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, December 17, 2014, at 1 p.m. in C-2004.

AGENDA

1. Regrets

2. Adoption of the Minutes of November 19, 2014

3. Business Arising from the Minutes

4. Correspondence: None

5. Reports of Standing Committees:
   A. Undergraduate Studies Committees:
      a. Department of Chemistry, revisions to Computation Chemistry major and honours major programs, paper 5.A.a (11 pages).
      b. Department of Computer Science, calendar change, COMP 1600, Basic Computing and Information Technology, paper 5.A.b (19 pages).
      c. Department of Biochemistry, calendar changes to first-year Physics requirements in existing Biochemistry programs, paper 5.A.c (12 pages).
      d. Department of Ocean Sciences, calendar changes, OCSC 3002, Aquaculture and Fisheries Biotechnology and OCSC 4000, Scientific Diving Methods, paper 5.A.d (18 pages).
      f. Department of Biology, new course, BIOL 3820, Foundations of Biology, paper 5.A.f (27 pages).
      g. Department of Earth Sciences, new course, EASC 4405, Field Course on the Geology of Newfoundland, paper 5.A.g (9 pages).
      h. Department of Earth Sciences, new course, EASC 4620, Contaminant Hydrogeology, paper 5.A.h (19 pages).
      i. Department of Earth Sciences, calendar changes, EASC 4610, Hydrogeology, paper 5.A.i (5 pages).
      j. Department of Earth Sciences, calendar changes, general and honours B.Sc. degrees, paper 5.A.j (11 pages).
k. Department of Earth Sciences, calendar changes, course numbering, paper 5.A.k (6 pages).
l. Department of Chemistry, calendar changes, first year courses, paper 5.A.l (27 pages).
m. Department of Mathematics and Statistics, calendar changes, degree regulations, paper 5.A.m (9 pages).

q. Department of Psychology, calendar changes, existing courses, paper 5.A.q (29 pages).
r. Department of Psychology, calendar changes, Psychology and Behavioural Neuroscience degree programs, paper 5.A.r (14 pages).

B. Graduate Studies Committee:
   a. Department of Chemistry, calendar changes, graduate programs, paper 5.B.a (3 pages).
   b. SafetyNet Centre for Occupational Health and Safety Research, graduate program proposal, Master in Occupational Health and Safety, paper 5.B.b (18 pages).

C. Nominating Committee: None

D. Library Committee: None

6. Reports of Delegates from Other Councils

7. Proposed Modification to Science Strategic Plan - paper 7 (1 page).

8. Report of the Dean

9. Question Period

10. Adjournment

Mark Abrahams
Dean of Science
FACULTY OF SCIENCE
FACULTY COUNCIL OF SCIENCE
MINUTES OF MEETING OF NOVEMBER 19, 2014

A meeting of the Faculty Council of the Faculty of Science was held on Wednesday, November 19, 2014, at 1:00 p.m. in room C-3033.

FSC 2290  Present
Biochemistry
Mulligan, M.

Biology
Hooper, R.  Innes, D.

Chemistry
Bottaro, C.  Fridgen, T.  Kozak, C.  Merschrod, E.  Pickup, P.

Computer Science
Banzhaf, W.  Chen, P.  Pena-Castillo, L.

Earth Sciences
Hanchar, J.

Mathematics & Statistics
Loredo-Osti, J.C.  Pike, D.  Sullivan, S.

Ocean Sciences
Fletcher, G.  Gagnon, P.

Physics & Physical Oceanography
Curnoe, S.  Morrow, M.  Poduska, K.

Psychology
Martin, G.

Dean of Science Office
Foss, K.  Rideout, J.  Surprenant, A.  Zedel, L.

Geography
Edinger, E.
DELTSA
Todd, A.

Registrar’s Office
Burry, J.

Faculty of Business
Stapleton, D.

FSC 2291 Regrets: Mark Abrahams

FSC 2292 Adoption of Minutes
Moved: Minutes of the October 15, 2014, meeting be adopted as amended.
(Sullivan/Pickup). Carried.

FSC 2293 Business Arising: None

FSC 2294 Correspondence:
  a. Feedback requested, General Academic Regulations 6.6
     EVALUATION and 6.7 EXAMINATIONS
     The Faculty of Science Undergraduate Committee will compile
     comments and forward a draft response to Council for approval.
  b. Consultation on New Travel Outside of Canada Policy
     Several issues with the proposed policy were noted. Faculty are
     urged to respond with their comments.
  c. Date for Submission of Calendar Changes - 2015-2016

FSC 2295 Reports of Standing Committees:
A. Undergraduate Studies Committee: None
B. Graduate Studies Committee:
   Report presented by J.C. Loredo-Osti, Chair, Graduate Studies Committee.
   a. Moved: Department of Mathematics and Statistics, calendar
      changes including approval of STAT 6591, Statistical Consulting
      and regularization of STAT 6571 and STAT 6573
      (Loredo-Osti/Pike). Carried.
   b. Moved: Department of Psychology, calendar change, Applied
      Social Psychology degree (Loredo-Osti/Martin). Carried.
   c. Department of Chemistry, special topics course, CHEM 6296,
      Metal-mediated Reactions and Catalysis. Already approved by the
      committee and included for information purposes only.
   d. Moved: Cognitive and Behavioural Ecology program, calendar
      changes (Loredo-Osti/Martin). Carried.
C. Nominating Committee: None
D. Library Committee: None
FSC 2296  Reports of Delegates from Other Councils:  None

FSC 2297  Report of the Dean
Presented by Aimée Surprenant, Associate Dean (Undergraduate and Administration)

There was a fire recently that affected the Chemistry/Physics Building. The cause of the fire has not yet been determined, but it occurred on the roof above C-2045. Damage to the building was mostly due to smoke and water. Water damage was in the immediate vicinity of the fire, and the ventilation system and elevator shafts resulted in more extensive smoke infiltration. Health & Safety are continuing to monitor air quality and hope to have C-2045 fully restored in the near future.

A student in Biochemistry, Sara March, was killed in a traffic accident on the outer ring road on November 2. Her former high school in Sydney, Nova Scotia, is establishing a scholarship in her memory. The MUN Student Union and the Biochemistry Society are organizing events to help raise money for this scholarship. All faculty are encouraged to support their efforts.

The university is instituting a new policy on intellectual policy and overhead. The intent is for research agreements that have restrictions on intellectual property to require the outside partner to include overhead within the contract in recognition of the costs of maintaining and operating our research infrastructure. Implementation of this policy is in the early phases.

Planning for the Core Sciences Building is reaching a major milestone. By Friday of this week, the university is to sign off on the 30% Design & Development Phase, which means that we have agreed to the size and location of rooms within the building, and will now proceed to more detailed planning on engineering systems and room layout. The project is remaining on schedule with the first tenders to be made this Winter and construction to begin in the Spring.

Faculty are being asked to provide annual activity reports in relation to their activities for 2014-15 academic year using the template provided, and we are seeking the cooperation and support of faculty in completing the report at the conclusion of the academic year.

If faculty are aware of any students that will be going to law school, they are requested to advise them that there are scholarships available through the Dean of Science office.

FSC 2298  Question Period

FSC 2299  Adjournment
The meeting adjourned at 1:35 p.m.
November 18, 2014

TO: All Members, Faculty Council of Science
FROM: Joan Burry, Secretary
Committee on Undergraduate Studies, Faculty of Science
SUBJECT: Calendar Changes

At a meeting held on November 14, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes be forwarded to Faculty Council for approval:

1. Department of Chemistry- revisions to Computation Chemistry major and honours major programs
2. Department of Computer Science- change to course description for Computer Science 1500
3. Department of Biochemistry- change to Physics requirements for Biochemistry majors' programs
4. Department of Ocean Sciences- changes to prerequisites of Ocean Sciences 3002 and Ocean Sciences 4000
5. Department of Mathematics and Statistics- changes to course description of Mathematics 3161 and Mathematics 3161

Joan Burry
Associate Registrar and
Secretary, Committee
on Undergraduate Studies,
Faculty of Science
Proposal

To Modify the Computational Chemistry Program (Major and Honours)

Resource Implications: Instructional Costs

None. The course (CHEM 4305) that is being added to the program is already offered by existing faculty. This course is already supported by the Department of Chemistry.

Resource Implications: Library Holdings and/or Other Resources Required

None.

Signature of Unit Head (if appropriate):

Date:

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

Date:
RATIONALE FOR CHANGES

B.Sc. and B.Sc. (Hons) programs in Computational Chemistry were introduced in 2012. Since that time, a new course, Advanced Statistical Thermodynamics (CHEM 4305), has been added by the Department of Chemistry. This course is highly relevant to the field of computational chemistry and is an important subject for computational chemists to study. This course will be added as a program requirement, replacing an unspecified 4000 level course in chemistry.

To balance for this added course, Computer Science 3719 (Theory of Computation and Algorithms) and its prerequisite, MATH 2302 (Discrete Mathematics), will be removed from the degree requirements. To simplify and broaden the degree options for students, we have changed the requirements for the Honours program so that students may take any course in physics, chemistry, mathematics, computer science, or biochemistry to complete their credit hour requirements rather than choosing from a list of courses. Students will also be allowed to choose between CHEM 3210 (Materials Chemistry) and CHEM 3211 (Inorganic Chemistry). Students will also be allowed to take Mathematics 3132 (Numerical Analysis) instead of Computer Science 3731, which will make it possible to complete a minor in mathematics as part of their degrees.

This change will ensure students in this program receive instruction in statistical thermodynamics, a critical division of computational chemistry. The corresponding reduction in required courses will make it easier for students the 2nd and 3rd years of their programs to schedule their courses and complete their degrees without incurring a heavier course load. This change will also make it easier for students in other programs to transfer to the computational chemistry programs and still complete their degrees in 4 years.

A survey of recent job postings in the field of computational chemistry indicate a high level of demand for molecular simulation, which is part of the curriculum of Advanced Statistical Thermodynamics and would be added to the program through this change. No postings mentioned Theory of Computation or Discrete Mathematics, which would be deleted from the program in this change.

CONSULTATIONS

Grenfell
Marine Institute
Mathematics and Statistics
Computer science
Physics
Biochemistry
Biology
Psychology
Ocean Sciences
Earth Sciences
Pharmacy
Engineering
Human Kinetics
Library
COURSE DELETIONS AND ADDITIONS

9.3.6 General Degree - Major in Computational Chemistry

9.3.6.1 Required Courses

Add:
Chemistry 4305
Computer Science 2500 or 2711
A choice of Chemistry 3210 or Mathematics 3211.
Computer Science 3731 or Mathematics 3132

Delete:
Computer Science 2711
Computer Science 3731
Mathematics 2320
Computer Science 3719
4000 level course in chemistry

9.3.7 Honours Degree in Computational Chemistry

9.3.7.1 Required Courses

Add:
Chemistry 4305
Computer Science 2500 or 2711
Computer Science 3731 or Mathematics 3132.
A choice of Chemistry 3210 or Chemistry 3211.
3 additional credit hours in chemistry, mathematics, computer science, biochemistry, or physics at the 2000 level or above.

Delete:
Computer Science 2711
Computer Science 3731
4000 level course in chemistry
Mathematics 2320
Computer Science 3719
Two of the recommended courses.

CHANGES TO CALENDAR REGULATIONS

None.

CALENDAR REVISIONS

9.3.6 General Degree - Major in Computational Chemistry
Students wishing to take a Major in Computational Chemistry should consult those regulations of the Calendar dealing with Regulations for the General Degree of Bachelor of Science.

9.3.6.1 Required Courses
1. Chemistry 1050 and 1051 (or 1010, 1011 and 1031) or
equivalent, 2100, 2210, 2301 (or 2300), 2302, 2400, 2401, 3210 or
3211, 3303, 4304, 4305.
2. Physics 1050 (or 1020 and 1021), 1051, and 2820.
3. Mathematics 1000, 1001, 2000, 2050, 2051, 2260 (or 3260), 2320, and 3202.
4. Computer Science 1510, 1710, and 2710, and 2711, 3719, and 3731.
5. Computer Science 2500 or 2711.
6. Computer Science 3731 or Mathematics 3132.
7. English 1080 and English 1110 or equivalent.
8. A sufficient number of elective courses to bring the degree up to a total of 120 credit hours must also be completed.

Recommended courses: Mathematics 3161, 3240, 2320, Chemistry 3110, 3210, 3410, 3411, Computer Science 2500, 3550, 3719, 4XXX.
Recommended electives: Biochemistry 2101, Physics 3800.

9.3.6.2 Suggested Program of Study
Given appropriate circumstances the Major in Computational Chemistry program can be completed in four years. While students should consult the Undergraduate Handbook for further timetabling details, to complete the program in four years generally will require that students take the following courses in their first year:
1. English 1080 and English 1110 or equivalent.
2. Chemistry 1050 and 1051 (or 1010, 1011 and 1031) or their equivalents.
3. Physics 1050 (or 1020 and 1021), and 1051.
4. Mathematics 1000 and 1001
5. Computer Science 1510 and 1710

9.3.7 Honours Degree in Computational Chemistry
Students wishing to take Honours in Computational Chemistry should consult those sections of the Calendar dealing with Regulations for the Honours Degree of Bachelor of Science. The Honours program in Computational Chemistry consists of a minimum of 42 credit hours in Chemistry, a minimum of 24.21 credit hours in Mathematics, a minimum of 15 credits in physics, and a minimum of 15.18 credit hours in Computer Science. An additional 36 credit hours in recommended Chemistry, Mathematics, Biochemistry, Physics, or Computer Science courses are also required in addition to the minimum credit hour requirements.

