computer Science
S. Bungay, C. Hyde, X. Jiang, A. Mohammadi

Earth Sciences
G. Dunning, G. Layne, E. Theissen, B. Tilley

Economics
K. Chu

Mathematics & Statistics
J. Alam, I. Booth, D. Harvey, R. Haynes, J.C. Loredo-Osti, E. Martinez-Pedroza, D. Pike, T. Sheel, S. Sullivan

Ocean Sciences
C. Parrish

Physics & Physical Oceanography
E. Demirov, M. Evstigneev, R. Goulding, E. Hayden, M. Morrow, J. Munroe, I. Saika-Voivod, L. Zedel

Psychology
J. Fawcett, C. Thorpe

Dean of Science Office
N. Bishop, J. Blundell, S. Dufour, M. Fitzpatrick, T. Fridgen, L. Frizzell, G. Jackson, J. Kavanagh, G. Kenny, P. MacCallum, J. Major, R. Newhook, J. Whalen

Guests:
J. Browne, D. Hardy-Cox

FSC 2857   **Regrets**:
T. Mackenzie, V. MacNab, C. Walsh

FSC 2858   **Adoption of Minutes**
Moved: Minutes of the meeting of June 16, 2021, be adopted. (Berry/Sheel) **Carried**

FSC 2859   **Business Arising:** None

FSC 2860   **Correspondence:** None

FSC 2861   **Presentation by Dr. Donna Hardy-Cox, Associate Vice-President (Academic) Students:**
Dr. Donna Hardy-Cox and Jennifer Browne, Director of Student Life, provided information on the services offered through Student Life. There are various supports for students provided through their office. There are over 1,000 student positions available through GradSwep and ISWEP. Even though the deadline has passed for requesting a MUCEP position, departments can still submit applications and these late applications will be waitlisted.

FSC 2862   **Presentation by Dr. Xianta Jiang – Proposed Human Neuroscience Center:**
Dr. Jiang is seeking support from the Faculty for this proposed center. The mission is to accelerate research, seed new scientific collaborations and enhance the training of graduate, postgraduate and undergraduate students in human neuroscience at Memorial.

FSC 2863   **Reports of Standing Committees:**
A.   **Undergraduate Studies Committee:** No business
B.   **Graduate Studies Committee:**
    Presented by Graham Layne, Chair, 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.
    b. Department of Computer Science, Request for Approval of a Graduate Course, COMP 700A/B, Extended Research Project (Layne/Bungay) **Carried**
C.   **Library Committee:**
    Presented by Mykhalo Evsitgneev

1. The QEII Library has about 1,000,000 books which are stored in a special storage area. Because the library is running out of space for new items, any books published before 1970 that have not been checked out in twelve years, will be sent to a large storage facility in Downsview, Ontario.
2. Faculty are encouraged to complete the form for the library so that the library staff know of the journal needs for Science.

FSC 2864   Reports of Delegates from Other Councils: None

FSC 2865   Report of the Dean
Presented by Dr. Travis Fridgen, Acting Dean

1. **Fall semester start**
   I think the semester has gotten off to a great start! I've been around to labs and learning spaces and students certainly seem to happy to be back. Thank you to all of our staff and faculty for all your hard work in getting courses ready for our students. This is a transition semester, and we are expecting to be 100% in person in the winter.

2. **Welcome to new Heads**
   I would like to thank Dr. Mary Courage for stepping in and leading the Department of Psychology for the last year, during a pretty difficult time for all faculty, staff, and students. I would also like to welcome Dr. Christina Thorpe who has begun a three-year term as Head of Psychology. I would also like to thank Dr. Kristin Poduska who finished a very productive three-year term as Head of Physics and welcome Dr. Len Zedel into that position for the next three years. I look forward to working with both Tina and Len.

3. **Welcome to new faculty and staff**
   We have five new faculty members and six new staff members in the Faculty of Science, and I welcome you all to Memorial and the Faculty.
   One of these new staff members, Jessica Whalen, is the Faculty of Science Career Development Coordinator and she will be reaching out to departments, if she hasn't already, to introduce herself your department and let everyone know what services we offer our students and graduates in career guidance. She would also like to take a small amount of time in some lectures and labs to introduce herself and the service to our students.

