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, May 16, 2018 at 1 p.m. in C-2045.

AGENDA

1. Regrets
2. Adoption of the Minutes of April 18, 2018
3. Business Arising from the Minutes: None
4. Correspondence: None

5. Reports of Standing Committees:
   A. Undergraduate Studies Committee:
      a. Department of Biology, paper 5.A.a (Pages 6-28)
         i) Calendar change to Existing Programs: Chemistry requirements for the Biology and Statistics Joint Honours (B.Sc. only)
      b. Memo from Senate Committee on Undergraduate Studies requesting feedback on General Regulation 6.3 Residence Requirements, and response from Faculty of Science Undergraduate Studies Committee, paper 5.A.b (Pages 29-31)

   B. Graduate Studies Committee:
      a. Aquaculture Program, special topics course, AQUA 6203, Applications of Transcriptome Analysis in Aquaculture, approved by the committee and presented to Faculty Council for information only, paper 5.B.a (Pages 32-38)
      b. Department of Biology, special topics course, BIOL 7948, Lichens: molecular biology and culturing, approved by the committee and presented to Faculty Council for information only, paper 5.B.b (Pages 39-44)

   C. Nominating Committee: None
   D. Library Committee: None

6. Report of Teaching Consultant
7. Reports of Delegates from Other Councils
8. Report of the Dean
9. Question Period
10. Adjournment

Mary L. Courage, Ph.D.
Interim Dean of Science
A meeting of the Faculty Council of the Faculty of Science was held on Wednesday, April 18th at 1:00 p.m. in room C-2004.

FSC 2590  Present
Biochemistry
Berry, M.  Booth, V.  Mulligan, M.

Biology
Jones, I.  Staveley, B.

Chemistry
Bottaro, C.  Flinn, C.  Fridgen, T.  Grover, H.  Kerton, F.
Kozak, C.  Merschrod, E.

Computer Science
Brown, E.

Earth Sciences
Hanchar, J.  Welford, K.

Mathematics & Statistics
Haynes, R.  Radford, C.  Sullivan, S.  Variyath, A.

Ocean Sciences
Fletcher, G.

Physics & Physical Oceanography
Curnoe, S.  Lagowski, J.  Saika-Voivod, I.

Dean of Science Office
Foss, K.  Foster, A.  Jackson, G.  MacKenzie, T.

Library
Gamsby, M.
FSC 2591  Regrets
Catto, N.  Loredo-Osti, J.C.  Poduska, K.  Stordy, M.  Todd, A.

FSC 2592  Adoption of Minutes
Moved: Minutes of March 21, 2018, meeting be adopted (Sullivan/Kerton).
Two Abstentions. Carried.

FSC 2593  Business Arising: None

FSC 2594  Correspondence: None

FSC 2595  Reports of Standing Committees:

A.  Undergraduate Studies Committee:
Report presented by Shannon Sullivan, Chair, Undergraduate Studies Committee

  a)  i) Moved: Department of Chemistry, deletion of CHEM 1011
      (Sullivan/Fridgen). Carried.

      ii) Moved: Department of Chemistry, deletion of CHEM 2440
          (Sullivan/Flinn). One Abstention. Carried.

 b)  i) Moved: Department of Biology, calendar change, BIOL 4405
      (Sullivan/Staveley). Carried.

      ii) Moved: Department of Biology, calendar change to existing
          programs, Biology Cooperative Programs (Sullivan/Staveley). Carried.

      iii) Moved: Department of Biology, calendar change to existing
          programs, chemistry requirements for Biology Major and Honours
          programs (Sullivan/Staveley). Carried.

 c)  i) Moved: Department of Ocean Sciences, calendar changes, OCSC
      2500 (Sullivan/Fletcher). Carried.
ii) Department of Ocean Sciences, new special topics course, OCSC 4940, for information only.

B. Graduate Studies Committee:
Report presented by Ron Haynes, Acting Chair, Graduate Studies Committee:

a) Moved: Department of Ocean Sciences, request for new special topics course number range OCSC 7500-7515 (Haynes/Radford). Carried.

b) Moved: Department of Mathematics and Statistics, presented eight motions for changes to the Statistics graduate programmes including the addition of several graduate Statistics courses (page 82) (Haynes/Radford). Carried.

c) Moved: Department of Psychology, calendar change to course requirement PSYC 6001 (Haynes/Jones). Carried.

d) Department of Psychology, special topics course, PSYC 6001, Substance Abuse and Behavioural Addictions in Youth, presented to council for information purposes only.

C. Nominating Committee: None

D. Library Committee: None

FSC 2596 Report of Teaching Consultant:
The 2018 Teaching & Learning Conference at Memorial University is being held on April 26-27. The format has changed from last year’s teaching day, and follows a more typical conference format with keynote speakers, panels, and various breakout talks and sessions. The schedule is posted on the conference website (https://citl.mun.ca/conference/index.php ), and includes a couple sessions from instructors within the Faculty of Science, as well as a Keynote from Dr. David Helfand, Department of Astronomy, Columbia University. Registration is FREE, so we really encourage instructors to take part and attend, even if it is only for select sessions of interest.

FSC 2597 Reports of Delegates from Other Councils: None

FSC 2598 Report of the Dean:
Dr. Courage informed Faculty Council members that the NSERC Discovery grant results have been released and the Faculty of Science had a 76% success rate. This is better than the Memorial University success rate of 58%. Dr. Courage thanked everyone for their hard work. In addition, the Faculty of Science was awarded one RTI in the Department of Biology. The faculty has 201 faculty members and 129 are engaged with NSERC.
We are still awaiting to start the searches for several approved faculty positions. Since the new fiscal year, Dr. Courage has written the Provost and VPR to confirm startup funds.

Zach Goudie of CBC News has posted a news article on the construction of the new Core Sciences Facility. The pictures and videos are spectacular and Gail Kenny will send out the web link to the Departments.