9.3.7.1 Required Courses
1. Chemistry 1050 and 1051 (or 1010, 1011 and 1031) or equivalent, 2100, 2210, 2301 (or 2300), 2302, 2400, 2401, 3210 or 3211, 3303, 4304, and 4305.
2. Physics 1050 (or 1020 and 1021), 1051, and 2820.
3. Mathematics 1000, 1001, 2000, 2050, 2051, 2260 (or 3260), 2320, and 3202.
4. Computer Science 1510, 1710, 2710, and 2711, 3719, 3731.
5. Computer Science 2500 or 2711
6. Computer Science 3731 or Mathematics 3132.
7. Chemistry 490A/B.
8. English 1080 and English 1110 or equivalent.
9. 3 additional credit hours in chemistry, mathematics, computer science, biochemistry, or physics at the 2000 level or above.
10. A sufficient number of elective courses to bring the degree up to a total of 120 credit hours must also be completed.
Recommended courses: Mathematics 3161, 3240, 3320,
Chemistry 3110, 3210, 3410, 3411, Computer Science 2500, 3550, 3719, 4XXX.
Recommended electives: Biochemistry 2101, Physics 3800.
Summary Page for Senate

Approval Form

Program Title

General Degree - Major in Computational Chemistry
Honours Degree in Computational Chemistry

Summary of Changes

A course in advanced statistical thermodynamics (CHEM 4305) is added as a requirement to these programs. Discrete Mathematics and Theory of Computation and Algorithms are deleted from the program and replaced a science elective credit at the 2000 level or above. The list of courses that can be used as electives to complete the required credit hours is expanded.

Consultations Sought From

Grenfell
Marine Institute
Mathematics and Statistics
Computer Science
Physics
Biochemistry
Biology
Psychology
Ocean Sciences Centre
Earth Sciences
Pharmacy
Engineering
Human Kinetics and Recreation

Comments Received

Yes
Yes
Yes
Yes
Yes
No
No
Yes
No
Yes
Yes
No

Library Report Received

Yes

Approved by Dean, Associate Vice-President (Academic) or Vice-President

Yes/No

Name

____________________________________

For Office Use Only

Approval Granted by Senate Committee on Undergraduate Studies

Chair: ____________________________________
Secretary: 

Date: 

Initial consultation email sent by chemistry: August 20, 2014

Hello everyone,

Please indicate whether or not you support the proposed changes to the computational chemistry program as indicated on the attachment.

sincerely,

Chris Flinn
Deputy Head, Undergraduate Studies
MUN Chemistry Department

Consultation email responses

1. Psychology: 22/08/2014 12:01 PM

From: Chris Flinn <cgflinn@mun.ca>

Subject: Consultation on proposed change to the computational chemistry program

Date: 20 August, 2014 10:40:47 AM NDT

To: vpoffice@grenfell.mun.ca, miugconsultations@mi.mun.ca, pdavis@mun.ca, pmarino@mun.ca, cs-chair@mun.ca, lhanchar@mun.ca, mathconsult@mun.ca, fletcher@mun.ca, bdeyoung@mun.ca, psychology.head@mun.ca, engrconsult@mun.ca, pharinfo@mun.ca

Hi Chris,

Psychology supports your proposed changes.

Chuck Malsbury

Deputy Head, Psychology

The library:

Collection Development Division
Queen Elizabeth II Library

28 August 2014
To: Chris Flinn, Department of Chemistry
From: Erin Alcock, Science Research Liaison Librarian
Subject: Chemistry Calendar Changes

The proposed calendar changes, turning Advanced Statistical Thermodynamics, CHEM 4305, into a requirement for the Computational Chemistry major streams, will have no impact on library holdings. CHEM 4305 is an existing course, and as such, should be being supported adequately by the Queen Elizabeth II Library.

2. Pharmacy:

Hello Dr. Flinn
The School of Pharmacy has no concerns with the Chemistry departments' proposed changes to the Computational Chemistry program.

Regards,
Csop Glew

CSOP GLEW, Hon. B.A., M.U.P. | MANAGER OF ACADEMIC PROGRAMS
School of Pharmacy
Memorial University of Newfoundland
St. John's, NL | A1B 3V6
Health Sciences Centre | Room H3435
T 709 777 6963 | F 709 777 7044
www.mun.ca/pharmacy

-----Original Message-----
From: Bugler, Heather
Sent: August 20, 2014 7:41 PM
To: Dillon, Carla; Glew, Csop; Marra, Carlo
Subject: FW: Consultation on proposed change to the computational chemistry program

For your response.

Heather

3. Physics:

Chris

We have reviewed the proposed change in the Computation Chemistry program, the addition of the course 4305 and support this change. It seems like a good course for the program.

Brad deY
Professor and Head
Physics and Physical Oceanography
4. Grenfell

Hello Dr. Flinn.

The only comment the Division of Science has regarding the proposed changes to the computational chemistry program (circulated August 20) is that the proposal lists Math 3202 (which is Vector Calculus) but we think you mean to list Math 2320 (Discrete Mathematics).

R. Gallant
Head of Division of Science, Grenfell Campus, Memorial University

5. Marine Institute

Chris,

Thank you for the opportunity to review the proposed changes to the Computation Chemistry Program.

These changes will have no impact on the programs at the Marine Institute. We are happy to support these changes as presented.

Sincerely,

Derek Howse

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0586
FAX: 709-778-0394
Derek.Howse@mi.mun.ca

6. Computer Science

Hi Chris,

the department of Computer Science is in favor of adjusting the program to make it more flexible and relevant. We agree that a course in Theory of Computing and Algorithms should not be a requirement for Computational Chemistry.

I would, however, point out that our course on "Data Analysis with Scripting Languages" might be of use to Computational Chemists to warrant recommendation.

Best regards,
Wolfgang Banzhaf, Head
Department of Computer Science

7. Engineering
Dear Dr. Flinn,

At its regular meeting of 2014 Sep. 17, the Committee on Undergraduate Studies of the Faculty of Engineering and Applied Science determined that the proposed Calendar changes to Computational Chemistry have no impact on this Faculty.

We wish you well in the development of these changes.

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

Department of Mathematics and Statistics

The Dept of Math and Stats has no objection to this proposal.

Harold Johnson

On 8/20/2014 10:40 AM, Chris Flinn wrote:
Hello everyone,

Please indicate whether or not you support the proposed changes to the computational chemistry program as indicated on the attachment.

sincerely,

Chris Flinn
Deputy Head, Undergraduate Studies
MUN Chemistry Department
November 18, 2014

TO: All Members, Faculty Council of Science
FROM: Joan Burry, Secretary
Committee on Undergraduate Studies, Faculty of Science
SUBJECT: Calendar Changes

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1. Department of Chemistry- revisions to Computation Chemistry major and honours major programs
2. Department of Computer Science- change to course description for Computer Science 1600
3. Department of Biochemistry- change to Physics requirements for Biochemistry majors' programs
4. Department of Ocean Sciences- changes to prerequisites of Ocean Sciences 3002 and Ocean Sciences 4000
5. Department of Mathematics and Statistics- changes to course description of Mathematics 3161 and Mathematics 3161

Joan Burry
Associate Registrar and Secretary: Committee on Undergraduate Studies, Faculty of Science
December 2, 2014

TO: Joan Burry, Secretary
Committee on Undergraduate Studies, Faculty of Science

Robert Nolan, Secretary
Committee on Undergraduate Studies, Faculty of Arts

FROM: Wolfgang Banzhaf, Department Head
Department of Computer Science

SUBJECT: Calendar Change COMP-1600

Further to our memo dated October 31, the Department of Computer Science is proposing a revision to Computer Science 1600: Basic Computing and Information Technology. A copy of the course proposal is enclosed for your review.

Collegial consultation for the proposal took place at the departmental meeting held October 31, 2014. As part of the consultation process, the proposal was circulated to other academic units with a request for comments by December 1, 2014. There were 12 responses received and all were in agreement with the change. Copies of those comments are enclosed, as well as a copy of the library report.

Wolfgang Banzhaf

/re
Enclosures
Proposal
Calendar Change to Existing Course - COMP-1600

Course Number and Title
1600 Basic Computing and Information Technology

Proposed Change(s) to Calendar Description

Current Calendar Description

1600 Basic Computing and Information Technology offers an overview of computers and information technology. It provides students with the knowledge necessary to answer questions, such as: What is a computer system? How does it work? How is it used? This is done through the use of popular spreadsheet, word processing and database software packages and the Internet. Social issues and implications will also be included: CR: Business 2700, COMP 2650 or COMP 2801 LH: 3

Proposed Calendar Description 2015-2016

1600 Basic Computing and Information Technology offers an overview of information technology. It provides students with an understanding of basic concepts and necessary skills required to use spreadsheet, database and presentation software to manage, analyze, and present data. CR: Business 2700; COMP 2650 or COMP 2801 LH: 3

Rationale for Change(s)

This is an updated calendar description reflecting how the course has evolved since its first offering in 2003.

Consultations

<table>
<thead>
<tr>
<th>Consultations Sought From</th>
<th>Comments Received</th>
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<tr>
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<td>Department of Economics</td>
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<td>Department of Geography</td>
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<td>Department of Mathematics and Statistics</td>
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<td>Department of Ocean Sciences</td>
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Proposal to Change Existing Course COMP-1600
Page 2

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<td>Department of Psychology</td>
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<td>Faculty of Arts</td>
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<td>Faculty of Business Administration</td>
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<td>Faculty of Education</td>
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<td>Faculty of Engineering and Applied Science</td>
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<td>Faculty of Medicine</td>
<td>Yes</td>
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<td>School of Human Kinetics and Recreation</td>
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<td>School of Music</td>
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<td>School of Nursing</td>
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<td>School of Pharmacy</td>
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<td>School of Social Work</td>
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<td>Grenfell Campus</td>
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<td>Marine Institute</td>
<td>Yes</td>
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Library Report Received

Yes

Library Holdings and/or Other Resources Required

Prerequisite change does not affect library holdings and/or other resources.

The costs, if any, associated with this change/these changes can be met from within the existing budget allocation or authorized new funding for __Department of Computer Science__.

Signature of Unit Head (if appropriate): ________________________________

Date: ________________________________

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

Date: ________________________________
SUMMARY PAGE FOR SENATE

Approval Form

Course Title and Number  Computer Science 1600 Basic Computing and Information Technology

Abbreviated Course Title 1600 Basic Computing & Info Technol

Calendar Description Change(s)

Current Calendar Description

1600 Basic Computing and Information Technology offers an overview of computers and information technology. It provides students with the knowledge necessary to answer questions, such as: What is a computer system? How does it work? How is it used? This is done through the use of popular spreadsheet, word-processing and database software packages and the Internet. Social issues and implications will also be included:
CR: Business 2700, COMP 2650 or COMP 2801
LH: 3

Proposed Calendar Description 2015-2016

1600 Basic Computing and Information Technology offers an overview of information technology. It provides students with an understanding of basic concepts and necessary skills required to use spreadsheet, database and presentation software to manage, analyze, and present data.
CR: Business 2700, COMP 2650 or COMP 2801
LH: 3

Rationale

This is an updated calendar description reflecting how the course has evolved since its first offering in 2003.

Consultations Sought From

Department of Biochemistry
Department of Biology
Department of Chemistry
Department of Earth Sciences
Department of Economics
Department of Geography
Department of Mathematics and Statistics
Department of Ocean Sciences

Comments Received

No
Yes
No
No
No
Yes
No
Summary Page for Senate re COMP-1600
Page 2

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<td>Yes</td>
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</tbody>
</table>

Library Report Received: Yes

Approved by Dean, Associate Vice-President (Academic) or Vice-President

Yes/No

Name ____________________________

FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair: ____________________________

Secretary: _________________________

Date: _____________________________
This message was written in a character set other than your own. If it is not displayed correctly, click here to open it in a new window.

The Department of Mathematics and Statistics has no objection to this proposal.

Harold Johnson

On 11/5/2014 10:59 AM, Chris Radford wrote:

> 
> > 
> > > -------- Original Message --------
> > Subject: Fwd: Fwd: FW: Resending Calendar Change for Computer Science 1600
> > Date: Wed, 05 Nov 2014 10:47:07 -0330
> > From: Leonce Morrissey <leonce@mun.ca>
> > To: Chris Radford <cradford@mun.ca>
> > 
> > > -------- Forwarded Message --------
> > Subject: FW: Resending Calendar Change for Computer Science 1600
> > Date: Wed, 5 Nov 2014 13:38:08 +0000
> > From: Dean of Science <deansci@mun.ca>
> > To: Biochemistry Head <biohead@mun.ca>, Brad de Young
> > <bddeyoung@mun.ca>, Chris Radford, Math & Stats <math-head@mun.ca>,
> > David Innes, Biology <dlnnes@mun.ca>, Fletcher, Garth
> > <fletcher@mun.ca>, Gerard Martin <Psychology.Head@mun.ca>, John
> > Hanchar, Earth Sciences <jhanchar@mun.ca>, Peter Pickup, Chemistry

INBOX: Consultation - Calendar Change for Computer Science... (4 of 323)

Date: Mon, 10 Nov 2014 14:50:12 -0330
From: Michael Morrow <mmorrow@mun.ca>
To: cs-chair@mun.ca, deansci@mun.ca, Brad deYoung <bdeyoung@mun.ca>
Subject: Consultation - Calendar Change for Computer Science 1600

Wolfgang

Thank you for the opportunity to comment. The Physics Undergraduate Studies Committee has no concerns with the proposed changes to the calendar description for Computer Science 1600.

Best wishes

Michael Morrow

******************************************************************************
Department of Physics and Physical Oceanography
Memorial University of Newfoundland
St. John's, Newfoundland Phone: (709) 864 4361
Canada, A1B 3X7 FAX: (709) 864 8739
******************************************************************************
Dear Mr. Nolan,

thanks very much for the information and the friendly reminder. We do not want to hold up the approval of these current changes, but we shall keep this in mind when submitting other changes in the future.