4. **Faculty of Science Strategic Plan Consultations**
   I will be asking Heads to invite me to department meetings to meet with faculty and staff to consult on our strategic plan. The Dean's office, along with Heads and Deputy Heads, attended a retreat in September to begin to look at priorities. Once we get an outline, I want to know what priorities faculty and staff have, as well as some ideas on how to get there. I will also organize a meeting with undergraduate and graduate students to receive their input.

FSC 2866   Question Period
No questions.

FSC 2867   **Adjournment**

The meeting adjourned at 1:57 p.m.

Committees

	UNDERGRADUATE STUDIES	GRADUATE STUDIES	LIBRARY
Dean of Science	Suzanne Dufour Shannon Sullivan (senior academic advisor)	Jacqueline Blundell	Jacqueline Blundell
Biochemistry	Janet Brunton	Rob Bertolo	Valerie Booth
Biology	Yolanda Wiersma	Ted Miller	Kathryn Hargan
Chemistry	Michael Katz	Christina Bottaro	Graham Bodwell
Computer Science	Mark Hatcher	Oscar Meruvia-Pastor	Todd Wareham
Earth Science	Penny Morrill	Alison Leitch	Joe Hodych
Mathematics & Statistics	Graham Cox	Asokan Variyah	Yorck Sommerhauser
Ocean Sciences	Annie Mercier	Ian Fleming	Pat Gagnon
Physics & Physical Oceanography	James Munroe	Entcho Demirov	Mykhalo Evstigneev
Psychology	Carolyn Walsh	Darcy Hallett	Sue Walling
ASM CE	Theresa Mackenzie	Rebecca Newhook	
Sustainable Aquaculture		Cyr Couturier	
Cognitive & Behavioural Ecol.		Eric Vander Wal	
Environmental Science		Evan Edinger	
Scientific Computing		Ron Haynes	
Theoretical Physics		Ivan Booth	
Economics			
Geography			

Library			
GSU			
MUNSU			

FACULTY OF SCIENCE AWARDS COMMITTEE
Craig Purchase (chair*), Annie Mercier, Ivan Booth, Alison Malcolm

REPRESENTATIVES TO OTHER COUNCILS	
Faculty Of Business	Oscar Meruvia-Pastor
Faculty Of Education	Carolyn Walsh
Faculty Of Engineering	Penny Morrill
Faculty Of Medicine	Valerie Booth
Faculty Of Social Sciences And Humanities	David Wilson
Marine Institute	Uta Passow
Office Of The Registrar	Tracey Edmunds
Libraries	Mykhaylo Evstigneev
School Of Graduate Studies	Christina Bottaro, Asokan Variyath, Andrew Lang
School Of Music	Yildiz Yilmaz
School Of Nursing	Scott Harding

STUDENT UNIONS REPRESENTATIVES TO FACULTY COUNCIL	
GSU	G. Adam Meyer
MUNSU	TBD

MEMORIAL UNIVERSITY

Office of the Registrar

St. John's, NL Canada A1C 5S7
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www.mun.ca

October 8, 2021

TO: All Members of Faculty Council, Faculty of Science

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

SUBJECT: **Proposals for Calendar Changes**

___

A virtual meeting held on October 7th, 2021, the Faculty of Science Committee on Undergraduate Studies agreed that the following item should be forwarded to Faculty Council for approval:

1. **Department of Physics and Physical Oceanography**

   (a) Amend pre-requisites for PHYS 1021

Tracey Edmunds

_____
Tracey Edmunds

Memorial University of Newfoundland
Undergraduate Calendar Change Proposal Form
Cover Page

LIST OF CHANGES

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

- ☐ New course(s):
- ☑ 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

Physics 1021 Introductory Physics II

RATIONALE

The Department of Physics and Physical Oceanography recently refreshed many of its calendar course descriptions.   The update to Physics 1021 prerequisites had the unintended consequence of preventing students who failed to complete Math 1000 in their first semester from enrolling in Physics 1021, even if they passed Physics 1020. The course is explicitly an algebra-based introduction to physics, and only requires the same level of mathematics as Physics 1020. Passing Physics 1020 indicates a sufficient level of mathematical background for Physics 1021. We therefore propose to only require Physics 1020 (or Physics 1050) as prerequisites for Physics 1021. This simplification will reduce unintended consequences of listing explicit mathematics prerequisites.