FSC 2599  **Question Period:**

FSC 2600  **Adjournment**
The meeting adjourned at 1:45 p.m.
May 3, 2018

TO: All Members of Faculty Council, Faculty of Science

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

SUBJECT: Proposals for Calendar Changes

At a meeting held on April 17, 2018, the Faculty of Science Committee on Undergraduate Studies agreed that the following items should be forwarded to Faculty Council for approval:

1. Department of Biology

   (a) Department of Biology - Calendar Changes to Existing Programs - Chemistry requirements for the Biology and Statistics Joint Honours (B.Sc. Only)
Proposal
Calendar Change(s) to Existing Program(s)

Executive Summary

The Department of Biology would like to remove CHEM 1010 Introductory Chemistry I, CHEM 1011 Introductory Chemistry II, and CHEM 2440 Organic Chemistry for Biologists from the Biology and Statistics Joint Honours.

The above courses will be replaced CHEM 1050 General Chemistry I, CHEM 1051 General Chemistry II, CHEM 2400 Introduction to Organic Chemistry I, and CHEM 2401 Introduction to Organic Chemistry II to provide students with a more completion foundation in basic and organic chemistry.

Resource Implications: Instructional Costs

No new resources are required. There are no changes to the course content.

Consultations

The internal distribution list for Calendar changes.

Library Holdings and/or Other Resources Required

No new library resources or costs are required or anticipated.

Signature of Unit Head (if appropriate):

Date:

Signature of Dean/Associate Vice-President (Academic)/Vice-President:

Date:
Biology and Statistics Joint Honours (B.Sc. Only)

Calendar Change(s) - See attached

6.1.11 Biology and Statistics Joint Honours (B.Sc. Only)
See Regulations for the Honours Degree of Bachelor of Science. Students shall complete the following requirements:

1. Mathematics 1000 and 1001, Biology 1001 and 1002, English 1090 or the former English 1080 and 1110, Chemistry 4010 and 4011 (or 1050 and 1051) (or 1200 and 1001), Physics 1020 and 1021, or equivalent;
2. Mathematics 2000, 2050, 2051, Statistics 2500, 2501 or 2560, 3520, 3521, 4530, and 4581;
3. 9 further credit hours in Statistics courses (excluding those with second digit 0) including at least 6 credit hours in courses at the 4000 level or higher but not including Statistics 459A/B;
4. Chemistry 2440 (or 2400 and 2401), Biochemistry 2101 and 3106;
5. Biology 2060, 2250, 2600, 2900, one of 3401, 3402, 4245, or 4404. In addition, further Biology courses at the 2000, 3000 or 4000 level must be selected by the student in consultation with the supervisor to make up a minimum of 42 credit hours in Biology but not including Biology 499A or 499B;
6. Either Biology 499A/B or Statistics 459A/B; and
7. A computing course. Computer Science 1510 is recommended.

Secondary Calendar Changes
None.

Calendar Entry After Changes

6.1.11 Biology and Statistics Joint Honours (B.Sc. Only)
See Regulations for the Honours Degree of Bachelor of Science. Students shall complete the following requirements:

1. Mathematics 1000 and 1001, Biology 1001 and 1002, English 1090 or the former English 1080 and 1110, Chemistry 1050 and 1051 (or 1200 and 1001), Physics 1020 and 1021, or equivalent;
2. Mathematics 2000, 2050, 2051, Statistics 2500, 2501 or 2560, 3520, 3521, 4530, and 4581;
3. 9 further credit hours in Statistics courses (excluding those with second digit 0) including at least 6 credit hours in courses at the 4000 level or higher but not including Statistics 459A/B;
4. Chemistry 2400 and 2401, Biochemistry 2101 and 3106;
5. Biology 2060, 2250, 2600, 2900, one of 3401, 3402, 4245, or 4404. In addition, further Biology courses at the 2000, 3000 or 4000 level must be selected by the student in consultation with the supervisor to make up a minimum of 42 credit hours in Biology but not including Biology 499A or 499B;
6. Either Biology 499A/B or Statistics 459A/B; and
7. A computing course. Computer Science 1510 is recommended.
Rationale

The addition of the more rigorous CHEM 1050/1051 (or CHEM 1200 and 1001) and CHEM 2400/2401 will provide students with a more complete foundation in basic and organic chemistry without disrupting the prescribed course schedule for the Joint Honours program.

Consultations Sought From

<table>
<thead>
<tr>
<th>Business Administration</th>
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<tbody>
<tr>
<td>Co-operative Education</td>
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<tr>
<td>Physics and Physical Oceanography</td>
<td>Yes</td>
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<tr>
<td>Social Work</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Library Report Received: Yes

Signature: Dean, Associate Vice-President (Academic) or Vice-President

Name

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FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:

Secretary:

Date:
These are fine by Biochemistry.
Best,
Valerie

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Valerie Booth
Professor
Deputy Head (undergraduate) Department of Biochemistry and
Department of Physics and Physical Oceanography
Memorial University of Newfoundland
St. John's, NL, A1B 3X9, Canada

phone 709 864-4523 fax: 709 864-2422

homepage: [http://www.faculty.mun.ca/vbooth/](http://www.faculty.mun.ca/vbooth/)

On Nov 6, 2017, at 9:37 AM, Biochemistry Head <biochead@mun.ca> wrote:

More chemistry knock-on effects

Mark D. Berry Ph.D.
Professor and Head
Dept. Biochemistry
Memorial University of Newfoundland
St. John's, NL, Canada
A1B 3X9

Associate Member
Beatrice Hunter Cancer Research Institute

Tel: +1-709-864-8529
E-mail: mberry@mun.ca; biochead@mun.ca
Dear colleagues,

The purpose of this email is to extend an opportunity for you to provide formal feedback on the attached calendar change proposal. Please find attached a proposal relating to:

- The removal of CHEM 1010/1011 and 2440 from the Joint Honours program in Biology and Statistics. With the Department of Chemistry’s plans to phase out these courses, we are moving to replace them with CHEM 1050/1051 and CHEM 2400/2401.