Best wishes,

Wolfgang Banzhaf

On 2014-11-21, 9:24 AM, Nolan, Robert wrote:
> > Dr. Banzhaf,
> >
> > The proposal for Computer Science 1600 was approved at the Committee on Undergraduate Studies (Faculty of Arts) on November 12^th . Please note that the Committee would like to make a friendly reminder that the proposed Calendar Description should use the proper formatting of underlining (new material) and strikethrough (material being removed). The current version (attached) has the strikethrough, but not the underline.
> >
> > If you wish to submit an updated package, it may be submitted to Stacey Mercer (copied) with the Office of the Dean of Arts -- our next Faculty Council meeting is December 3^rd . If you have any questions, please feel free to contact me.
> >
> > Regards,
> >
> > Rob
> *Rob Nolan*
> *Assistant Registrar*
> Office of the Registrar
> Memorial University of Newfoundland
> St. John's, NL
> A1C 5S7
> 709-864-3552
Hi:

Thanks for the opportunity to comment on this. The Faculty of Business Administration has no concerns with this proposal.

--larry

cs-chair wrote:
>
> Apologies for the error with the previous attachment. A corrected
> version is
> now attached.
>
> Regards.
Dear Dr. Banzhaf,

At its regular meeting of 2014 November 19, the Committee on Undergraduate Studies of the Faculty of Engineering and Applied Science had no comments to add re your proposed Calendar change, beyond the comments that I provided in my previous e-mail (below).

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

Quoting Engineering Consultations <engrconsult@mun.ca> on 2014 11 05:

> Thank you Dr. Banzhaf.
> 
> This proposal will be on the agenda of the next meeting of our Committee on Undergraduate Studies, scheduled for Nov. 19.
> 
> I will reply shortly after that meeting.
> 
> I do have one initial comment:
> 
> Replacement text should be underlined (just as text to be deleted is struck through).
> 
> —
> 
> Dr. Glyn George, Chair
> 
> Committee on Undergraduate Studies
> 
> Faculty of Engineering and Applied Science
Hi Dr. Banzhaf

I have reviewed the proposed update to COPM-1600 for the Department of Computer Science and it appears fine from the Faculty of Medicine’s point of view.

Cathy Vardy
Vice Dean
Faculty of Medicine

-----Original Message-----
From: Rourke, Dr. James: Dean of Medicine
Sent: November-03-14 3:52 PM
To: Vardy, Cathy
Cc: Corbett, Paula; Caines, Sherry; Fillier, Joan
Subject: FW: Calendar Change for Computer Science 1600

-----Original Message-----
From: cs-chair [mailto:cs-chair@mun.ca]
Sent: Monday, November 03, 2014 3:42 PM
To: stacey.mun.ca; lbauer@mun.ca; smackinn@mun.ca; shicks@mun.ca; engconsult@mun.ca; associatevpo@fengfells.mun.ca; mehickey@mun.ca; miugconsultations@mi.mun.ca; Rourke, Dr. James: Dean of Medicine; ellenw@mun.ca; deannurse@mun.ca; pharinfo@mun.ca; deansci@mun.ca; deansocialwork@mun.ca
Subject: Calendar Change for Computer Science 1600

Hello,

The Department of Computer Science is proposing an update to COMP-1600: Basic

https://webmail.mun.ca/imp/message.php?index=18304

11/14/2014
Hi
I have no concerns with the proposed calendar changes for COMP 1600.
Linda

Linda E. Rohr PhD
Associate Professor
Associate Dean Undergraduate Studies
School of Human Kinetics and Recreation
Memorial University
St. John's, NL
709.864.6202
709.864.7531 (fax)
PE 2025
Music has no problem with this.

Ellen Waterman
Dean and Professor
School of Music
Memorial University of Newfoundland
AIC 587

T: 709-864-7466
F: 709-864-2666

-----Original Message-----
From: cs-chair [mailto:cs-chair@mun.ca]
Sent: Wednesday, November 05, 2014 9:35 AM
To: Mercer, Stacey; Bauer, Larry; MacKinnon, Scott; Hicks, Sue;
engrconsult@mun.ca; associatevpooffice@grenfell.mun.ca; Hickey, Marie;
miumconsultations@mi.mun.ca; dean@mmd.mun.ca; Waterman, Ellen; DeanNurse;
pharminfo@mun.ca; Dean of Science; deansocialwork
Subject: Resending Calendar Change for Computer Science 1600

Apologies for the error with the previous attachment. A corrected version is now attached.

Regards.

--
Department of Computer Science
Memorial University
St. John's, NL A1B 3X5

https://webmail.mun.ca/munlogin/imp/message.php?index=18283

11/6/2014
Hello Dr. Banzhaf,

I am writing to advise that the School of Pharmacy has no concerns or comments regarding your department's proposed calendar changes.

Regards,

Csoap Glew

CSOP GLEW, Hon. B.A., M.U.P. I MANAGER OF ACADEMIC PROGRAMS
School of Pharmacy
Memorial University of Newfoundland
St. John's, NL I A1B 3V6
Health Sciences Centre I Room H3435
T 709 777 6963 I F 709 777 7044
www.mun.ca/pharmacy
Please note that the deadline to apply for admission for September 2015 is February 1, 2015.

Where people and ideas become.
Follow us: Facebook: www.facebook.com/schoolofpharmacy Twitter: www.twitter.com/schoolofpharm

-----Original Message-----
From: cs-chair [mailto:cs-chair@mun.ca]
Sent: November 6, 2014 9:16 AM
To: Glew, Csoap
Subject: RE: Calendar Change for Computer Science 1600

Attached is another version (in case you didn't receive the follow-up email sent yesterday).

Regards.

https://webmail.mun.ca/munlogin/imp/message.php?index=18376

11/27/2014
INBOX: RE: Resending Calendar Change for Computer Science... (1 of 313)

Delete | Reply | Reply to All | Forward | Redirect | Blocklist | Whitelist | Message Source | Save as | Print

Data: Wed, 5 Nov 2014 18:43:20 +0000
From: "Janzen, Olaf" <olaf@grenfell.mun.ca>
To: "cs-chair@mun.ca" <cs-chair@mun.ca>
Subject: RE: Resending Calendar Change for Computer Science 1600

The proposed changes to the description of the course seem reasonable; I have no other comments.

Olaf Janzen

Prof. Olaf U. Janzen, PhD, FRHistS
Historical Studies program
Grenfell Campus, Memorial University of Newfoundland
20 University Drive
Corner Brook, NL
Canada A2H 5G4

Tel: (709) 637-6282
Fax: (709) 639-8125
Email: olaf@grenfell.mun.ca

http://www2.grenfell.mun.ca/~olaf

From: McHugh, Debbie E.
Sent: Wednesday, November 05, 2014 3:09 PM
To: Bashore, Rainer; Barter, Alex J.; Beardsworth, Adam; Bezzina, Edwin; Blackwood, Stephen C.; Bruce-Robertson, Lawrence; Drummond, Hadija L.; Durnford, Robin D.; Fabijancic, Tony; Ganz, Shoshannah; Grant, Paul; Hancock, Tiffany; Hanrahan, Maura C.; Jacobsen, Ken; Janzen, Olaf; King, Carol J.; McKenzie, Stephanie; Newton, Michael; Pender, Nathalie; Pike, Holly; Pope, Johnathan; Shearow, Lois; Thackray, Marc; Wills, Bernard N.
Subject: FW: Resending Calendar Change for Computer Science 1600

Sending this one again as the first one is not opening properly. Thanks.

Apologies for the error with the previous attachment. A corrected version is now attached.


11/6/2014
Wolfgang,

Thank you for the opportunity to review the proposed change to the calendar description for Computer Science 1600. This change will have no impact on the programs at the Marine Institute.

We are happy to support this change as presented.

Derek

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0586
FAX: 709-778-0394
Derek.Howse@mi.mun.ca

-----Original Message-----
From: cs-chair [mailto:cs-chair@mun.ca]
Sent: Wednesday, November 05, 2014 9:32 AM
To: staceym@mun.ca; lbauer@mun.ca; smackinn@mun.ca; shicks@mun.ca;
engrconsult@mun.ca; associatevpoffice@grenfell.mun.ca; mthicke@mun.ca; MIUG
Consultations; dean@med.mun.ca; ellenw@mun.ca; deannurse@mun.ca;
pharminfo@mun.ca; deansci@mun.ca; deansocialwork@mun.ca
Subject: RE: Resending Calendar Change for Computer Science 1600

Apologies for the error with the previous attachment. A corrected version is now attached.
Collection Development Division  
Queen Elizabeth II Library  
St. John's, Newfoundland, Canada  
A1B 3Y1

8 November 2014

TO: Dr. Wolfgang Banzhaf, Head, Department of Computer Science  
FROM: Dianne Taylor-Harding, Collections Librarian for Computer Science  
SUBJECT: Library Resources Review - Proposed update for course description COMP1600 Basic Computing & Information Technology in the 2015-2016 University Calendar

The proposed change to the course description for COMP1600 Basic Computing & Information Technology in the 2015-2016 Memorial University of Newfoundland Calendar will have no impact on collections activities in the Queen Elizabeth II Library:

Proposed Calendar Description 2015/16 -  
1600 Basic Computing & Information Technology offers an overview of information technology. It provides students with an understanding of basic concepts and necessary skills required to use spreadsheet, database and presentation software to manage, analyze and present data.

The Memorial University Libraries will continue to collect materials covering Computer Science to support undergraduate, graduate and faculty research and study at the University.

11/8/2014

X D.E. Taylor-Harding  
Dianne E. Taylor-Harding  
Collections Librarian for Computer Science

St. John's, Newfoundland, Canada A1B 3Y1  
Tel: (709) 864-7421  
Fax: (709) 864-2153
November 18, 2014

TO: All Members, Faculty Council of Science

FROM: Joan Bury, Secretary
Committee on Undergraduate Studies, Faculty of Science

SUBJECT: Calendar Changes

At a meeting held on November 14, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes be forwarded to Faculty Council for approval:

1. Department of Chemistry- revisions to Computation Chemistry major and honours major programs

2. Department of Computer Science- change to course description for Computer Science 1600

3. Department of Biochemistry- change to Physics requirements for Biochemistry majors' programs

4. Department of Ocean Sciences- changes to prerequisites of Ocean Sciences 3002 and Ocean Sciences 4000

5. Department of Mathematics and Statistics- changes to course description of Mathematics 3161 and Mathematics 3161

Joan Bury
Associate Registrar and
Secretary, Committee
on Undergraduate Studies,
Faculty of Science
Proposal

Calendar changes to first-year Physics requirements in existing Biochemistry programs

November 5, 2014 — some pages revised Nov 17 to wordsmith how the Physics numbers are presented

Executive Summary
The department proposes to modify the first year physics courses required in the general and honours Biochemistry programs and in two joint honours programs. Currently either PHYS 1050 and 1051, or PHYS 1020, 1021, and 1051 are required. This proposal will allow more flexibility by permitting either 1020 or 1050, and 1021 or 1051. Students with strong backgrounds in mathematics, as well as those whose interests are in biophysical aspects of biochemistry, will nevertheless be encouraged to take Physics 1050 as their entry-level course.

Resource Implications: Instructional Costs
This change in terms of resources and instructional costs will have no impact on the Department of Biochemistry but may have a small impact on the Department of Physics and Physical Oceanography. While we will encourage students with strong backgrounds in mathematics to take Physics 1050 as their entry-level course, there may be a small decrease in enrolments with a concomitant increase in Physics 1020. There may be a similar shift in enrolments between Physics 1051 and 1021. The number of students might be 10-20 per year.

Resource Implications: Library Holdings and/or Other Resources Required
No impact on library or other resources.

The costs associated with the revised program can be met from within the existing budget allocation or authorized new funding for the Faculty of Science.

Signature of Unit Head (if appropriate): ______________________________

Date: ______________________________

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

Date: ______________________________
RATIONALE FOR CHANGES
In reviewing the requirement for Physics content in the Biochemistry curriculum, the department examined the content in a number of Canadian biochemistry programs and concluded that calculus-based first year courses were not essential for all of our students. We propose, therefore, to permit Physics 1020/1021 as an option for the Biochemistry major. Although it is not a calculus-based course, many of the problem sessions in Physics 1021 take examples from the life sciences and would therefore be relevant for many biochemistry students. Students who complete 1020/1021 as their first two physics courses would still have the option of taking Physics 1051 should they later decide that it would be to their benefit to have done so.

A calculus-based first year Physics course would, however, be essential for any Biochemistry majors interested in the more biophysical aspects of the discipline, or who may be interested in graduate studies in, for example, Biophysics or Biomedical Engineering. In addition, some professional programs may prefer that students have some background in calculus-based Physics. Therefore, we will recommend and encourage prospective Biochemistry majors to take Physics 1050 as their entry-level Physics course so that they will retain maximum flexibility with their options for future study. In addition, Physics 1050 provides students with the opportunity to apply concepts encountered in Math 1000 and is thus expected to strengthen performance in both courses. We intend to encourage our prospective students to take this path as much as possible.

Consultations Sought From
Biology
Chemistry
Computer Science
Earth Sciences
Mathematics and Statistics
Ocean Sciences
Psychology
Physics & Physical Oceanography
Faculty of Engineering
Faculty of Medicine
School of Human Kinetics and Recreation
School of Nursing
School of Pharmacy
Grenfell Campus
Marine Institute

Comments Received
Yes
Yes
No
No
No
Yes
Yes
Yes
Yes
Yes
No
Yes

Library Report Received
Yes

COURSE DELETIONS AND ADDITIONS
Nil.