CALENDAR CHANGES

(In the calendar section Faculty of Science
11.10 Physics and Physical Oceanography)

1021 Introductory Physics II is an algebra-based introduction to oscillations, fluids, wave motion, electricity and magnetism, and circuits.
LH: 3; normally there will be six laboratory sessions per semester
OR: tutorial sessions may be held on weeks when no laboratory is scheduled
PR: PHYS 1020 or 1050~~, Mathematics 1090 or 109A or 1000~~, Science 1807 and Science 1808

CALENDAR ENTRY AFTER CHANGES

1021 Introductory Physics II is an algebra-based introduction to oscillations, fluids, wave motion, electricity and magnetism, and circuits.
LH: 3; normally there will be six laboratory sessions per semester
OR: tutorial sessions may be held on weeks when no laboratory is scheduled
PR: PHYS 1020 or 1050, Science 1807 and Science 1808

SECONDARY CALENDAR CHANGES
(In the calendar section for Grenfell College
13.23 Physics)

1021 Introductory Physics II is an algebra-based introduction to oscillations, fluids, wave motion, electricity and magnetism, and circuits.
LH: 3; normally there will be six laboratory sessions per semester
OR: tutorial sessions may be held on weeks when no laboratory is scheduled
PR: PHYS 1020 or 1050~~, Mathematics 1090 or 1000~~, Science 1807 and Science 1808

Memorial University of Newfoundland
Undergraduate Calendar Change Proposal Form
Appendix Page

CONSULTATIONS SOUGHT

From: Rick Goulding rgoulding@mun.ca

Good afternoon,

The Department of Physics and Physical Oceanography is proposing to
eliminate math prerequisites for Physics 1021.The rationale is that a
sufficient math background is demonstrated by students completing
Physics 1020 or 1050, both of which remain as prerequisites for
Physics 1021. Please submit your comments to rgoulding@mun.ca by
June. 9, 2020.>
Thank you,
  Rick
Rick Goulding
  Dept of Physics and Physical Oceanography
Memorial University of Newfoundland

Engineering

2020-05-20 4:19 PM

Dear Dr. Goulding,

Thank you for the opportunity to comment on the proposal to eliminate
mathematics prerequisites for Physics 1021.

All of our students must take PHYS 1051 as part of their Engineering One
program.   At its regular meeting today, the Committee on Undergraduate
Studies of the Faculty of Engineering and Applied Science therefore
found no impact on Engineering programs.

We are happy to support this proposed amendment to PHYS 1021.

Yours sincerely,

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

School of Human Kinetics

2020-05-12 11:47 AM

Hi Rick,
 No concerns from HKR for the calendar change for Physics 1021.

L
 Linda E. Rohr PhD
Dean, School of Human Kinetics & Recreation
Memorial University
t: 709.864.8129 f: 709.864.7531 e: lerohr@mun.ca
PE 2027

Dept of Geography

Dear Rick:

No problem.
 Take care and best wishes
Norm

Norm Catto
Head, Department of Geography
Memorial University
St. John's NL A1B 3X9

Medicine

2020-05-12 2:05 PM

The Faculty of Medicine is supportive of the proposed calendar changes for Physics 1021.

Regards,

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

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

T 709 864 6417 | F 709 864 6336
www.med.mun.ca/

LIBRARY REPORT

From: "Ambi, Alison" <aambi@mun.ca>
Subject: RE: Phys 1021 Calendar Change
Date: July 11, 2019 at 4:10:40 PM NDT
To: "saika@mun.ca" <saika@mun.ca>
Cc: "Goulding, Rick" <rgoulding@mun.ca>

Hello Ivan and Rick,
A library report will not be needed for this calendar change.
Alison Ambi

Head, Collections Strategies
Subject Librarian for Computer Science, Earth Sciences, Mathematics & Statistics, Physics, Psychology

QEII Library
Memorial Univeristy of Newfoundland
+1 709 864-7125
www.library.mun.ca

From: Ivan Saika-Voivod <saika@mun.ca>
Sent: Thursday, July 11, 2019 10:21 AM
To: Library Correspondence <univlib@mun.ca>
Cc: Goulding, Rick <rgoulding@mun.ca>

Subject: Phys 1021 Calendar Change

Dear Library,

The Department of Physics and Physical Oceanography is proposing changes to the prerequisites of Physics 1021.   I am kindly asking for a Library Report on the attached proposal, or an indication that a Library Report is not required for the proposed changes.