Your feedback, at your earliest convenience, is appreciated.

If you have any questions, please don’t hesitate to contact me.

Jody Burke, BSc.(Hons), M.Ed, PGC(QM) – Academic Program Officer
Department of Biology, Memorial University
Office: (709) 864 8021
E-mail: jodyb@mun.ca

<Changes Existing Programs - Changes to Joint Honours (BIOL and STAT).pdf>

Valerie Booth
Professor
Deputy Head (undergraduate) Department of Biochemistry and Department of Physics and Physical Oceanography
Memorial University of Newfoundland
St. John's, NL, A1B 3X9, Canada

phone 709 864-4523   fax: 709 864-2422

homepage: http://www.faculty.mun.ca/vbooth/
Hello Ms. Burke,

Thank you for the opportunity to provide feedback on this proposal. These changes will not impact the Faculty of Education’s programs.

Thank you,

Meghan

Meghan Collett, B.Sc., M.Sc.  |  Coordinator of Undergraduate Programs

Faculty of Education
Memorial University of Newfoundland
St. John’s, Newfoundland, Canada  A1B 3X8
G.A.Hickman Building  |  Room ED 2020
Tel: 709 864-7554  |  Fax: 709 864-2623

www.mun.ca/educ

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Your feedback, at your earliest convenience, is appreciated.
If you have any questions, please don’t hesitate to contact me.

**Jody Burke, BSc.(Hons), M.Ed, PGC(QM) – Academic Program Officer**
Department of Biology, Memorial University
Office: (709) 864 8021
E-mail: jodyb@mun.ca
Dear Jody-Lynn,

The proposals were circulated to the Environmental Science program and the feedback received is pasted below. Several changes have been suggested.

Best wishes,
Michele Piercey-Normore
Dean, School of Science and the Environment

On behalf of the Chemistry Group, Grenfell Campus, we would appreciate the following corrections to the Chemistry Entrance Requirements. In our opinion, the Grenfell Campus, Memorial University, first year chemistry sequence, Chem 1200/1001, deserves 'equal billing' to the first year chemistry sequence of the MUN St. John's Campus. Therefore all entries for the new Calendar descriptions should read: "Chemistry 1050/1051 or Chemistry 1200/1001 (or equivalent)"

Such an amendment is need for 10.2.1; 10.2.3.1; 10.2.3.2; 10.2.3.3; 10.2.5.2; 10.2.6.2; 10.2.7.2; 10.2.8.2

And the following changes also need to be made (as currently 1050/1050 are listed as the only permissible chemistry courses):
10.2.3.1
Chemistry 1050 and 1051 or 1200 and 1001

11.2
Biol 2010
Chemistry 1050 or Chemistry 1200

Biol 2250
PR: Science 1807; BIOL 1001 and 1002; Chemistry 1050 and 1051 or 1200 and 1001

Also, on page 2 of the document
point 1 in both the before and after changes listings - Chemistry 1050 and 1051
OR 1200 and 1001
Dear colleagues,

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- The removal of CHEM 1010/1011 and 2440 from the Joint Honours program in Biology and Statistics. With the Department of Chemistry’s plans to phase out these courses, we are moving to replace them with CHEM 1050/1051 and CHEM 2400/2401.

Your feedback, at your earliest convenience, is appreciated.

If you have any questions, please don’t hesitate to contact me.

Jody Burke, BSc.(Hons), M.Ed, PGC(QM) – Academic Program Officer
Department of Biology, Memorial University
Office: (709) 864 8021
E-mail: jodyb@mun.ca

This electronic communication is governed by the terms and conditions at http://www.grenfell.mun.ca/campus-services/Pages/information-technology-services/electronic-communications-disclaimer.aspx
Hi Jody,

No concerns from HKR with the removal of CHEM 1010/1011.

Linda

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From: Jody-Lynn Burke <jrotchford@mun.ca>
Date: Sunday, November 5, 2017 at 12:21 PM
To: Faculty of Humanities and Social Sciences <hss@mun.ca>, "Coady, Peggy" <pacoady@mun.ca>, "Collett, Meghan" <mcollett@mun.ca>, "engrconsult@mun.ca" <engrconsult@mun.ca>, "lrobinson@grenfell.mun.ca" <lrobinson@grenfell.mun.ca>, "ssedean@grenfell.mun.ca" <ssedean@grenfell.mun.ca>, "thennessey@grenfell.mun.ca" <thennessey@grenfell.mun.ca>, Linda Rohr <lerohr@mun.ca>, "miugconsultations@mi.mun.ca" <miugconsultations@mi.mun.ca>, "deanofmedicine@med.mun.ca" <deanofmedicine@med.mun.ca>, "Sutherland, Ian D" <isutherland@mun.ca>, DeanNurse <DeanNurse@mun.ca>, "pharminfo@mun.ca" <pharminfo@mun.ca>, Dean of Science <deansci@mun.ca>, adeanugradswk <adeanugradswk@mun.ca>, Library Correspondence <univlib@mun.ca>
Subject: Consultation Feedback Request

Dear colleagues,

The purpose of this email is to extend an opportunity for you to provide formal feedback on the attached calendar change proposal. Please find attached a proposal relating to:

- The removal of CHEM 1010/1011 and 2440 from the Joint Honours program in Biology and Statistics. With the Department of Chemistry’s plans to phase out these courses, we are moving to replace them with CHEM 1050/1051 and CHEM 2400/2401.

Your feedback, at your earliest convenience, is appreciated.

If you have any questions, please don’t hesitate to contact me.