CHANGES TO CALENDAR REGULATIONS
Four Biochemistry programs will change their requirements for Physics from 1050, 1051, to 1020, 1021, while allowing that many students may still choose to take the former pair.
Change Physics requirements in some Biochemistry programs
Page 3 of 11

The programs are:
1. Major in Biochemistry
2. Honours Degree in Biochemistry
3. Biochemistry and Cell Biology Joint Honours
4. Biochemistry and Psychology (Behavioural Neuroscience) Joint Honours

CALENDAR REVISIONS
9.1.2 Major in Biochemistry
Entry to the Biochemistry Majors program is based on academic standing.

1. To be considered for admission to the program students must have at least 30 credit hours in courses and have successfully completed the following courses (or their equivalents) with a minimum overall average of 60%. In addition, students must be eligible for entry to Chemistry 2400.
   a. English 1080, 1110 (or equivalent)
   b. Chemistry 1050, 1051 (or Chemistry 1010, 1011 or 1200, 1001)
   c. Mathematics 1000, 1001 (or Mathematics 1090, 1000)
   d. Physics 1050, 1051 (or Physics 1020, 1021); 1050 (or 1020), 1051 (or 1021), or Biology 1001, 1002

2. Required courses to complete the major:
   a. Biochemistry 2100, 2101, 3105, 3106, 3107, 3108.
   b. At least 12 credit hours in courses from Biochemistry 2600, 3203, 4002, 4101, 4103, 4104, 4200, 4201, 4230-4239.
   c. Medicine 310A/B or 6 credit hours from Biochemistry 4240-4249, Biology 2060, 3050, 3401, 3402, 3530, 4200, 4245, 4404, Chemistry 4201.
   d. Biology 1001 and 1002; Mathematics 1001; and Physics 1020 or 1050, and 1054 1050 (or 1020), 1051 (or 1021) for those students who did not complete them in first year.
   Students may also need to complete Physics 1021 in order to fulfill this requirement. (See Notes 2, 3 below).
   e. Chemistry 1031 is required for students who complete Chemistry 1010 and 1011. It is strongly recommended that these students complete Chemistry 1031 prior to second year. (See Note 2 4 below).
   f. Chemistry 2300 or 2301, or Physics 2053; Chemistry 2400, 2401
   g. One of Chemistry 2100, Environmental Sciences 3210, Environmental Sciences 3211.

Notes:
1. Students are required to complete at least 78 credit hours in Science courses for the General Degree.
2. Students taking Mathematics 1000 should take Physics 1050 as their first physics course.
3. It is recommended that students who wish to pursue future studies in biophysics or related fields or who are considering postgraduate health professional programs take Physics 1050 as their first physics course.
4. Majors who take Chemistry 1010/1011 but not Chemistry 1031 as part of their first year sequence risk waiting a whole year before they can continue taking Biochemistry program courses.
5. For the purposes of a Biochemistry degree, Medicine 310A/B count as Biochemistry courses.

3. Students are encouraged to choose a minor.

9.1.2.1 Honours Degree in Biochemistry
Students normally should apply for an Honours program at the completion of their third year of studies. Honours students would normally follow the Biochemistry Majors program before applying to honours, and must meet its admissions requirements as follows:

1. To be considered for admission to the majors program prior to admission to honours, students must have at least 30 credit hours in courses and have successfully completed the following courses (or their equivalents) with a minimum overall average of 60%. In addition, students must be eligible for entry to Chemistry 2400.
   a. English 1080, 1110 (or equivalent)
   b. Chemistry 1050, 1051 (or Chemistry 1010, 1011, or 1200, 1001)
   c. Mathematics 1000, 1001 (or Mathematics 1090, 1000)
   d. Physics 4050, 1051 (or Physics 4020, 1024) 1050 (or 1020), 1051 (or 1021), or Biology 1001, 1002

2. To be eligible for admission, students must be in Honours standing. To be considered for early admission to an Honours program in Biochemistry at the end of second year, students must have achieved at least 70% in each of Biochemistry 2100 and 2101 and Chemistry 2400, 2401.

3. Required courses:
   a. Biochemistry 2100, 2101, 3105, 3106, 3107, 3108, 4102, 499A, 499B, Medicine 310A/B.
   b. Biochemistry 4210 or 4211.
   c. Twelve credit hours in courses from Biochemistry 4002, 4101, 4103, 4104, 4105, 4200, 4201, 4230-4239.
   d. At least 6 credit hours in courses from Biochemistry 2600, 3203, 4220, 4240-4249, Biology 2060, 3050, 3530, 4200, 4245, 4404, Chemistry 4201.
   e. Biology 1001 and 1002; Mathematics 1001; and Physics 4620 or 4650, and 4664 1050 (or 1020), 1051 (or 1021), for those students who did not complete them in first year. Students may also need to complete Physics 4021 in order to fulfill this requirement. (see Notes 1, 2, below)
   f. Chemistry 1031 is required for students who complete Chemistry 1010 and 1011. It is strongly recommended that these students complete Chemistry 1031 prior to second year. (see Notes 3, below).
   g. Chemistry 2300 or 2301 or Physics 2053, Chemistry 2400, 2401, one of Chemistry 3410 or 3411.
   h. One of Chemistry 2100, Chemistry 3500, Environmental Sciences 3210, Environmental Sciences 3211.
   i. Statistics 2550 or equivalent.

Notes:
1. Students taking Mathematics 1000 should take Physics 1050 as their first physics course.
2. It is recommended that students who wish to pursue future studies in biophysics or related fields or who are considering postgraduate health professional programs take Physics 1050 as their first physics course.

3. Majors who take Chemistry 1010/1011 but not Chemistry 1031 as part of their first year sequence risk waiting a whole year before they can continue taking Biochemistry program courses.

4. For the purposes of a Honours Degree in Biochemistry, Medicine 310A/B count as Biochemistry courses.

### 5.1.3 Biochemistry and Cell Biology Joint Honours

Students must have at least an overall average of 65% in English 1080 and 1110 (or equivalent), Mathematics 1000 and 1001, Biology 1001 and 1002, Chemistry 1050 and 1051 (or equivalent), Physics 4050 (or 1020) and 4064, 1050, (or 1020), 1051 (or 1021).

The following courses, including prerequisites where applicable, will be required:

### 5.1.6 Biochemistry and Psychology (Behavioural Neuroscience) Joint Honours

Note: Students completing this program cannot receive credit for Psychology 2920. The following courses (or equivalent) are required to complete the 120 credit hours in courses required for the degree:

1. Chemistry 1050 and 1051 (or equivalent), Biology 1001 and 1002, Mathematics 1000 and 1001, Physics 4060 (or 1020) and 4064, 1050, (or 1020), 1051 (or 1021), English 1080 and 1110.

### Secondary Changes

None.
SUMMARY PAGE FOR SENATE
Approval Form

Program Titles
1. Major in Biochemistry
2. Honours Degree in Biochemistry
3. Biochemistry and Cell Biology Joint Honours
4. Biochemistry and Psychology (Behavioural Neuroscience) Joint Honours

Summary of Changes
Physics 1050 and 1051 are currently required for four Biochemistry programs where it is now recommended that either Physics 1050/1051 OR Physics 1020/1021 be accepted.

Consultations Sought From
Biology
Chemistry
Computer Science
Earth Sciences
Mathematics and Statistics
Ocean Sciences
Psychology
Physics & Physical Oceanography
Faculty of Engineering
Faculty of Medicine
School of Human Kinetics and Recreation
School of Nursing
School of Pharmacy
Grenfell Campus
Marine Institute

Comments Received
Yes
Yes
No
No
No
Yes
Yes
Yes
Yes
No
Yes

Library Report Received
Yes

Approved by Dean, Associate Vice-President (Academic) or Vice-President
Yes/No

Name

FOR OFFICE USE ONLY
APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:

Secretary:

Date:
CONSULTATIONS – status November 5, 2014

A consultation request was sent to the following units on 22 October 2014

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<tr>
<th>Faculty of Science</th>
<th>Date Feedback Received</th>
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<td>Marine Institute</td>
<td>23 October 2014</td>
</tr>
<tr>
<td>University Library</td>
<td>23 October 2014</td>
</tr>
</tbody>
</table>

Hello All,

This email is to consult with you on the Calendar changes that are being proposed by the Dept of Biochemistry this year.

Briefly, the proposed changes would introduce a little more flexibility in the Physics requirements in the Biochemistry major and honours programs by allowing Physics 1020 and 1021 as an option in completing the requirements for the degree. At the same time, though, we wish to encourage qualified and capable students to take Physics 1050 where possible.

Making this change to the Biochemistry major and honours programs also means that we should make corresponding changes to two Joint Honours programs.

We would appreciate hearing any feedback or concerns about the proposed changes as soon as is possible. Please copy any comments or responses to Anne Sinnott.

Thank you
Response from Dept of Ocean Sciences (Garth Fletcher, Head) received Oct 22, 2014

Hi Martin: Both Chris and I have read over your proposed changes and are in full agreement with them. Please see Chris’ comment below.

Best regards

Garth

From: Parrish, Chris  
Sent: October-22-14 3:49 PM  
To: Fletcher, Garth  
Subject: FW: Proposed Biochemistry Calendar Changes

Seems fine to me … This is actually in line with what we have for our Introductory Physical Oceanography course OCSC/PHYS 2300 – PR: Any two first year courses in Physics.

Chris Parrish  
Department of Ocean Sciences

Response from School of Nursing received Oct 22, 2014

Hello Anne Sinnott,

I have reviewed and have no comments. Thanks,

Alice

Alice Gaudine, PhD, RN  
Dean Pro Tempore and Professor, School of Nursing  
Memorial University of Newfoundland

Response from Faculty of Engineering and Applied Science received Oct 23, 2014

Dear Dr. Mulligan,

Your request arrived four weeks before the next scheduled meeting of the Committee on Undergraduate Studies of the Faculty of Engineering and Applied Science. In order to ensure a timely reply, Prof. Fisher, the Associate Dean (Undergraduate Studies) and I have reviewed the package.

We find no impact on our Faculty.

Yours sincerely,

Dr. Glyn George, Chair  
Committee on Undergraduate Studies  
Faculty of Engineering and Applied Science
Response from School of Human Kinetics and Recreation received Oct 23, 2014

Hi Martin,
I have reviewed the proposed changes to the physics requirements for the Biochemistry program. The School of Human Kinetics and Recreation has no concern with this proposal.

Linda
Linda E. Rohr PhD
Associate Professor
Associate Dean Undergraduate Studies
School of Human Kinetics and Recreation

Response from the Marine Institute received Oct 23, 2014

Martin,

Thank you for the opportunity to review these changes to the Biochemistry program. These changes will have no impact on the programs here at the Marine Institute and we are happy to support these changes as presented.

One note regarding the ordering of the Physics courses. Unless there is a rationale for having the numbering order as currently presented, might I suggest that the ordering be consistent throughout the document i.e. "Physics 1020 or 1050, 1021 or 1051".

Derek
Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University

Response from the University Library received Oct 23, 2014

DR. Mulligan,

Modifying the Physics requirements for Biochemistry Majors will have no impact on the resources and support from the Memorial Libraries system.

All the best,

Erin Alcock

—
Erin Alcock
Science Research Liaison Librarian
QE2 Library
Change Physics requirements in some Biochemistry programs
Page 10 of 11

Response from the Dept of Biology received Oct 24, 2014

Hi Martin,
The Biology Undergraduate Studies Committee, at a meeting of October 23rd, reviewed the proposed change to the Joint honours in Biochemistry and Cell Biology. We are in agreement with the proposed change in the the requirement of Physics 1050 and 1051 or 1020 and 1021.

The proposed change will allow more Biology students to consider this joint honours as an option since most Biology majors take Physics 1020 and 1021 and do not decide on the honours route until in the end of their second year or the beginning of the third year.

Thanks
Karen
Karen Morris
Undergraduate Officer
Dept. of Biology

Response from the Dept of Chemistry received Oct 27, 2014

Hello Martin,

The proposed changes to the physics requirements for the biochemistry major and honours programs and the two joint majors are very reasonable. On behalf of the chemistry department, I strongly support the changes.

sincerely,

Chris Flinn
Deputy Head, Undergraduate Studies
MUN Chemistry Department

Response from the School of Pharmacy received Oct 28, 2014

Hello Dr. Mulligan
Please be advised that the School of Pharmacy has no concerns with the proposed changes by the Biochemistry department. For our own admission purposes - we accept either Physics 1020 or 1050 AND Physics 1021 or 1051 as acceptable pre-requisites.

Regards,
CsoP GLEW

CSOP GLEW, Hon. B.A., M.U.P.  I  MANAGER OF ACADEMIC PROGRAMS
School of Pharmacy
Memorial University of Newfoundland
Response from the Dept of Psychology received Oct 30, 2014

Hi Martin,

Psychology is fine with this proposed change.

Chuck Malsbury
Deputy Head & Undergraduate Officer
Department of Psychology

Response from the Dept of Physics and Physical Oceanography received Oct 31, 2014

Martin

Thanks.

The Physics and Physical Oceanography Undergraduate Studies Committee has reviewed the wording in this proposal. We appreciate having been consulted throughout the preparation of this proposal. The committee is satisfied that this wording appropriately reflects the outcome of those discussions and concur with this proposal being forwarded to the Faculty of Science Undergraduate Studies Committee for approval.

Cheers

Michael Morrow

Response from the Faculty of Medicine, received Oct 31, 2014

Dr. Mulligan

I have reviewed the proposed changes for the Department of Biochemistry and they appear fine from the Faculty of Medicine's point of view.