Please "reply to all" when you respond.

Many thanks,
Ivan

Dr. Ivan Saika-Voivod, Associate Professor
Undergraduate Studies Committee Chair
Department of Physics and Physical Oceanography, Memorial University of Newfoundland
Tel: 709-864-8886, Fax: 709-864-8739, http://www.physics.mun.ca/~saika/

RESOURCE IMPLICATIONS

There are no additional costs, as we are simply adjusting prerequisites.

From:	Graham Layne
To:	Kenny, Gail
Cc:	Oscar Meruvia Pastor
Subject:	Re: COMP – Proposed New Course-Based M.Sc. Route - Approved
Date:	Tuesday, October 12, 2021 12:37:19 PM
Attachments:	COMP_CourseBasedMasters_2021-07-29_OPT.pdf

Gail-

The above has been discussed by GSC and approved with no dictated changes.
I attach a copy of the version discussed by GSC, for inclusion in the October Faculty Council Meeting agenda,

Regards,
Graham

M.Sc. Course-based route - – Department of Computer Science

The Graduate Studies Committee of the Department of Computer Science is proposing the introduction of a new course-based route to its program.

Rationale

This proposal calls for the introduction of a new Master's option in the Department of Computer Science: the "Master of Science (Course-based route)", at the Faculty of Science of Memorial University. The ever-increasing presence of computers in our lives has made computer science one of the fundamental pillars of science and computer-related professions some of the most demanded professions. Accordingly, the Masters' programs in the Computer Science Department at Memorial University are in high demand. The proposed Computer Science course-based route has been designed with the goal of attending to our provincial, and national and international demand in terms of computer science expertise, by complementing our existing offerings with a new route. Currently, the Computer Science department offers two Masters' routes: the thesis-based and the work-term route. The thesis-based route is focused on moving forward fundamental research in computer science and is accessible to applicants with outstanding academic backgrounds who find matching supervisors who can offer scholarships to these students. The work-term route is oriented towards meeting the needs of employers and students interested in software development and applied computer science and is accessible to applicants with previous work experience in the IT sector and who come with demonstrably good employability prospects. The proposed program is designed to fill out a void between the two existing routes, giving students with outstanding academic backgrounds but who haven't found a matching supervisor the opportunity to enroll in a Master's program and develop highly demanded skills that will allow them to integrate in the information technology sector after completion of the program. At the same time, this new cohort of students would provide support for current faculty in the CS department to engage in fundamental research through the supervision of course-based research projects, which could eventually lead to new grant applications. The new route will allow students to develop skills in a wide array of areas in Computer Science as per the graduate courses currently available at the Department. The goal of the program is to attract local, national and international students who want to develop their computer science skills beyond the Bachelor of Computer Science and contribute to our society by developing expertise in this field. In this sense, the proposed programme is in direct alignment with the strategic goals of the university and the province, especially in terms of enhancing the support of research and development of information and communication technologies.

Proposed Calendar Changes to be applied on https://www.mun.ca/regoff/calendar/sectionNo=GRAD-0263:

28.10 Computer Science

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

The degrees of Master of Science and Doctor of Philosophy are offered in Computer Science.

28.10.1 Admission Requirements

Admission into a Master's program in Computer Science is restricted to students holding at least a Bachelor degree (major in Computer Science or Computer Engineering) with a minimum average of 75% overall, and/or a second Class Upper or higher standing. When circumstances warrant, this requirement may be waived on the recommendation of the Head of the Department. Applicants should also refer to the **Qualifications for Admission** given under the **Regulations Governing the Degree of Master of Science** within the School of Graduate Studies section of the current Calendar. International applicants are ~~strongly~~ encouraged to submit results of the (general) Graduate Record Examination (GRE) test. Applicants may apply initially for Option 1 or Option 2 only; students may apply for Option 3 toward the end of their first semester of study.