Jody Burke, BSc,(Hons), M.Ed, PGC(QM) – Academic Program Officer
Department of Biology, Memorial University
Office: (709) 864 8021
E-mail: jodyb@mun.ca
Hello Jody-Lynn,

I have reviewed three proposals from Biology.

- On the proposed changes to the Chemistry prerequisites, I see no implications for Memorial University Libraries.
- On the regulations for the Biology Cooperative Program I see no implications for Memorial University Libraries.
- On the removal of the lab component for Biology 4405, there are no implications for the research materials from the Library.

All the best with the rest of the process.

Erin Alcock

Erin Alcock
Science Research Liaison Librarian
QE2 Library
Memorial University of Newfoundland
ekalcock@mun.ca
709-864-8316
● The removal of CHEM 1010/1011 and 2440 from the Joint Honours program in Biology and Statistics. With the Department of Chemistry’s plans to phase out these courses, we are moving to replace them with CHEM 1050/1051 and CHEM 2400/2401.

Your feedback, at your earliest convenience, is appreciated.

If you have any questions, please don’t hesitate to contact me.

Jody Burke, BSc.(Hons), M.Ed, PGC(QM) – Academic Program Officer
Department of Biology, Memorial University
Office: (709) 864 8021
E-mail: jodyb@mun.ca
The Faculty of Medicine is supportive of the proposal for calendar change(s) to the existing program(s) as outlined in your document attached.

Regards

Cathy Vardy, MD, FRCPC
Vice Dean and Professor of Pediatrics
Faculty of Medicine
Health Sciences Centre, M2M319
Memorial University of NL

Tel: 709-864-6417
Fax: 709-864-6336

Hi Cathy
Hope TaMMI went well yesterday.
Could you please review
Cheers
Margaret
Dear colleagues,

The purpose of this email is to extend an opportunity for you to provide formal feedback on the attached calendar change proposal. Please find attached a proposal relating to:

- The removal of CHEM 1010/1011 and 2440 from the Joint Honours program in Biology and Statistics. With the Department of Chemistry’s plans to phase out these courses, we are moving to replace them with CHEM 1050/1051 and CHEM 2400/2401.

Your feedback, at your earliest convenience, is appreciated.

If you have any questions, please don’t hesitate to contact me.

Jody Burke, BSc.(Hons), M.Ed, PGC(QM) – Academic Program Officer
Department of Biology, Memorial University
Office: (709) 864 8021
E-mail: jodyb@mun.ca
Hi Jody,

Thank you for the opportunity to review and comment on the proposal for calendar changes to the Joint Honours (BIOL and STAT). These will have no impact on Marine Institute programs and we are happy to support this proposal.

All the best,

Bev

Bev Fleet
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0369
FAX: 709-778-0535
Bev.Fleet@mi.mun.ca

From: Jody-Lynn Burke [mailto:jrotchford@mun.ca]
Sent: Sunday, November 05, 2017 12:22 PM
To: Faculty of Humanities and Social Sciences <hss@mun.ca>; Coady, Peggy <pacoady@mun.ca>; Collett, Meghan <mcollett@mun.ca>; engrconsult@grenfell.mun.ca; lrabinson@grenfell.mun.ca; ssedean@grenfell.mun.ca; thennessy@grenfell.mun.ca; Rohr, Linda <lerohr@mun.ca>; MIUG Consultations <MIUGconsultations@mi.mun.ca>; deanofmedicine@med.mun.ca; Sutherland,Ian D <isutherland@mun.ca>; DeanNurse <DeanNurse@mun.ca>; pharminfo@mun.ca; Dean of Science <deansci@mun.ca>; adeanugradswk <adeanugradswk@mun.ca>; Library Correspondence <univlib@mun.ca>
Subject: Consultation Feedback Request
Importance: High

Dear colleagues,

The purpose of this email is to extend an opportunity for you to provide formal feedback on the attached calendar change proposal. Please find attached a proposal relating to:

- The removal of CHEM 1010/1011 and 2440 from the Joint Honours program in Biology and Statistics. With the Department of Chemistry’s plans to phase out these courses, we are moving to replace them with CHEM 1050/1051 and CHEM 2400/2401.

Your feedback, at your earliest convenience, is appreciated.

If you have any questions, please don’t hesitate to contact me.

Jody Burke, BSc.(Hons), M.Ed, PGC(QM) – Academic Program Officer
Department of Biology, Memorial University
Office: (709) 864 8021
E-mail: jodyb@mun.ca
Dear Jody,

The Department of Physics and Physical Oceanography is supportive the proposal to update the chemistry course requirements for the Joint Honours program in Biology and Statistics.

Best,
Ivan

Ivan Saika-Voivod, Associate Professor  
Chair, Undergraduate Studies Committee  
Department of Physics and Physical Oceanography, Memorial University of Newfoundland  
St. John's, NL, Canada, A1B 3X7  
Phone: (709) 864-8886    Fax: (709) 864-8739   Room C3026

On 2017-11-06, at 3:43 PM, Physics Head wrote:

Ivan and Rick,  
I see no problem with this. We should do the same to our physics programs. These changes should be first approved by USC.  
Jolanta

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From: Dean of Science <deansci@mun.ca>  
Date: Monday, November 6, 2017 at 9:35 AM  
To: "Foster, Andy" <afoster@mun.ca>, Chemistry <chemconsult@mun.ca>, Computer Science <cs-Chair@mun.ca>, Earth Sciences <eascugcon@mun.ca>, "Fletcher, Garth" <fletcher@mun.ca>, Ian Neath <Psychology.Head@mun.ca>, Jolanta Lagowski <physicshead@mun.ca>, Biochemistry Head <biohead@mun.ca>, Math & Stats <mathconsult@mun.ca>, "Marino, Paul" <pmarino@mun.ca>  
Cc: "Foster, Andy" <afoster@mun.ca>  
Subject: FW: Consultation Feedback Request

---

From: Jody-Lynn Burke  
Sent: November-05-17 12:22 PM  
Subject: Consultation Feedback Request  
Importance: High

Dear colleagues,
The purpose of this email is to extend an opportunity for you to provide formal feedback on the attached calendar change proposal. Please find attached a proposal relating to:

- The removal of CHEM 1010/1011 and 2440 from the Joint Honours program in Biology and Statistics. With the Department of Chemistry’s plans to phase out these courses, we are moving to replace them with CHEM 1050/1051 and CHEM 2400/2401.