Cathy Vardy
Vice Dean
Faculty of Medicine
November 18, 2014

TO: All Members, Faculty Council of Science
FROM: Joan Burry, Secretary
       Committee on Undergraduate Studies, Faculty of Science
SUBJECT: Calendar Changes

At a meeting held on November 14, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes be forwarded to Faculty Council for approval:

1. Department of Chemistry- revisions to Computation Chemistry major and honours major programs
2. Department of Computer Science- change to course description for Computer Science 1600
3. Department of Biochemistry- change to Physics requirements for Biochemistry majors' programs
4. Department of Ocean Sciences- changes to prerequisites of Ocean Sciences 3002 and Ocean Sciences 4000
5. Department of Mathematics and Statistics- changes to course description of Mathematics 3161 and Mathematics 3161

Joan Burry
Associate Registrar and
Secretary, Committee
on Undergraduate Studies,
Faculty of Science
Proposal
Calendar Changes to Existing Course OCSC 3002

Executive summary

OCSC 3002 Aquaculture and Fisheries Biotechnology is a core course in one minor program proposed by the Department of Ocean Sciences and an elective in the other. In order to make this course more widely available we wish to introduce greater flexibility in the prerequisites by removing one of the previous prerequisites and providing an equivalent course as an alternative for the other.

Resource implications

There will be no resource implications, no additional costs associated with this change and no change in library holdings.

Signature of Unit Head

__________________________

Date

__________________________

Signature of the Dean

__________________________

Date

__________________________
Proposal

Calendar Changes to Existing Course OCSC 3002

Course number and title

OCSC 3002 Aquaculture and Fisheries Biotechnology

Proposed Changes and to Calendar Description under 10.9 Ocean Sciences

3002 Aquaculture and Fisheries Biotechnology is an introduction to biotechnology and genetics as they are applied to aquaculture and fisheries. Topics covered include genetic variation; genetic structure of fish and shellfish populations; the genetic basis of aquaculture traits; finfish and shellfish genomic research; marker-assisted selection in aquaculture; manipulation of ploidy; genetic engineering in aquaculture; and techniques used to study the responses of aquatic animals to external stressors such as hypoxia, temperature stress, acidification, and pathogens.

PR: Biology 2060, 2250 or Biochemistry 2100

Rationale for Change

In order to make this course more widely available we wish to introduce more flexibility in the prerequisites by removing one of the previous prerequisites and providing an equivalent course as an alternate for the other. We propose that Biology 2060 Principles of Cell Biology be removed as it is less important for Aquaculture and Fisheries, and that Biochemistry 2100 Introduction to Molecular Biology and Genetics be an alternative to Biology 2250 Principles of Genetics.
SUMMARY PAGE FOR SENATE Approval Form

Course number and title
OCSC 3002 Aquaculture and Fisheries Biotechnology

Summary of Changes
This is a core course in one minor program proposed by the Department of Ocean Sciences and an elective in the other. In order to make this course more widely available we wish to introduce greater flexibility in the prerequisites by removing one of the previous prerequisites and providing an equivalent course as an alternative for the other.

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</tbody>
</table>

16. Library Report Received                                     | Yes       |

Approved by Dean, Associate Vice-President (Academic) or Vice President Yes / No

Name

FOR OFFICE USE ONLY
APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:  
Secretary:  
Date:  
Consultations

Comments from Math
From: Math Consult [mailto:mathconsult@mun.ca]
Sent: November-04-14 2:41 PM
To: Fletcher, Garth
Subject: Re: Calendar Changes

The Dept of Math and Stats has no objection to this proposal.

Harold Johnson

Comments from Biology
From: Karen Morris [mailto:morrisk@mun.ca]
Sent: October-29-14 1:32 PM
To: Fletcher, Garth
Cc: David Innes
Subject: Re: Fwd: Calendar Changes OCSC 3002 and 4000

Hi Garth,

The Biology Undergraduate Studies Committee, at its meeting on October 23rd, discussed the proposed changes to the prerequisites for the new courses OCSC 3002 and OCSC 4000.

The committee has no issues with the proposed prerequisite change for OCSC 4000 Scientific Diving Methods.

The committee did have a concern with one of the proposed changes to the prerequisites for OCSC 3002 Aquaculture and Fisheries Biotechnology.

The addition of the option Biology 2250 or Biochemistry 2100 is fine; however, we are puzzled by the proposed deletion of the prerequisite Biology 2060 (Principles of Cell Biology). The course proposal for OCSC 3002 states under Course Outline and Method of Evaluation that “This course will build on the foundations of introductory courses in genetics and cell biology, and provide students.....”. The committee is concerned that if Biology 2060 is removed from the required prerequisite list, then the course as proposed and approved will not be the same as the one that will be taught. The committee requests clarification regarding this.

Thanks
Karen

Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John’s, NL A1B 3X9
709-864-8021

Response to Biology
From: Fletcher, Garth
Sent: Friday, October 31, 2014 4:00 PM
To: Karen Morris
Cc: David Innes; Parrish, Chris
Subject: RE: Fwd: Calendar Changes OCSC 3002 and 4000
Hi Karen: Thank you for your comments on our proposed revisions to OCSC 3002. This course is based on the following text: Biotechnology and Genetics in Fisheries and Aquaculture, Second Edition; Andy Beaumont et al. 2010. The cell biology that is included in introductory biology courses, along with introductory genetics, will be adequate preparation for understanding the content of the Beaumont et al. 2010 textbook. All content in the course is as previously proposed (e.g. lecture topics); however, the course outline provided to the students will be changed to: "This course will build on the foundation of introductory biology and genetics, and provide students with information on the theory and application of biotechnology to the study of farmed and wild aquatic organisms".

Best regards

Garth

Comments from Grenfell
From: Gallant, Robert [mailto:rgallant@grenfell.mun.ca]
Sent: October-28-14 11:02 AM
To: Fletcher, Garth
Subject: FW: Calendar Changes

Hello Dr. Fletcher.
Attached are the only comments I've received from the Division of Science regarding your proposed calendar changes.

Dr. R. Gallant
Head of Division of Science, Grenfell Campus, Memorial University

From: Dust, Julian. M
Sent: October-20-14 1:13 PM
To: Daniels, Karen
Subject: RE: Calendar Changes

Dear Dr. Gallant,

In the case of the OCSC 4000 (Scientific Diving Methods) the rationale for changing the pre-requisites is to broaden the possible pre-requisites to make the course more widely available to students. In this regard, it is proposed that Biology 2600 (Introduction to Ecology) could substituted by OCSC 2000 (Introduction to Biological Oceanography). In the spirit of broadening these pre-requisites I would suggest adding another "or" to this set, namely: Environmental Science (ENVS) 2371 (Oceanography). This course has, in the past, been largely taught from the biological perspective.

Among the changes to OCSC/Biol 3620 is the removal of the laboratory component. I support this for the sake of more economical program delivery.

Sincerely,

Julian M. Dust, Ph.D.
Assoc. Professor, Chemistry and Environmental Science

Comments from the Library
Collection Development Division
24 October 2014

To: Garth Fletcher  Department of Ocean Sciences
From: Erin Alcock, Science Research Liaison Librarian
Subject: Calendar Changes Fall 2014

I have reviewed the proposals for the Calendar changes pertaining to OCSC/Biology 3620, OCSC 3002 and OCSC 4000.

The increased flexibility for prerequisites for OCSC 3002 and OCSC 4000 will have no impact on MUN Library resources and services.

A slight change in focus in OCSC 3620 will have next to no impact. The shift away from the lab component and a new focus on ecological data analysis will be well supported by the MUN Library Collection under existing budget allocations.

Comments from MI
From: Dawn King  [mailto:Dawn.King@mi.mun.ca] On Behalf Of MIUG Consultations
Sent: October-20-14 3:40 PM
To: Fletcher, Garth
Subject: RE: Calendar Changes - OCSC3002

Garth,

Thank you for the opportunity to review the changes to OCSC 3002. This change will have no impact on the programs here at the Marine Institute.

We are happy to support these changes as presented.

Derek

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0586
FAX: 709-778-0394
Derek.Howse@mi.mun.ca

Comments from Education
From: Fraize, Beverly
Sent: October-17-14 2:22 PM
To: Fletcher, Garth
Hello Dr. Fletcher,

I have reviewed the Calendar Changes as per your request and confirm that there would be no impact on the Faculty of Education.

Best regards,

Beverly Fraize  
Academic Program Administrator  
Undergraduate Programs  
Faculty of Education, Room ED 2020  
Education Building  
Memorial University of Newfoundland  
St. John's, NL A1B 3X8  
Phone: 709-864-3485  
Fax: 709-864-2001  
Admission Enquiries: edadmin@mun.ca  
General Enquiries: muneduc@mun.ca

From: Galway, Gerald J.  
Sent: October-15-14 12:48 PM  
To: Fraize, Beverly  
Cc: Kennedy, Claudette  
Subject: FW: Calendar Changes

Hi Bev

Could you please review and respond directory to Dr. Fletcher.

Thank you.

Gerald

Comments from Biochemistry

From: Biochemistry Head  
Sent: October-17-14 9:19 AM  
To: Fletcher, Garth  
Subject: RE: Calendar Changes

Garth

Biochemistry fully supports the proposed changes with respect to OCSC3002. This is consistent with the Biochemistry listings that allow BIOC2100 and BIOL2250 as equivalents, and we anticipate this will facilitate interested students on our end minor in Ocean Sciences.

With respect to the other two courses we have no issues with the proposed changes and are happy to support these also.
Mark

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

Tel: (709) 864-8529
E-mail: biohead@mun.ca; mberry@mun.ca

Comments from Engineering
From: Engineering Consultations [mailto:engrconsult@mun.ca]
Sent: October-16-14 5:00 PM
To: Fletcher, Garth
Cc: Edmunds, Jayde; Fisher, Andrew
Subject: Re: Calendar Changes (OCSC courses)

Dear Dr. Fletcher,

Your request arrived immediately after the October meeting of the Committee on Undergraduate Studies of the Faculty of Engineering and Applied Science. The next meeting is not for another five weeks.

Instead, Prof. Fisher, the Associate Dean (Undergraduate Studies) and I have reviewed the package and we find no impact on our Faculty.

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

From: Fletcher, Garth
Sent: Wednesday, October 15, 2014 11:15 AM
To: Merland, Alex; Biochemistry Head; 'Brad de Young'; Business Undergrad Help; 'cs-chair@mun.ca'; David Innes; Economics (wlocke@mun.ca); Galway, Gerald J.; Engineering; Alcock, Erin; Geography; Gerard Martin; 'gjenner@mun.ca'; 'mathconsult@mun.ca'; 'mugconsultations@mi.mun.ca'; 'Peter Pickup, Chemistry'; Taylor-Harding, Dianne;
'vpooffice@grenfell.mun.ca'
Subject: Calendar Changes

Colleagues: please find attached our proposals to make calendar changes to three existing Ocean Sciences courses. Please review and forward comments to me at your earliest convenience.

Best regards

Garth
Proposal
Calendar Changes to Existing Course OCSC 4000

Executive summary

OCSC 4000 Scientific Diving Methods is an elective in two minor programs proposed by the Department of Ocean Sciences. In order to make this course more widely available we wish to introduce more flexibility in the prerequisites by providing equivalent courses as alternatives to the previous prerequisites.

Resource implications

There will be no resource implications, no additional costs associated with this change and no change in library holdings.

Signature of Unit Head

________________________________________

Date

________________________________________

Signature of the Dean

________________________________________

Date

________________________________________
Proposal
Calendar Changes to Existing Course OCSC 4000

Course number and title

OCSC 4000 Scientific Diving Methods

Proposed Changes and to Calendar Description under 10.9 Ocean Sciences

4000 Scientific Diving Methods is an in-depth study and application of methods routinely employed for data collection in underwater scientific research. Aspects covered include habitat mapping; installation and use of instrumentation; still and video camera techniques; planning and execution of surveys and experiments in major subtidal habitats; as well as data analysis and interpretation. Participants are trained in accordance with Memorial University of Newfoundland's Guide for Diving Safety and the Canadian Association for Underwater Science (CAUS) standards to meet the criteria for Scientific Diver I rating. This course is normally offered at the Bonne Bay Marine Station in a special 2-week session at the beginning or end of the Spring semester depending on station's availability.

OR: The following documentation must be provided to the course instructor at least four months before the first day of the course. It must be in effect until at least the last day of the course.
Submission of this documentation does not guarantee acceptance into the course. Aside from course prerequisites, acceptance will be based on successful completion, before the course begins, of a diving fitness and skills evaluation in a pool environment and demonstration of understanding of the MUN Diving Safety Manual, physics and physiology of diving, and use of recreational dive tables.
Nationally recognized scuba diver certification with diver rescue and accident management techniques; diver medical examination by a licensed physician knowledgeable in diving medicine; First Aid (basic), CPR (basic), and DAN oxygen first aid for scuba diving injuries administration cards; DAN membership and insurance or medical insurance covering hyperbaric treatment; diver's log book with at least 12 dives in the last 12 months including one dive in the last six months and four dives in cold (<10°C) water; cold-water scuba diving equipment complete with proper hydrostatic/VIP service tags on diving cylinders and overhaul/service receipts on regulators and buoyancy compensator devices.

PR: Biology 2122 or Biology 3709, Biology 2600 or OCSC 2000 or Environmental Science 2371, Statistics 2550 or equivalent

Rationale for Change

In order to make this course more widely available we wish to introduce more flexibility in the prerequisites by providing equivalent courses as alternates to the previous prerequisites. We propose that OCSC 2000 Introductory Biological Oceanography be a substitute for Biology 2600 Principles of Ecology, and that other Statistics courses e.g. from the Psychology Department be substitutable for Statistics 2550. Grenfell also has a course, ENVS 2371 Oceanography, which is equivalent to OCSC 2000 Introduction to Biological Oceanography as it is taught from the biological perspective.
SUMMARY PAGE FOR SENATE

Approval Form

Course number and title
OCSC 4000 Scientific Diving Methods

Summary of Changes
This course is an elective in two minor programs proposed by the Department of Ocean Sciences. In order to make this course more widely available we wish to introduce more flexibility in the prerequisites by providing equivalent courses as alternatives to the previous prerequisites.