28.10.2 Programs

28.10.2.1 Option 1 - Thesis Route

1. Students are required to complete a minimum of 15 credit hours in graduate program courses, 9 credit hours which are Computer Science courses as follows: COMP 690A/B and 6 additional ~~courses~~ credit hours in Computer Science (excluding COMP 601W, COMP691A/B, COMP 700A/B and COMP 6999).
2. Full-time students are expected to complete their course work within their first year of studies. Part-time students are expected to complete their course work by the end of the seventh semester in their program.
3. Students must participate in the Research Forum at least once during their program. The Student Research Forum is organized by the Department of Computer Science and takes place ~~in the Winter term of~~ each academic year.
4. Each student is required to submit an acceptable thesis. The thesis project may involve a theoretical investigation and/or the development of an original, practical system. Each student is required to present a tentative outline of the student's proposed research to the Supervisor, with a copy to the Department Committee on Graduate Studies, by the end of the student's third semester in the program (sixth semester for part-time students). A fifteen-minute oral presentation of the proposal is to be scheduled and given within four weeks of the submission date.
5. Prior to submission of a thesis, normally in the last semester of the program, students are required to present a seminar on the thesis topic, methods employed, and research results.

28.10.2.2 Option 2 – Course-based Route

1. Students are required to complete a minimum of 24 credit hours in graduate program courses, of which at least 18 credit hours must be in Computer Science, whereas the remaining 6 should be related to computer science and included in the list of CS-approved elective courses maintained by the Graduate Studies Committee, available at www.mun.ca/computerscience/grad, or previously approved by the Graduate Studies Committee, or its Chair.
2. In addition to the 24 credit hours requirement, a student must take one of the following:
   a. COMP 6999 (Research Project) and one other 3-credit hour course in Computer Science or a CS-approved elective.

b. COMP 700A/B (Extended Research Project)
c. If no supervisor is found for COMP 6999 or COMP 700A/B after three search attempts (e.g., three emails sent to different faculty), two 3-credit hour courses, one of which must be in Computer Science, and the other one can be in Computer Science or a CS-approved elective.

3. Prior to graduation and as part of successfully completing COMP 6999, Comp 691A/B, or Comp700A/B, students are required to present a seminar on their project.

28.10.2.~~2~~3 Option ~~2~~3 – Work~~ ~~Term Route

1. ~~Students are required to complete a minimum of 24 credit hours in graduate program courses, of which at least 18 credit hours must be in Computer Science, whereas the remaining 6 should be related to computer science, and included in the list of elective courses maintained by the Graduate Studies Committee, or previously approved by the Graduate Studies Committee, or its Chair.~~
2. ~~Within this credit requirement, a student must take the following courses:~~
    ~~COMP 6999 (Master's Project)~~
    ~~One course in Software Engineering (COMP 6905)~~
    ~~One course in Algorithms (COMP 6901 or COMP 6902)~~
3. ~~Additionally students are required to complete one co-operative education work term (COMP 601W). The work term is a full-time, paid work experience with one employer and either a four or eight months in duration. The work term should start in the third semester of the program. The work term can be deferred to the fourth semester, but normally only in the event of an unsuccessful job search for the third semester.~~
4. ~~The dates for starting and finishing each work term are shown at~~ ~~www.mun.ca/coop~~.
5. ~~Students must successfully complete at least 12 credit hours (four courses) prior to beginning their work term. Students must have at least one required course remaining after their work term.~~
6. ~~Students will conduct job searches with an Academic Staff Member in Co-operative Education in co-operation with the Department of Computer Science. It is the student's responsibility to seek and obtain a work term placement and to communicate with all parties both within the University and beyond in a professional manner. Work term placements cannot be guaranteed by the Department of Computer Science or an Academic Staff Member in Co-operative Education, although every effort will be made to assist students in their job search. Work term placements obtained outside the job competition must be confirmed by letter from the employer and approved by the Head of Computer Science and by an Academic Staff Member in Co-operative Education on or before the first day of the work term. Work term placements may be outside Newfoundland and Labrador.~~
7. ~~Each work term placement will be supervised by the student's program Supervisor, the on-site Supervisor assigned by the employer and the Academic Staff Member in Co-operative Education. The overall evaluation of the work term is the responsibility of the program Supervisor, on-site Supervisor and the Academic Staff Member in Co-operative Education. The work term shall consist of two components:~~
    a. ~~On-the-job Student Performance as evaluated by the on-site Supervisor and the Academic Staff Member in Co-operative Education, in consultation with the program Supervisor.~~
    b. ~~A Work Report graded by the program Supervisor in consultation with the on-site Supervisor.~~
8. ~~Evaluation of the work term will result in the assignment of one of the following final grades:~~
    a. ~~Pass with Distinction: indicates outstanding performance in both the work report and work performance.~~
    b. ~~Pass: Indicates that PERFORMANCE MEETS EXPECTATIONS in both the work report and work performance.~~
    c. ~~Fail: Indicates FAILING PERFORMANCE in the work report and/or the work performance. If a failing grade is assigned, the student's Masters program will be terminated.~~
9. ~~Prior to graduation and after successfully completing COMP 6999 (Master's Project), students are required to present a seminar on their projects.~~