Your feedback, at your earliest convenience, is appreciated.

If you have any questions, please don’t hesitate to contact me.

Jody Burke, BSc.(Hons), M.Ed, PGC(QM) – Academic Program Officer
Department of Biology, Memorial University
Office: (709) 864 8021
E-mail: jodyb@mun.ca

<Changes Existing Programs - Changes to Joint Honours (BIOL and STAT).pdf>
Hello Jody-Lynn,

I have reviewed your proposed calendar changes and I do not have any suggestions.

The changes you propose do not impact the School of Social Work undergraduate programs.

Regards,

Heather

Heather J. Hair, PhD, RMFT, RSW
Associate Dean Undergraduate Programs
School of Social Work, Memorial University
St. John’s, NL, Canada, A1C 5S7
T: 709-864-2562 or 709-864-7349

Dear colleagues,

The purpose of this email is to extend an opportunity for you to provide formal feedback on the attached calendar change proposal. Please find attached a proposal relating to:

- The removal of CHEM 1010/1011 and 2440 from the Joint Honours program in Biology and Statistics. With the Department of Chemistry’s plans to phase out these courses, we are moving to replace them with CHEM 1050/1051 and CHEM 2400/2401.

Your feedback, at your earliest convenience, is appreciated.

If you have any questions, please don’t hesitate to contact me.

Jody Burke, BSc.(Hons), M.Ed, PGC(QM) – Academic Program Officer
Department of Biology, Memorial University
Hi Jody,

Math & Stats is fine with this.

Tara

From: Stuckless, Tara Lee [mailto:tstuckless@mun.ca]
Sent: November-03-17 3:36 PM
To: mathconsult@mun.ca
Subject: FW: Joint Honours in Biology and Statistics - Calendar Change

Hi Tara,

I received this email.

I checked with the attached file. There is no changes towards the requirement of statistics courses.

Shall I reply this email, or it be formally done by you?

Thanks,

George

-------- Forwarded Message --------
Subject: Joint Honours in Biology and Statistics - Calendar Change
Date: Thu, 2 Nov 2017 13:56:41 +0000
From: Jody-Lynn Burke <jrotchford@mun.ca>
To: zhaozhi@mun.ca <zhaozhi@mun.ca>
Dr. Fan,

The Department of Biology would like to update the calendar entry for the Joint Honours in Biology and Statistics to reflect recent changes to CHEM 1010/1011 and the upcoming changes to CHEM 2440.

In keeping in line with changes made to our Majors/Honours program, we are recommending replacing CHEM 1010/1011 with 1051/1051 and CHEM 2440 with 2400/2401.

Do we have the support of the Statistics Department to forward this proposal for university wide consultation?

If you have any questions, please let me know.

Jody Burke, BSc.(Hons), M.Ed, PGC(QM) – Academic Program Officer
Department of Biology, Memorial University
Office: (709) 864 8021
E-mail: jodyb@mun.ca
May 3, 2018

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

SUBJECT: General Undergraduate Regulation 6.3 Residence Requirement

In a memorandum dated February 20th, 2018 the Senate Committee on Undergraduate Studies requested input from academic units on a proposal to modify the University's residence requirements for a first degree (General Academic Regulation 6.3.2). Most significantly, this proposal would replace the existing restriction that students complete the last 30 credit hours required for the degree at this University with a requirement that at least half of the total credit hours for the degree be completed at this University.

This proposal was discussed at a meeting of the Undergraduate Studies Committee of the Faculty of Science held on April 17th, 2018. The Committee was generally in support of the proposal, especially given that academic units also retain the option to designate courses as being ineligible for transfer credit.

However, several Committee members felt that Regulation 3 (which requires that students take at least 12 credit hours in each of their Major subjects at this University) was insufficiently strong, and that students should be required to complete an appropriate number of courses from their Major subjects at the 3000-level and above from this University. In particular, Committee members suggested that the University consider adopting the new Science regulation which stipulates that: "At least 15 credit hours in courses from each Major subject at the 3000-level or above must be completed at this University."

These comments are now presented to the Faculty Council for endorsement and transmission to the Senate Committee on Undergraduate Students.

Regards,

Tracey Edmunds

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Tracey Edmunds
20 February 2018

TO: Secretaries, Academic Councils, Faculties/Schools/Grenfell Campus/Marine Institute Student Unions (St. John’s Campus, Grenfell Campus, Marine Institute, Graduate Studies) Office of the Registrar (St. John’s, Grenfell Campus and Marine Institute)

FROM: Jennifer Porter, Secretary, Senate Committee on Undergraduate Studies

SUBJECT: General Undergraduate Regulation 6.3 Residence Requirement

_________________________________________________________________________________________________

In 2015, the Senate Committee on Undergraduate Studies reviewed and approved a report of the Subcommittee to Review Transfer Credit. The report included recommendations for changes to Memorial University regulations and related transfer credit evaluation and recognition practices. The following is an excerpt from the subcommittee report:

“Residence Requirements The nature of degree programs and how students tend to obtain required credits and progress through their programs has changed over time. Requests to waive the University’s residence requirements for a first degree (last 30 credit hours completed at Memorial) are received frequently from students from across the University. These are often from students completing lower-level courses in their last 30 credit hours in order to meet specific degree requirements. So it is most often the case that these students have completed the majority of their total credits and more senior-level course requirements at Memorial. A review of other institutions’ requirements indicates that 50% is most commonly used to establish general limits on the extent to which transfer courses may be used to satisfy first degree requirements. It is recommended that the University’s residency requirements be changed to remove the general requirement for completion of the final 30 credit hours at Memorial and instead require that a minimum of 50% of the credit hours required for a first undergraduate degree be completed at Memorial…”

As per the above recommendation, a proposal outlining suggested changes to Undergraduate Regulation 6.3 Residence Requirements and a series of questions related to the proposal are now being forwarded to the university community for consideration and feedback. The Committee is asking that a single coordinated response from each unit (be it as a result of discussion at Academic/Faculty Council or other body) be forwarded by email to scugs@mun.ca by the end of May 2018.