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Library Report Received  Yes

Approved by Dean, Associate Vice-President (Academic) or Vice President  Yes / No

Name

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APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:
Consultations

Comments from Math
From: Math Consult [mailto:mathconsult@mun.ca]
Sent: November-04-14 2:41 PM
To: Fletcher, Garth
Subject: Re: Calendar Changes

The Dept of Math and Stats has no objection to this proposal.

Harold Johnson

Comments from Biology
From: Karen Morris [mailto:morrisk@mun.ca]
Sent: October-28-14 1:32 PM
To: Fletcher, Garth
Cc: David Innes
Subject: Re: Fwd: Calendar Changes OCSC 3002 and 4000

Hi Garth,
The Biology Undergraduate Studies Committee, at its meeting on October 23rd, discussed the proposed changes to the prerequisites for the new courses OCSC 3002 and OCSC 4000.
The committee has no issues with the proposed prerequisite change for OCSC 4000 Scientific Diving Methods.

The committee did have a concern with one of the proposed changes to the prerequisites for OCSC 3002 Aquaculture and Fisheries Biotechnology.
The addition of the option Biology 2250 or Biochemistry 2100 is fine; however, we are puzzled by the proposed deletion of the prerequisite Biology 2060 (Principles of Cell Biology). The course proposal for OCSC 3002 states under Course Outline and Method of Evaluation that “This course will build on the foundations of introductory courses in genetics and cell biology, and provide students.....”. The committee is concerned that if Biology 2060 is removed from the required prerequisite list, then the course as proposed and approved will not be the same as the one that will be taught. The committee requests clarification regarding this.

Thanks
Karen

Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
709-864-8021

Comments from Grenfell
From: Gallant, Robert [mailto:rgallant@grenfell.mun.ca]
Hello Dr. Fletcher.
Attached are the only comments I’ve received from the Division of Science regarding your proposed calendar changes.

Dr. R. Gallant
Head of Division of Science, Grenfell Campus, Memorial University

From: Dust, Julian. M
Sent: October-20-14 1:13 PM
To: Daniels, Karen
Subject: RE: Calendar Changes

Dear Dr. Gallant,

In the case of the OCSC 4000 (Scientific Diving Methods) the rationale for changing the pre-requisites is to broaden the possible pre-requisites to make the course more widely available to students. In this regard, it is proposed that Biology 2600 (Introduction to Ecology) could substituted by OCSC 2000 (Introduction to Biological Oceanography). In the spirit of broadening these pre-requisites I would suggest adding another "or" to this set, namely: Environmental Science (ENVS) 2371 (Oceanography). this course has, in the past, been largely taught from the biological perspective.

Among the changes to OCSC/Biol 3620 is the removal of the laboratory component. I support this for the sake of more economical program delivery.

Sincerely,

Julian M. Dust, Ph.D.
Assoc. Professor, Chemistry and Environmental Science

Comments from the Library
Collection Development Division
Queen Elizabeth II Library

24 October 2014

To: Garth Fletcher  Department of Ocean Sciences
From: Erin Alcock, Science Research Liaison Librarian
Subject: Calendar Changes Fall 2014

I have reviewed the proposals for the Calendar changes pertaining to OCSC/Biology 3620, OCSC 3002 and OCSC 4000.
The increased flexibility for prerequisites for OCSC 3002 and OCSC 4000 will have no impact on MUN Library resources and services.

A slight change in focus in OCSC 3620 will have next to no impact. The shift away from the lab component and a new focus on ecological data analysis will be well supported by the MUN Library Collection under existing budget allocations.

Comments from MI
From: Dawn King [mailto:Dawn.King@ml.mun.ca] On Behalf Of MIUG Consultations
Sent: October-20-14 3:41 PM
To: Fletcher, Garth
Subject: RE: Calendar Changes - OCSC 4000

Garth,

Thank you for the opportunity to review the changes to OCSC 4000. This change will have no impact on the programs here at the Marine Institute.

We are happy to support these changes as presented.

Derek

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0586
FAX: 709-778-0394
Derek.Howse@mi.mun.ca

Comments from Education
From: Fraize, Beverly
Sent: October-17-14 2:22 PM
To: Fletcher, Garth
Cc: Galway, Gerald J.
Subject: RE: Calendar Changes

Hello Dr. Fletcher,

I have reviewed the Calendar Changes as per your request and confirm that there would be no impact on the Faculty of Education.

Best regards,

Beverly Fraize
Academic Program Administrator
Undergraduate Programs
Faculty of Education, Room ED 2020
Education Building
Memorial University of Newfoundland
St. John's, NL A1B 3X8
Phone: 709-864-3485
Fax: 709-864-2001
Admission Enquiries: cdadmiss@mun.ca
General Enquiries: muneduc@mun.ca

From: Galway, Gerald J.
Sent: October-15-14 12:48 PM
To: Fraise, Beverly
Cc: Kennedy, Claudette
Subject: FW: Calendar Changes

Hi Bev

Could you please review and respond directory to Dr. Fletcher.
Thank you.
Gerald

Comments from Biochemistry
From: Biochemistry Head
Sent: October-17-14 9:19 AM
To: Fletcher, Garth
Subject: RE: Calendar Changes

Garth

Biochemistry fully supports the proposed changes with respect to OCSC3002. This is consistent with the Biochemistry listings that allow BIOC2100 and BIOL2250 as equivalents, and we anticipate this will facilitate interested students on our end minoring in Ocean Sciences.

With respect to the other two courses we have no issues with the proposed changes and are happy to support these also.

Mark

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

Tel: (709) 864-8529
E-mail: biochead@mun.ca; mberry@mun.ca

Comments from Engineering
From: Engineering Consultations [mailto:engrconsult@mun.ca]  
Sent: October-16-14 5:00 PM  
To: Fletcher, Garth  
Cc: Edmunds, Jayde; Fisher, Andrew  
Subject: Re: Calendar Changes (OCSC courses)  

Dear Dr. Fletcher,

Your request arrived immediately after the October meeting of the Committee on Undergraduate Studies of the Faculty of Engineering and Applied Science. The next meeting is not for another five weeks.

Instead, Prof. Fisher, the Associate Dean (Undergraduate Studies) and I have reviewed the package and we find no impact on our Faculty.

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

From: Fletcher, Garth  
Sent: Wednesday, October 15, 2014 11:15 AM  
To: Marland, Alex; Biochemistry Head; 'Brad de Young'; Business Undergrad Help; 'cs-chair@mun.ca'; David Innes; Economics (wlocke@mun.ca); Galway, Gerald J.; Engineering; Alcock, Erin; Geography; Gerard Martin; 'gjennier@mun.ca'; 'mathconsult@mun.ca'; 'mlugconsultations@ml.mun.ca'; 'Peter Pickup, Chemistry'; Taylor-Harding, Dianne; vpoftime@grenfell.mun.ca  
Subject: Calendar Changes  

Colleagues: please find attached our proposals to make calendar changes to three existing Ocean Sciences courses. Please review and forward comments to me at your earliest convenience.

Best regards

Garth
November 18, 2014

TO: All Members, Faculty Council of Science
FROM: Joan Burny, Secretary
Committee on Undergraduate Studies, Faculty of Science
SUBJECT: Calendar Changes

At a meeting held on November 14, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes be forwarded to Faculty Council for approval:

1. Department of Chemistry- revisions to Computation Chemistry major and honours major programs

2. Department of Computer Science- change to course description for Computer Science 1600

3. Department of Biochemistry- change to Physics requirements for Biochemistry majors' programs

4. Department of Ocean Sciences- changes to prerequisites of Ocean Sciences 3002 and Ocean Sciences 4000

5. Department of Mathematics and Statistics- changes to course description of Mathematics 3161 and Mathematics 3161

Joan Burny
Associate Registrar and
Secretary: Committee
on Undergraduate Studies,
Faculty of Science
Proposal
Calendar Changes to Existing Courses:
Mathematics 3132 and Mathematics 3161

Executive Summary

We intend to shift a topic (numerical methods for ordinary differential equations) from Mathematics 3161 to Mathematics 3132, and introduce a section on advanced topics to Mathematics 3161. As such, we propose to amend the Calendar descriptions of both courses.

Resource Implications: Instructional Costs

None.

Consultations

Comments were received from Grenfell Campus, the Marine Institute, the Department of Computer Science, the Department of Economics, and the Department of Physics and Physical Oceanography. As requested by Grenfell Campus, a secondary change has been added to this proposal to reflect the proposed change to Mathematics 3132 in the Grenfell section of the Calendar.

Library Holdings and/or Other Resources Required

As indicated in the attached memo from Dianne Taylor-Harding, Collections Librarian (Mathematics and Statistics), these changes will not require additional library holdings.

The costs, if any, associated with this change/these changes can be met from within the existing budget allocation or authorized new funding for the Faculty of Science.

Signature of Unit Head (if appropriate): ______________________________

Date: ______________________________

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

____________________________________

Date: ______________________________
SUMMARY PAGE FOR SENATE

Approval Form

Course Number and Title

Mathematics 3132 Numerical Analysis I
Mathematics 3161 Ordinary Differential Equations II

Abbreviated Course Title

Numerical Analysis I
Ordinary Diff Equations II

Calendar Changes

Under the Faculty of Science, page 502, 2014-2015 Calendar, 10.8.3 (Mathematics Courses), amend the course description for Mathematics 3132 to read:

"3132 Numerical Analysis I includes a discussion of round-off error, the solution of linear systems, iterative methods for nonlinear equations, interpolation and polynomial approximation, least squares approximation, fast Fourier transform, numerical differentiation and integration, and numerical methods for initial value problems.

CR: Computer Science 3731
LH: 1.5
PR: MATH 2000, MATH 2050, and a computing course (Computer Science 1510 is recommended)"

Under the Faculty of Science, page 502, 2014-2015 Calendar, 10.8.3 (Mathematics Courses), amend the course description for Mathematics 3161 to read:

"3161 Ordinary Differential Equations II examines power series solutions, method of Frobenius, Bessel functions, Legendre polynomials and others from classical Physics, systems of linear first order equations, fundamental matrix solution, numerical methods for initial value problems, existence and uniqueness of solutions, and advanced topics in ordinary differential equations.

PR: MATH 2260 (or 3260) and 3202"
Secondary Calendar Changes

Under Grenfell Campus, page 330, 2014-2015 Calendar, 12.20 (Mathematics and Statistics), amend the course description for Mathematics 3132 to read:

"3132 Numerical Analysis I includes a discussion of round-off error, the solution of linear systems, iterative methods for nonlinear equations, interpolation and polynomial approximation, least squares approximation, fast Fourier transform, numerical differentiation and integration, and numerical methods for initial value problems.

CR: Computer Science 3731
PR: MATH 2000, MATH 2050, and a computing course (Computer Science 1510 is recommended)"

Rationale

A unit on numerical methods for initial value problems was added to Mathematics 3161 in 2004, when some topics originally included in that course were shifted to the new course Mathematics 3100 (Introduction to Dynamical Systems). In the ensuing years, however, instructors and students alike have found that this material sits uneasily in Mathematics 3161, which does not have any programming or numerical prerequisites. We now propose that some of this material should instead be covered in Mathematics 3132, where the recent addition of a lab has provided the flexibility which will allow instructors to address this extra topic. The balance of the material can be taught in Mathematics 4162 (Numerical Methods for Differential Equations), where it is already the subject of substantial review; consequently, there is no need for an amendment to its course description. We further propose that the omission of numerical methods from Mathematics 3161 will instead accommodate two to three weeks in that course during which instructors can tailor the content to their interests, which we feel will be beneficial to students who will, by that point, have arrived at the conclusion of a two-semester sequence in ordinary differential equations. Potential topics include asymptotic methods; calculus of variations; theories of existence, uniqueness and well-posedness; or additional coverage of nonlinear ordinary differential equations.

Consultations Sought From

1. Grenfell Campus
2. Marine Institute
3. Faculty of Arts
4. Department of Chemistry
5. Department of Computer Science
6. Department of Physics and Physical Oceanography

Comments Received

Yes
Yes
Yes
No
Yes
Yes

Library Report Received

Yes

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

Name
FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair: __________________________
Secretary: ______________________
Date: ___________________________
Subject: Request for Consultation: Mathematics 3132 and 3161
From: Shannon Patrick Sullivan <shannon@mun.ca>
Date: 15/10/2014 9:16 PM
To: dtaylor@mun.ca

Hi Dianne,

Attached is a proposal to amend the Calendar description for Mathematics 3132 (Numerical Analysis I) and Mathematics 3161 (Ordinary Differential Equations II).

I am forwarding it to you for your comments on the availability of appropriate library resources to support this proposal.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John's • NL • Canada
shannon@mun.ca • www.ucs.mun.ca/~shannon

---

Mathematics 3132 and 3161.pdf 27 bytes
To: Dr. Shannon Sullivan, Senior Faculty Advisor, Dept. of Mathematics & Statistics  
From: Dianne Taylor-Harding, Collections Development Librarian, Mathematics & Statistics  
Subject: Library Resources Review—Proposed Calendar Changes for courses MATH3132 and MATH3161

The Department of Mathematics and Statistics has proposed calendar changes for Mathematics 3132 and Mathematics 3161. The topic, numerical methods for ordinary differential equations, will be shifted from Mathematics 3161 to Mathematics 3132. Advanced topics will be added to Mathematics 3161. Calendar descriptions of both courses will be amended:

A. "MATH3132. Numerical Analysis I. Includes a discussion of round-off error, the solution of linear systems, iterative methods for nonlinear equations, interpolation and polynomial approximation, least squares approximation, fast Fourier transform, numerical differentiation and integration, and numerical methods for initial value problems."