The work term route provides an opportunity for graduate computer science students to learn valuable practical skills while working in fields related to computer science. Students complete a full-time, paid work term (COMP 601W) of four or eight months with a single employer as an essential component of their

academic program. There is no direct entry into this program. Students may apply for admission into Option 3-Work Term Route towards the end of their first semester in Option 1 – Thesis Route or Option 2 – Course-based Route.

1. **Admission Requirements**
    a. Admission to the work term route is limited, competitive, and selective.
    b. The primary criteria used in reaching decisions on applications for admission is academic performance, relevant experience and motivation. Students may be required to participate in an interview as part of the selection process.
    c. Applications are accepted each semester, approximately 4-5 months in advance of the work term start. Students are informed of application deadlines by the Department of Computer Science.
    d. Students must have completed 12 credit hours of program courses prior to the work term start. Students must have at least one required course remaining after the work term.

2. **Program of Study**

    a. Students are required to complete a minimum of 24 credit hours in graduate program courses, of which at least 18 credit hours must be in Computer Science, whereas the remaining 6 should be related to computer science and included in the list of elective courses maintained by the Graduate Studies Committee, or previously approved by the Graduate Studies Committee, or its Chair.
    b. Within this credit requirement, a student must take the following courses:
        o COMP 6999 (Master's Project)
        o One course in Software Engineering (COMP 6905)
        o One course in Algorithms (COMP 6901, COMP 6902, or COMP 6981)

    c. Additionally, students are required to complete one co-operative education work term (COMP 601W). The work term is a full-time, four- or eight- months duration paid work experience with one employer.
    d. Prior to graduation and as part of successfully completing COMP 6999 (Master's Project), students are required to present a seminar on their project.
    e. The work term job search takes place throughout the semester prior to the start of the intended work term. Students who are not successful in securing a work term job in their first search semester may continue their search for up to two additional semesters. After three unsuccessful work term search semesters, students will be required to switch to the course-based route.

3. Work Term
    a. Students will conduct job searches with an Academic Staff Member in Co-operative Education in cooperation with the Department of Computer Science. It is the student's responsibility to seek and obtain a work term placement and to communicate with all parties both within the University and beyond in a professional manner. While the student's job search is supported by the Academic Staff Member in Co-operative Education, it is the student's responsibility to secure a work term placement. Work term placements are not guaranteed. Work term placements obtained outside the job competition must be confirmed by letter from the employer and approved by an Academic Staff Member in Co-operative Education on or before the first day of the work term.
    b. Work terms start in January, May and September, the start and end dates are available at mun.ca/coop/.
    c. Each work term placement will be supervised by the student's on-site workplace supervisor and the Academic Staff Member in Co-operative Education. The overall evaluation of the work term is the responsibility of the Academic Staff Member in Co-operative Education. The work term shall consist of two components:
        o On-the-job Student Performance as evaluated by the workplace supervisor and the Academic Staff Member in Co-operative Education.
        o Assignment(s) graded by the Academic Staff Member in Co-operative Education.
    d. Evaluation of the work term will result in the assignment of one of the following final grades:
        o Pass with Distinction: indicates OUTSTANDING PERFORMANCE in both the assignment(s) and work performance.
        o Pass: Indicates that PERFORMANCE MEETS EXPECTATIONS in both the assignment(s) and work performance.

o Fail: Indicates FAILING PERFORMANCE in the assignments and/or the work performance. If a failing grade is assigned, the student's Masters program will be terminated.