If you have any questions regarding the above, please get in touch with me by phone at 864-4410 or by e-mail at scugs@mun.ca.

Yours truly,

Jennifer Porter
Deputy Registrar and Secretary to the Committee

JMP/bjh

Attachment

cc: Committees on Undergraduate Studies Provost and Vice-President (Academic)
6.3 Residence Requirements

6.3.1 General Information

1. Residence requirements are met by attendance at classes on a campus and/or by the number of credit hours completed at this University.

6.3.2 First Degree

1. For a first bachelor’s degree students shall have completed a minimum of 24 credit hours through attendance at classes on the campus of a recognized university or university college, Distance education courses may be used to satisfy the requirements of this clause only except for the degrees of Bachelor of Business Administration, Bachelor of Business Administration (Honours), Bachelor of Maritime Studies, Bachelor of Nursing (Post-RN) and Bachelor of Technology.

2. Students shall complete at this University the last 30 credit hours required for the degree. There are exceptions to this requirement as follows: At least half of the total credit hours required for the degree shall consist of the following:
   - Where special circumstances warrant, and only if at least half the courses required for the degree are completed at this University, the appropriate committee on undergraduate studies may permit students to complete, at another recognized institution, not more than 15 of the last 30 credit hours or equivalent required for the degree. The courses which comprise those credit hours must be approved by the appropriate academic unit.
   - Courses taken at this University.
   - Courses taken at universities and/or colleges which are included in formal institutional exchange agreements with this University are not subject to the requirements of this clause.
   - Courses taken at Francophone universities, as required under specific degree program regulations, are not subject to the requirements of this clause.

3. Students who have taken courses in the subject(s) of their major at another university are required to complete at least 12 credit hours in each of their major subjects at this University.

Questions to be considered:

1. Regulation 6.3.2, #1 was written at a time when online/distance courses were first being introduced, and it was felt that (with some exceptions) students should be required to take a number of on-campus courses as part of their degree. Is this regulation still applicable/relevant? If so, are there any additional degrees which should be exempted from this regulation, apart from those listed?

2. Regulation 6.3.2, #2 would replace the existing requirement that students complete their last 30 credit hours at Memorial with a new requirement that students complete at least half of their total credit hours at Memorial (with some exceptions). Is 50% of a student’s total credit hours a reasonable threshold? If not, what is an appropriate percentage, and for what reason?

3. Should Regulation 6.3.2, #3 be brought in line with the overall residence requirement? That is, rather than the current requirement of 12 credit hours, should the percentage of credit hours from the subject(s) of major to be completed at Memorial be made the same as the percentage of total credit hours required to be completed at Memorial, as given in Regulation 6.3.2, #2?
May 9, 2018

TO: Registrar’s Office

FROM: Secretary, Faculty of Science Faculty Council

SUBJECT: Special Topics Courses

The special topics courses, AQUA 6203, Applications of Transcriptome Analysis in Aquaculture, and BIOL 7948, Lichens: molecular biology and culturing, have been approved by the Faculty of Science Faculty Council Graduate Studies Committee.

The Request for Approval of a Graduate Course forms are attached. If you require more information please let me know.

Gina Jackson
Secretary, Faculty of Science Faculty Council

cc: A. Williams, School of Graduate Studies
    S. Kenny, Biology
    N. Bishop, Aquaculture
Request for Approval of a Graduate Course

Adobe Reader, minimum version 6, 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) Fill in the required data and save the file; (5) Submit the completed form to:

School of Graduate Studies; Memorial University of Newfoundland; HC-2012 (Bruneau Centre for Research and Innovation); St. John's, NL A1C 5S7 Canada Fax 709.864.4702 eMail: gg1@mun.ca

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

Course No.: AQUA 6203

Course Title: Applications of Transcriptome Analysis in Aquaculture

I. To be completed for all requests:

A. Course Type: ☐ Lecture course ☐ Lecture course with laboratory
   ☐ Laboratory course ☐ Undergraduate course
   ☑ Directed readings ☑ Other (please specify) Article Critiques and Term Papers

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

C. Will this course require new funding (Including Payment of instructor, labs, equipment, etc.)? ☑ Yes ☐ No

D. Credit hours for this course: 3

E. Course description (reading list required):

See attached doc

See attached document.

F. Method of evaluation: Written Percentage Oral

Class tests 0 0
Assignments 30 (3 @ 10% each) 0
Other (specify): Article Critiques and Term Papers 70 (2 @ 35% each) 0
Final examination: 0 0

Total 100 0

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:

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

Instructor's Initials

Recommended for offering in the [ ] Fall [ ] Winter [ ] Spring 2018

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

3 May 2018

Approval of the head of the academic unit Date

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

May 9, 2018

Secretary, Faculty/School/Council Date

Updated March 2017
AQUA 6203: Applications of Transcriptome Analysis in Aquaculture

COURSE INSTRUCTOR(S):
Dr. Jillian Westcott, an aquaculture instructor/researcher with the Fisheries and Marine Institute with five years of experience teaching master level courses online, will prepare the course for online delivery and co-instruct.

Dr. Matthew Rise, a professor with the Department of Ocean Sciences and a leading expert in the application of functional genomics approaches in aquaculture research (e.g. related to fish growth and immune responses), will co-instruct.