B. "MATH3161. Ordinary Differential Equations II. Examines power series solutions, method of Frobenius, Bessel functions, Legendre polynomials and others from classical Physics, systems of linear first order equations, fundamental matrix solution, numerical methods for initial value problems, existence and uniqueness of solutions, and advanced topics in ordinary differential equations."

These calendar changes will have no impact on collections activities in the Queen Elizabeth II Library. The Memorial University Libraries will continue to collect materials covering Mathematics and Statistics to support undergraduate, graduate and faculty research and study at the University.

11/2/2014

D.E. Taylor-Harding
Dianne E. Taylor-Harding
Collections Librarian, Mathematics & Statistics

St. John's, Newfoundland, Canada A1B 3Y1  Tel: (709) 864-7421  Fax: (709) 864-2153
Subject: Request for Consultation: Mathematics 3132 and 3161
From: Shannon Patrick Sullivan <shannon@mun.ca>
Date: 15/10/2014 9:14 PM
To: associatevpooffice@grenfell.mun.ca, miugconsultations@mi.mun.ca, staceym@mun.ca, chemhead@mun.ca, cs-chair@mun.ca, bdeyoung@mun.ca

Greetings,

Attached is a proposal to amend the Calendar descriptions for Mathematics 3132 (Numerical Analysis I) and Mathematics 3161 (Ordinary Differential Equations II).

If you have any comments on this proposal, we would appreciate receiving your responses no later than Wednesday, November 12th.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John’s · NL · Canada
shannon@mun.ca · www.ucs.mun.ca/~shannon

Attachments:  
Mathematics 3132 and 3161.pdf  
27 bytes
Subject: Changes to 3132 and 3161  
From: "Howell, Jared" <jahowell@grenfell.mun.ca>  
Date: 20/10/2014 1:46 PM  
To: Shannon Patrick Sullivan <shannon@mun.ca>

Shannon,

We see no problem with the proposed changes to Math 3132 and 3161. Since 3132 is also in the Grenfell section of the Calendar, we request that you add the same change to the description of 3132 in the Grenfell section as a secondary change on the proposal.

Thank you,

Dr. Jared Howell

Chair of Computational Mathematics  
Memorial University  
Grenfell campus  
AS3013  
This electronic communication is governed by the terms and conditions at http://www.mun.ca/cc/policies/electronic_communications_disclaimer_2011.php.
Subject: RE: Request for Consultation: Mathematics 3132 and 3161  
From: MIUG Consultations <MIUGconsultations@mi.mun.ca>  
Date: 20/10/2014 3:43 PM  
To: Shannon Patrick Sullivan <shannon@mun.ca>

Shannon,

Thank you for the opportunity to review the proposed changes to Mathematics 3132 and 3161. These changes will have no impact on the programs here at the Marine Institute.

One typographic item that you might want to address during this process is to reconcile the course name vs course code in the CR and PR lines.

We are happy to support these course changes as presented.

Derek

Derek Howse  
Chair, Undergraduate Studies Committee  
Marine Institute, Memorial University  
TEL: 709-778-8586  
FAX: 709-778-0394  
Derek.Howse@mi.mun.ca

----Original Message-----
From: Shannon Patrick Sullivan [mailto:shannon@mun.ca]  
Sent: Wednesday, October 15, 2014 9:14 PM  
To: associatevpooffice@grenfell.mun.ca; MIUG Consultations; staceym@mun.ca; chemhead@mun.ca; cs-chair@mun.ca; bdeyoung@mun.ca  
Subject: Request for Consultation: Mathematics 3132 and 3161

Greetings,

Attached is a proposal to amend the Calendar descriptions for Mathematics 3132 (Numerical Analysis I) and Mathematics 3161 (Ordinary Differential Equations II).

If you have any comments on this proposal, we would appreciate receiving your responses no later than Wednesday, November 12th.

Thanks,  
Shannon

--
Dr. Shannon Patrick Sullivan  
Dept. of Mathematics & Statistics  
Senior Faculty Advisor, Faculty of Science Memorial University of Newfoundland St. John's * NL * Canada shannon@mun.ca * www.ufs.mun.ca/~shannon  
This email is governed by the Terms and Conditions found in our Disclaimer<http://www.mi.mun.ca/ict/disclaimer>.
Subject: Fwd: Request for Consultation: Mathematics 3132 and 3161 (fwd)
From: Donna Batten <donna@mun.ca>
Date: 24/10/2014 9:42 AM
To: shannon@mun.ca

Shannon,

This is okay with Computer Science.

Donna Batten
Undergraduate Advisor
Department of Computer Science

----------- Forwarded message -----------
Date: Thu, 16 Oct 2014 09:41:19 -0230
From: cs-chair <cs-chair@mun.ca>
To: donna@mun.ca
Subject: Fwd: Request for Consultation: Mathematics 3132 and 3161

----- Forwarded message from Shannon Patrick Sullivan <shannon@mun.ca> -----  
Date: Wed, 15 Oct 2014 21:14:10 -0230  
From: Shannon Patrick Sullivan <shannon@mun.ca>  
Reply-To: Shannon Patrick Sullivan <shannon@mun.ca>  
Subject: Request for Consultation: Mathematics 3132 and 3161  
To: associateypooffice@grenfell.mun.ca, miugconsultations@mi.mun.ca, staceym@mun.ca, chemhead@mun.ca, cs-chair@mun.ca, bdevyoung@mun.ca

Greetings,

Attached is a proposal to amend the Calendar descriptions for Mathematics 3132 (Numerical Analysis I) and Mathematics 3161 (Ordinary Differential Equations II).

If you have any comments on this proposal, we would appreciate receiving your responses no later than Wednesday, November 12th.

Thanks,
Shannon

--

Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John's • NL • Canada
shannon@mun.ca • www.ucs.mun.ca/~shannon

----- End forwarded message -----
Subject: FW: Request for Consultation: Mathematics 3132 and 3161
From: "Mercer, Stacey" <staceym@mun.ca>
Date: 28/10/2014 9:53 AM
To: "shannon@mun.ca" <shannon@mun.ca>

FYI

Stacey Mercer
Secretary to the Associate Deans
Faculty of Arts
Memorial University of Newfoundland
St. John’s, NL A1C 5S7

Tel: (709) 864-8255
Fax: (709) 864-2135
staceym@mun.ca
www.mun.ca/arts

-----Original Message-----
From: wade locke [mailto:wlocke@mun.ca]
Sent: October 28, 2014 8:35 AM
To: Mercer, Stacey
Cc: 'Professor S. Lynch'; Maryland, Alex
Subject: RE: Request for Consultation: Mathematics 3132 and 3161

Stacy

We have no concerns

wade

-----Original Message-----
From: Mercer, Stacey [mailto:staceym@mun.ca]
Sent: October-24-14 3:51 PM
To: wade locke
Subject: FW: Request for Consultation: Mathematics 3132 and 3161

Hi Dr. Locke:
You are invited to comment on the attached proposal.
Thank you.

Stacey Mercer
Faculty of Arts
Memorial University of Newfoundland
St. John’s, NL A1C 5S7
Tel: (709) 864-8255 Fax: (709) 864-2135
staceym@mun.ca
www.mun.ca/arts

-----Original Message-----
From: Shannon Patrick Sullivan [mailto:shannon@mun.ca]
Sent: October 15, 2014 9:15 PM
To: associatevpoffice@prenfelle.mun.ca; miugconsultations@mi.mun.ca; Mercer, Stacey; chemhead@mun.ca; cs-chair@mun.ca; bdeyoung@mun.ca
Subject: Re: Request for Consultation: Mathematics 3132 and 3161
From: Brad deYoung <bdeyoung@mun.ca>
Date: 16/10/2014 8:36 AM
To: Shannon Patrick Sullivan <shannon@mun.ca>
CC: Mike Morrow <mmorrow@mun.ca>, Rick Goulding <rgoulding@mun.ca>

Shannon

We have reviewed the proposed changes for Mathematics 3132 and 3161 and support them based upon the rationale provided.

best

Brad

Brad deYoung
Professor and Head
Memorial University
St. John’s NL
709-864-8738
bdeyoung@mun.ca

On Oct 15, 2014, at 9:14 PM, Shannon Patrick Sullivan <shannon@mun.ca> wrote:

Greetings,

Attached is a proposal to amend the Calendar descriptions for Mathematics 3132 (Numerical Analysis I) and Mathematics 3161 (Ordinary Differential Equations II).

If you have any comments on this proposal, we would appreciate receiving your responses no later than Wednesday, November 12th.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John’s · NL · Canada
shannon@mun.ca · www.ucs.mun.ca/~shannon
November 26, 2014

TO: All Members, Faculty Council of Science

FROM: Joan Burry, Secretary
Committee on Undergraduate Studies, Faculty of Science

SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 21, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Biology - new course Biology 3820: Foundations of Biology

2. Department of Earth Sciences:
   (i) New Course - Earth Sciences 4405: Field Course on the Geology of Newfoundland
   (ii) New Course - Earth Sciences 4620: Contaminant Hydrogeology
   (iii) Changes to existing course Earth Sciences 4610
   (iv) Changes to program regulations, for clarity and conciseness
   (v) Change to course numbering scheme to allow for an environmental geoscience stream, and resulting renumbering of two 4000-level courses

[Signature]
Joan Burry
Associate Registrar and
Secretary, Committee
on Undergraduate Studies,
Faculty of Science
TO: Joan Burry, Secretary, Faculty of Science Undergraduate Studies Committee
FROM: Karen Morris, Undergraduate Officer, Biology
DATE: November 7, 2014
SUBJECT: New Course Proposal: Biology 3820 — Foundations of Biology

Please find attached a new course proposal for Biology 3820 — Foundations in Biology people, ideas and technologies that have influenced the way we look at it which was approved at a departmental meeting of October 22, 2014.

The Biology Department would like to add Biology 3820 to its Spring 2014 Harlow course offerings.

The consultation request and responses received to date are attached.

The course proposal is now being submitted to the Committee on Undergraduate Studies, Faculty of Science for consideration.

cc. D. Innes, Acting Head, Biology
New Course – Biology 3820

Foundations of Biology
People, Ideas and technologies that have influenced the way we look at life

RESOURCE IMPLICATIONS:

This course will use teaching resources currently available in the Department of Biology.

Instructional Costs

No additional instructional costs will be required: the course will be taught by faculty members already appointed in Biology.

RESOURCE IMPLICATIONS: Library Holdings and/or Other Resources Required

The costs associated with the new course can be met from within the existing budget allocation of Biology.

Signature of Unit Head (if appropriate):

Date: Nov 7, 2014

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

Date:
Course Number and Title

BIOL 3820 – Foundations of Biology – People, ideas and technologies that have influenced the way we look at life.

Abbreviated Course Title

Foundations of Biology

Calendar Description

Foundations of Biology introduces students to the development of biological understanding, from the classical Greeks to the present. The course consists of a seminar series and a field course based at Harlow UK. Topics covered include the influence of Aristotle, Theophrastus, Hippocrates and Galen, the development of the microscope, the discovery of cells, paleontology, classification, Darwin and evolution, genetics, the discovery of DNA, multidisciplinary approaches to biology, and the impact of biology on everyday life.

AR: Students will participate in 10 on-line seminars, followed by a two week field course based at MUN's UK Harlow Campus.

PR: 60 credit hours in any MUN courses

UL: not acceptable as one of the required courses for the Minor, Major or Honours programs in Biology

Secondary Changes (if applicable)

Add Biology 3820 to list of exceptions under Regulation 9.2.2, 9.2.5.1 #3, 9.2.6.1 #5, 9.2.7.2 #5, 9.2.8.1 #5 and 9.1.2.1 Item 4 "Biology 2040, 2041, 3820...."

Rationale

We live in a rapidly changing world, where the fragility of ecosystems and living organisms regularly makes headline news, where new diseases alarm, and food security presents challenges to experts. This course will provide an opportunity for non-biology students at MUN to gain insight into the history of the science of biology, and a greater understanding of biology in the 21st C.

Prior to leaving Newfoundland, students will be introduced to the history of biological thought, and to great moments of discovery. This information will then be illuminated by ten days of field trips to world-renowned sites in southern England, thus providing the students with the opportunity to re-experience their new knowledge in the context of the sites being visited.

As a science elective, this new course will provide an immersion into the world of biology, and an unforgettable experience for non-biology majors.
Consultations

Grenfell Campus:
St. John’s Campus
Marine Institute:
MUN Library

Course Outline and Method of Evaluation

Instructors: Dr. Iain McGaw, Dr. Paul Marino, Dr. Sally Goddard

Textbook: No text book required.

Description: A seminar series followed by a two week field course in the UK, during which students will gain an understanding of the evolution of biological knowledge, from the Greek “Fathers” of Zoology, Botany and Medicine (Aristotle, Theophrastus, Galen and Hippocrates), to the present day.

Evaluation:
Quizzes (10) to ensure understanding of the preparatory seminar series – 15%
   Note: quiz sheets associated with the on-line seminars will be available on D2L. Students will be expected to complete each quiz after watching the associated seminar, and deposit all completed quizzes in the course drop box prior to the field component of the course.

Work sheets (10) to be completed during the field trips – 15%

An on-line diary (blog in D2L) to be written on a daily basis during the field component of the course – 30%

A research paper to be submitted for marking no later than six (6) weeks after the end of the field component of the course. – 40%

Outline:

Part 1 – A Seminar Series, to be made available on D2L via lecture capture, for students registered in the course to access after the end of the winter semester.