28.10.4~~3~~ Other Regulations

1. Students from either **Option 1 - Thesis Route** or **Option 2 - Course~~-Based Route~~ ~~/Project Route with Work Term~~** may request to transfer ~~between both options~~ to a different route once during their studies, ~~after at least two semesters~~ after completing 4 courses (12 credit hours) in the~~ir~~ 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, ~~f~~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.

28.10.4~~4~~5 Courses

A selection of the following graduate courses will be offered to meet the requirements of students, as far as the resources of the Department will allow. Normally, students will be expected to complete their course work during the ~~fall~~ Fall and ~~winter~~ Winter. ~~Courses might not be offered in the spring semester.~~

- 601W Work Term
- 690A/B Research Methods in Computer Science
- 691A/B Special Research Project
- 700A/B Extended Research Project
- 6758-6769 Special Topics in Computer Applications
- 6770-6790 Special Topics in Computer Science
- ~~690A/B Research Methods in Computer Science~~
- 6901 Applied Algorithms *(~~credit may be obtained for only one of~~ credit restricted with ~~6901 and~~ 6783)*
- 6902 Computational Complexity *(~~credit may be obtained for only one of~~ credit restricted with ~~6902 and~~ 6743)*
- 6903 Concurrent Computing
- 6904 Advanced Computer Architecture *(~~credit may be obtained for only one of~~ credit restricted with ~~6904 and~~ 6722)*
- 6905 Software Engineering *(~~credit may only be obtained for one of~~ credit restricted with~~6905 or~~ 6713)*
- 6906 Numerical Methods *(~~credit may only be obtained for one of~~ credit restricted with~~6906 or~~ 6731)*
- 6907 Data Mining Techniques and Methodologies *(~~credit may be obtained for only one of~~ credit restricted with~~6907 and~~ 6762)*
- 6908 Database Technology and Applications *(~~credit may be obtained for only one of~~ credit restricted with~~6908 and~~ 6751)*
- 6909 Fundamentals of Computer Graphics *(~~credit may be obtained for only one of~~ credit restricted with~~6909 or~~ 6752)*
- 6910 Services Computing, Semantic Web and Cloud Computing
- 6911 Bio-inspired Computing
- 6912 Autonomous Robotics *(~~credit may be obtained for only one of~~ credit restricted with~~6912 and~~ 6778)*
- 6913 Bioinformatics
- 6914 3D Modelling and Rendering
- 6915 Machine Learning
- 6916 Security and Privacy
- 6918 Digital Image Processing *(~~credit may be obtained for only one of~~ credit restricted with~~6918 or~~ 6756)*
- 6921 Syntax and Semantics of Programming Languages *(~~credit may be obtained for only one of~~ credit restricted with~~6921 or~~ 6711)*
- 6922 Compiling Methods *(~~credit may be obtained for only one of~~ credit restricted with~~6922 and~~ 6712)*
- 6924 Formal Grammars, Automata and Languages
- 6925 Advanced Operating Systems

- 6926 Performance Evaluation of Computer Systems *(~~credit may be obtained for only one of credit~~ restricted with ~~6726 and~~ 6926)*
- 6928 Knowledge-Based Systems *(~~credit may be obtained for only one of~~ credit restricted with ~~6928 or~~ 6755)*
- 6929 Advanced Computational Geometry *(~~credit may be obtained for only one of~~ credit restricted with ~~6929 or~~ 6745)*
- 6930 Theory of Databases *(~~credit may be obtained for only one of~~ credit restricted with ~~6930 or~~ 6742)*
- 6931 Matrix Computations and Applications *(~~credit may be obtained for only one of~~ credit restricted with ~~6931,~~ 6732, and CMSC 6910) ~~(cross-listed with CMSC 6910)~~*
- 6932 Matrix Computations in Control *(~~credit may be obtained for only one of~~ credit restricted with ~~6932 or~~ 6738)*
- 6933 Nonlinear and Linear Optimization *(cross-listed with Mathematics ~~6202~~)*
- 6934 Introduction to Data Visualization *(~~credit may be obtained for only one of~~ credit restricted with ~~6934 or~~ 6774)*
- 6980-6998 Special Topics in Computer Science
- 6999 Master's Project