COURSE DESCRIPTION:
This course will provide a comprehensive overview of transcriptomics methods and applications in aquaculture. It will foster the development of skills required for the critical review of scientific literature and communication of scientific research findings.

METHOD OF DELIVERY:
This course will be offered as a reading course. It will be delivered fully online using Desire2Learn (D2L). A variety of journals, key texts, and technical reports will be assigned for reading in relation to the outlined modules. All resources are available within the Memorial Library systems.

PREREQUISITES: None.

TENTATIVE SYLLABUS:

Module 1 (Week 1-2): Introduction to Transcriptomics in Aquaculture
1.1 Overview of methods used for transcriptome studies in aquaculture (e.g. SSH, microarray, RNA sequencing, miRNA sequencing) (Weeks 1 and 2)

Module 2 (Week 3-7): Transcriptomics in Aquaculture Application I: Immune Function
2.1 Fish and shellfish responses to bacterial pathogens (Week 3)
2.2 Fish responses to viral pathogens (Week 4)
2.3 Shellfish responses to viral pathogens (Week 5)
2.4 Fish and shellfish responses to vaccines (Week 6)
2.5 Sea lice-related transcriptomics studies (Week 7)

Module 3 (Week 7-10): Transcriptomics in Aquaculture Application II: Growth & Reproduction
3.1 Transcriptomics and fish eggs: quest for biomarkers of egg quality (Week 8)
3.2 Transcriptome studies of fish gonadal development (Week 9)
3.3 Vertebrate and invertebrate growth-related transcriptome studies (Week 10)
Module 4 (Week 11-13): Transcriptomics in Aquaculture Application III: Nutrigenomics

4.1 Fish transcriptome responses to various diets (Week 11)
4.2 Aquatic invertebrate responses to various diets (Week 12)
4.3 Nutrigenomics and impact of nutrition on immune function (Week 13)

LITERATURE:

E-JOURNALS (available through Memorial's online library access portal):
- Animal Genetics
- Aquaculture
- Aquaculture and Aquatic Resources Management
- Aquaculture and Fisheries Management
- Aquaculture Economics and Management
- Aquaculture International
- Aquaculture Research
- Aquatic Living Resources
- BMC Genetics
- BMC Genomics
- Canadian Journal of Fisheries and Aquatic Sciences
- Canadian Journal of Zoology
- Comparative Biochemistry and Physiology
- Developmental and Comparative Immunology
- Fish and Shellfish Immunology
- Fish Physiology and Biochemistry
- Journal of Applied Aquaculture
- Journal of Applied Genetics
- Journal of Fish Biology
- Journal of Fish Diseases
- Journal of Fisheries and Aquatic Science
- Journal of Shellfish Research
- Marine Biotechnology
- Marine Ecology - Progress Series
- Nature
- North American Journal of Aquaculture
- PLoS One (open access journal) [http://www.plosone.org](http://www.plosone.org)
- Proceedings of the National Academy of Sciences of the United States of America
- Reviews in Aquaculture
- Science

WEBSITES:
- Aquaculture Association of Canada
  [www.aquacultureassociation.ca](http://www.aquacultureassociation.ca)
• Aquaculture Association of Nova Scotia  
  www.aansonline.ca

• Atlantic Canada Fish Farmers Association  
  www.atlanticfishfarmers.com

• BC Salmon Farmers Association  
  www.salmonfarmers.org

• Canadian Aquaculture Industry Alliance  
  www.aquaculture.ca

• Canadian Food Inspection Agency  
  www.inspection.gc.ca

• Fisheries and Oceans Canada (aquaculture)  
  http://www.dfo-mpo.gc.ca/aquaculture/aquaculture-eng.htm

• Food and Agriculture Organization of the United Nations  

• Global Aquaculture Alliance  
  www.gaalliance.org

• World Aquaculture Society  
  www.was.org

• World Organization for Animal Health  
  www.oie.int

TRADE PUBLICATIONS & ONLINE MATERIALS:

• Aquaculture Association of Canada, Bulletin  
  http://www.aquacultureassociation.ca/publications

• Aquaculture Association of Canada, Special Publications  
  http://www.aquacultureassociation.ca/publications/special

• Canadian Aquaculture R & D Review  
  http://www.aquacultureassociation.ca/publication/canadian-aquaculture-r-d-review

• Cold Harvester Magazine  
  http://naia.ca/in-the-news/cold-harvester/

• Global Aquaculture Advocate (free trade publication)  
  http://www.gaalliance.org/mag/

• Global Aquaculture Alliance  
  http://www.gaalliance.org

• Intrafish (via subscription, facilitator can provide ID and password access)  
  www.intrafish.com

• Salmon Aquaculture Database  

• United Nations, Food and Agriculture Organization (FAO), Aquaculture publications  

• World Wildlife Fund - Aquaculture Dialogues  
  http://www.worldwildlife.org/what/globalmarkets/aquaculture/aquaculturedialogues.html
TEXTBOOKS:


EVALUATION:

- **Assignments**: 30% (3 @ 10% each). The student will be required to prepare a monthly scientific article critique related to modules of the course (four single-spaced typed pages per critique).
- **Term Papers**: 70% (2 @ 35% each). Term paper topics: (1) Transcriptomic studies of aquaculture invertebrate immune responses; (2) Aquaculture nutrigenomics 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) Fill in the required data and save the file; (5) Submit the completed form to:

To: Dean, School of Graduate Studies  
From: Faculty/School/Department/Program  
Subject: ☑ Regular Course ☐ Special/Selected Topics Course  
Course No.: BIOL 7948  
Course Title: Lichens: molecular biology and culturing

I. To be completed for all requests:

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

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

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

D. Credit hours for this course: 3

E. Estimated number of contact hours per semester: 39

F. Course description (reading list required):

This course will provide a general understanding of lichen biology and challenges encountered when working with an obligate symbiosis through structured readings, discussions, problem sets, and small lab exercises. An understanding of basic molecular biology and culturing skills will allow these skills to be used on any organism and allow the student to troubleshoot methodology in the lab. See attached document for syllabus and reading list.

G. Method of evaluation:  

<table>
<thead>
<tr>
<th>Written</th>
<th>Oral</th>
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<tbody>
<tr>
<td>Class tests</td>
<td></td>
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</tbody>
</table>
Assignments | two papers; 60% |
| Other (specify): | 6 problem sets; 30%  
discussions; 10% |
| Final examination: |  
Total | 90%  
|  | 10% |

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:

<table>
<thead>
<tr>
<th>Instructor’s initials</th>
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<tbody>
<tr>
<td>MPN</td>
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</table>

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

Recommended for offering in the

- [ ] Fall
- [x] Winter
- [✓] Spring 2018

Length of session if less than a semester: 6-week Intersession

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

Michelle Piercey-Norman  AG Piercey-Norman

Course instructor

Date: 17 April 2018

Approval of the head of the academic unit

Brian D. Smith

Date: 2018-04-23 2018/05/07

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

Anne Jackson

Secretary, Faculty/School/Council

May 9, 2018

Date

Updated October 2011
BIOL 7920-7960; Special Topics in Biology  
Lichen biology: molecular biology and culturing  
Spring 2018 (Intersession)  

Syllabus  

Instructor:  
Dr. Michele Piercey-Normore  
Office: AS 3024; phone (709) 639-7166; email: mpiercey-normore@grenfell.mun.ca  
Office hours: Thursday morning 9-10 and any other time by appointment.  

Course information:  
One lecture/discussion and one problem set/lab exercise per week (7 May to 20 June)  
Deadline to drop courses: 17 May 2018.  

Course evaluation:  
Participation in discussions (10%)  
Problem sets (30%)  
Two papers (30% each)  
1) Overcoming challenges in non-lichen symbioses.  
2) Critique three unrelated papers illustrating controversial issues.  

Course goals:  
This is a reading course which will provide a general understanding of lichen biology and  
challenges encountered when working with an obligate symbiosis through structured readings,  
discussions, problem sets, and small lab exercises. An understanding of basic molecular biology  
and culturing skills will allow these skills to be used on any organism and allow the student to  
troubleshoot methodology in the lab.  

Academic misconduct:  
Plagiarism and other types of academic dishonesty are major academic offences. Please read the  
University Calendar Regulation 6.12 on Academic Misconduct. Students must be evaluated  
strictly on their individual knowledge, skills and ability. Therefore, unless clearly indicated  
otherwise, all assignments or tests are to be individual efforts.  

Special accommodations:  
If you have a disability or another health/physical condition that requires special arrangement or  
consideration, you are encouraged to discuss it with staff in the Learning Centre (Student  
Services) - AS 271, phone 637-6268, e-mail studentservices@grenfell.mun.ca. They will help  
arrange appropriate accommodations in a confidential setting. The Learning Centre is located in  
the Student Services offices, which are in close proximity to the atrium. More information on  
the University’s policy is available at http://www.grenfell.mun.ca/current-students/Pages/disability-services.aspx.
Course readings:

General readings (specific chapters to be assigned):
Weising et al. 1995. DNA Fingerprinting in Plants and Fungi. CRC Press, Inc.

Lichen species concepts and fungal chemotaxonomy:

Sources of contamination:

Molecular markers for lichen symbionts:

RNA and lichens:
Resynthesis, desiccation and rehydration:

Barcoding lichen symbionts:
https://doi.org/10.1111/1758-2229.12386

Evolution and secondary metabolites in lichens:

Molecular clock and fossil evidence:
## Course outline

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture/paper discussion</th>
<th>Problem sets/lab exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The lichen thallus</td>
<td>What are lichen species; Lichen diversity and sectioning</td>
</tr>
<tr>
<td>2</td>
<td>Taxonomy and classification</td>
<td>Phenotypic characters: from morphology to molecules; Lichen identification</td>
</tr>
<tr>
<td>3</td>
<td>Fungal chemotaxonomy; lichen chemistry</td>
<td>Lichen secondary metabolites; detection, quantification, identification</td>
</tr>
<tr>
<td>4</td>
<td>Controlled parasitism and thallus resynthesis</td>
<td>Preparation of lichens for DNA/RNA work; sources of contamination</td>
</tr>
<tr>
<td>5-6</td>
<td>Life history strategies; obligate cellular interactions; associated organisms</td>
<td>Problems and processes with multiple genomes; molecular markers</td>
</tr>
<tr>
<td>7</td>
<td>Isolating DNA/RNA from field collected lichens; from cultures</td>
<td>Stock calculations, dilutions, reagents; DNA/RNA extractions;</td>
</tr>
<tr>
<td>8-9</td>
<td>Resynthesis and thallus growth; fungal spore size, shape and other features; spore dispersal;</td>
<td>Review of culture methods -spore rains, enumeration spore structure, number and ecology Culturing; separation; resynthesis</td>
</tr>
<tr>
<td>10</td>
<td>Poikilohydry, water relations, desiccation and rehydration; RNA degradation and resynthesis</td>
<td>PCR; PCR optimization; lecture and problem set</td>
</tr>
<tr>
<td>11</td>
<td>Barcoding of fungi, green algae and cyanobacteria</td>
<td>Primer design; universal and taxon-specific primers; problem set</td>
</tr>
<tr>
<td>12</td>
<td>Reproduction, evolution of lichens; evolution of secondary metabolites</td>
<td>BLAST searching; problem set</td>
</tr>
<tr>
<td>13</td>
<td>Molecular clock and fossil record in lichen symbionts</td>
<td>Sequencing, alignment, phylogenetic analysis.</td>
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