TOPIC 1. Let’s Start with the Greeks!
   Aristotle – The Father of Zoology
   Theophrastus – The Father of Botany
   Hippocrates and Galen – Still Influencing Medical Thought After almost 2,500 years!
TOPIC 2. The Importance of Life Past – The Contribution of Paleontology to Current Thinking
   Key Figures – Cuvier, Owen, Lyell, Darwin


TOPIC 5. Smaller than the Cell – Genetics, Inheritance and the Discovery of DNA.

TOPIC 6. The Importance of Biology in Agriculture - Historical and Current Use of Genes to Improve Plants, Animals, and the Life of Humans
   History of selective breeding, and the use of biotechnology

TOPIC 7. Making Sense of all this Diversity – Naming and Classifying Life
   Linnaeus and Binomial nomenclature, Classification Schemes, Carl Woese, the Three Domains and lateral gene transfer.

TOPIC 8. The Ark in the Park – The Evolving Role of Zoological Gardens (ZOOs) and Botanical Gardens

TOPIC 9. So many disciplines and so little time - It's not just Zoology and Botany Any More!
   An introduction to the many ways of studying life.

TOPIC 10. Public Outreach – How People Interested in Biology have communicated their passion through the ages.
   Communicators and Adventurers who have opened up the natural world for us all.

Part 2 – Field Course based at MUN’s Harlow UK Campus

FIELD SITES TO BE VISITED

In London

The Hunterian Museum, Royal College of Surgeons
Lincoln’s Inn Fields

The Science Museum, Exhibition Road
South Kensington

The Natural History Museum, Exhibition Road
South Kensington

RELATED TOPIC(S)

(see above)

1, 10

1, 4, 5

2, 3, 4, 5, 10
The Zoological Society of London, London Zoo
Regent's Park 7, 8, 10

The Royal Botanic Gardens, Kew 6, 7, 8, 10

In Cambridge
The Sedgwick Museum of Earth Sciences 2
The Eagle Public House 5
The Polar Museum, Scott Polar Research Institute 10

In Other Locations
Down House, Downe, Kent 3
Wimpole Estate, Royston, Cambs 6
Wildwood Trust, Herne Bay, Kent 8
Gilbert White's House and Garden, and
The Oates Collection, Selborne, Kent 9, 10

Research Paper: The final part of the course will require students to research a topic related to some aspect of the seminar and/or the field component of the course, and to write a paper on that topic after the field component of the course is over.

At the beginning of the field component of the course, a list of titles will be provided to the students, for them to choose from. However, it is possible that a student may wish to write a paper on some aspect of the course that they have personally identified. In this case, the student will submit their title to the course instructors for approval.

Research papers will be due no later than 6 weeks after the end of the field component of the course. Writing guidelines and advice will be given to all students.

Texts: No textbooks required

Primary Instructors

Dr. Iain McGaw
Dr. Paul Marino
Dr. Sally Goddard
SUMMARY PAGE FOR SENATE

Approval Form

Course Title and Number: Foundations of Biology – People, Ideas and Technologies that have influenced the way we look at Life – Biology 3820

Abbreviated Course Title: Foundations of Biology

Calendar Description

Foundations of Biology introduces students to the development of biological understanding, from the classical Greeks to the present. The course consists of a seminar series and a field course based at Harlow UK. Topics covered include the influence of Aristotle, Theophrastus, Hippocrates and Galen, the development of the microscope, the discovery of cells, paleontology, classification, Darwin and evolution, genetics, the discovery of DNA, multidisciplinary approaches to biology, and the impact of biology on everyday life.

AR: Students will participate in 10 on-line seminars, followed by a two week field course based at MUN’s UK Harlow Campus.

PR: 60 credit hours in any MUN courses

UL: not acceptable as one of the required courses for the Minor, Major or Honours programs in Biology

Secondary Changes (If applicable)
Add Biology 3820 to list of exceptions under Regulation 9.2.2, 9.2.5.1 #3, 9.2.6.1 #5, 9.2.7.2 #5, 9.2.8.1 #5 and 9.1.2.1 Item 4 “Biology 2040, 2041, 3820....

Rationale

We live in a rapidly changing world, where the fragility of ecosystems and living organisms regularly makes headline news, where new diseases alarm, and food security presents challenges to experts. This course will provide an opportunity for non-biology students at MUN to gain insight into the history of the science of biology, and a greater understanding of biology in the 21st C. Prior to leaving Newfoundland, students will be introduced to the history of biological thought, and to great moments of discovery. This information will then be illuminated by ten days of field trips to world-renowned sites in southern England, thus providing the
students with the opportunity to re-experience their new knowledge in the context of the sites being visited. 
As a science elective, this new course will provide an immersion into the world of biology, and an unforgettable experience for non-biology majors.

Consultations

Grenfell Campus:
St. John's Campus
Marine Institute:
MUN Library

<table>
<thead>
<tr>
<th>Consultations Sought From</th>
<th>Comments Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library Report Received</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Approved by Dean, Associate Vice-President (Academic) or Vice-President

Yes/No

Name

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FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:

Secretary:

Date:
Subject: Consultation Request New Course Proposal - Biology 3XXX - Foundations in Biology
From: Karen Morris <morrisk@mun.ca>
Date: 28/10/2014 10:25 AM
To: staceym@mun.ca, shicks@mun.ca, engrconsult@mun.ca, associatepoffice@grenfell.mun.ca, miugconsultation@mi.mun.ca, dean.medicine@mun.ca, ellenw@mun.ca, deanNurse@mun.ca, pharminfo@mun.ca, deansci@mun.ca, deansocialwork@mun.ca, smackinn@mun.ca, ibusby@mun.ca, lbauer@mun.ca

Hi,

Please find attached a new course proposal for Biology 3XXX - Foundations of Biology - People, ideas and technologies that have influenced the way we look at life.

Would you please review the proposal and forward any concerns and/or comments to me as soon as possible.

Thank you.

Karen

Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
709-864-8021

-Attachments:

2014 New Course proposal Biology 3XXX _Foundations_of_Biology.docx 39.0 KB
Subject: Re: Consultation Request New Course Proposal - Biology 3XXX - Foundations in Biology
From: Larry Bauer <lbauer@mun.ca>
Date: 28/10/2014 11:10 AM
To: Karen Morris <morrisk@mun.ca>

Hello:

Thank you for the opportunity to review this proposal. The Faculty of Business Administration has no concerns with the proposed course.

--larry

On 2014-10-28 10:25 AM, Karen Morris wrote:

Hi,

Please find attached a new course proposal for Biology 3XXX - Foundations of Biology - People, ideas and technologies that have influenced the way we look at life.

Would you please review the proposal and forward any concerns and/or comments to me as soon as possible.

Thank you.

Karen

Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
709-864-9021

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Larry Bauer, Ph.D.
Associate Professor of Finance
Associate Dean (Academic Programs)
Faculty of Business Administration
Memorial University of Newfoundland
St. John's NF1d, A1B 3X5

www: http://www.business.mun.ca
Subject: RE: Consultation Request New Course Proposal - Biology 3XXX- Foundations in Biology
From: cvardy@mun.ca
Date: 28/10/2014 4:48 PM
To: <morrisk@mun.ca>
CC: <Paula.Corbett@med.mun.ca>

Ms. Morris

I have reviewed the new Biology course and it appears fine from the Faculty of Medicine's point of view.

Cathy Vardy
Vice Dean
Faculty of Medicine

---

From: Rourke, Dr. James; Dean of Medicine
Sent: October 28, 2014 2:49 PM
To: Vardy, Cathy
Cc: Corbett, Paula; Caines, Sherry; Fillier, Joan
Subject: FW: Consultation Request New Course Proposal - Biology 3XXX- Foundations in Biology

---

From: Karen Morris [mailto:morrisk@mun.ca]
Sent: Tuesday, October 28, 2014 10:26 AM
To: staceym@mun.ca; shicks@mun.ca; engconsult@mun.ca; associatevpoffice@grenfell.mun.ca; mlugconsultation@ml.mun.ca; Rourke, Dr. James; Dean of Medicine; ellenw@mun.ca; deankurse@mun.ca; pharminfo@mun.ca; deansci@mun.ca; deansocialwork@mun.ca; smackinn@mun.ca; lhushv@mun.ca; jbauer@mun.ca
Subject: Consultation Request New Course Proposal - Biology 3XXX- Foundations in Biology

Hi,

Please find attached a new course proposal for Biology 3XXX - Foundations of Biology - People, ideas and technologies that have influenced the way we look at life.

Would you please review the proposal and forward any concerns and/or comments to me as soon as possible.

Thank you.

Karen

Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
709-864-8021
Subject: RE: Consultation Request New Course Proposal - Biology 3XXX- Foundations in Biology
From: "Maureen Volk" <mvolk@mun.ca>
Date: 28/10/2014 5:54 PM
To: "Karen Morris" <morrisk@mun.ca>
CC: "Waterman, Ellen" <ellenw@mun.ca>

I can't see any objections from Music.

Maureen Volk

From: Karen Morris [mailto:morrisk@mun.ca]
Sent: October-28-14 10:48 AM
To: mvolk@mun.ca
Subject: Fwd: Consultation Request New Course Proposal - Biology 3XXX- Foundations in Biology

------- Original Message -------
Subject: Consultation Request New Course Proposal - Biology 3XXX- Foundations in Biology
Date:Tue, 28 Oct 2014 10:25:33 -0230
From:Karen Morris <morrisk@mun.ca>
To:stacevm@mun.ca, shicks@mun.ca, ericconsult@mun.ca, asocialevpoice@onfire@mun.ca, mngconsultation@ml.mun.ca, dean.medicine@mun.ca, ellenw@mun.ca, deanNurse@mun.ca, pharinfor@mun.ca, deersci@mun.ca, deansocialwork@mun.ca, smackinn@mun.ca, lbusby@mun.ca, lbrer@mun.ca

Hi,

Please find attached a new course proposal for Biology 3XXX - Foundations of Biology - People, ideas and technologies that have influenced the way we look at life.

Would you please review the proposal and forward any concerns and/or comments to me as soon as possible.

Thank you.

Karen

Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
709-864-8021
Subject: Consultation Request New Course Proposal - Biology 3XXX- Foundations in Biology
From: Michael Morrow <mmorrow@mun.ca>
Date: 31/10/2014 10:16 AM
To: morrisk@mun.ca, deansci@mun.ca, Brad deYoung <bdeyoung@mun.ca>, Rick Goulding <rgoulding@mun.ca>

Thank you for the opportunity to comment on this proposal. The Physics and Physical Oceanography Undergraduate Studies Committee reviewed the proposal and commented that the course looks very interesting.

Best wishes

Michael Morrow

--
******************************************************************************
Department of Physics and Physical Oceanography
Memorial University of Newfoundland
St. John's, Newfoundland Phone: (709) 864 4361
Canada, A1B 3X7 FAX: (709) 864 8739
******************************************************************************
Subject: RE: Consultation Request New Course Proposal - Biology 3XXX - Foundations in Biology
From: MIUG Consultations <MIUGconsultations@mi.mun.ca>
Date: 03/11/2014 2:26 PM
To: Karen Morris <morrisk@mun.ca>

Karen,

Thank you for the opportunity of reviewing the proposed new course Biology 3XXX. This new course will have no impact on the programs here at the Marine Institute.

We are happy to support this request as presented.

Derek
Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0586
FAX: 709-778-0394
Derek.Howse@mi.mun.ca

--- Original Message ---
Subject: Consultation Request New Course Proposal - Biology 3XXX - Foundations in Biology
Date: Tue, 28 Oct 2014 10:26:33 -0230
From: Karen Morris <morrisk@mun.ca>
To: Placey@mun.ca, shicks@mun.ca, enrouconsult@mun.ca, associatel@office@greenfell.mun.ca, miugconsultation@mi.mun.ca, dean.medicine@mun.ca, ellenw@mun.ca, deanNurse@mun.ca, pharminfo@mun.ca, deansci@mun.ca, deansocialwork@mun.ca, smackinn@mun.ca, lhusby@mun.ca, lbauer@mun.ca

Hi,

Please find attached a new course proposal for Biology 3XXX - Foundations of Biology - People, Ideas and technologies that have influenced the way we look at life.

Would you please review the proposal and forward any concerns and/or comments to me as soon as possible.

Thank you.

Karen

Karen Morris
Subject: Re: Fwd: Fwd: FW: Consultation Request New Course Proposal - Biology 3XXX-Foundations in Biology
From: Math Consult <mathconsult@mun.ca>
Date: 04/11/2014 2:54 PM
To: Karen Morris <morrisk@mun.ca>

The Dept of Math and Stats has no objection to this proposal.

Harold Johnson

On 10/28/2014 1:58 PM, Chris Radford wrote:

-------- Original Message --------
Subject: Fwd: FW: Consultation Request New Course Proposal - Biology 3XXX-Foundations in Biology
Date: Tue, 28 Oct 2014 13:57:59 -0230
From: Leonce Morrissey <leonce@mun.ca>
To: Chris Radford <cradford@mun.ca>

-------- Forwarded Message --------
Subject: FW: Consultation Request New Course Proposal - Biology 3XXX-Foundations in Biology
Date: Tue, 28 Oct 2014 15:59:55 +0000
From: Dean of Science <dean@mun.ca>
To: Biochemistry Head <biohead@mun.ca>, Brad de Young <bdeyoung@mun.ca>, Chris Radford, Math & Stats <math-head@mun.ca>, David Innes, Biology <dines@mun.ca>, Fletcher, Garth <fletcher@mun.ca>, Gerard Martin <Psychology.Head@mun.ca>, John Hanchar, Earth Sciences <jhanchar@mun.ca>, Peter Pickup, Chemistry <chemhead@mun.ca>, Wolfgang Banzhaf, Computer Science <banzhaf@mun.ca>
CC: oscar@mun.ca <oscar@mun.ca>, Associate Dean of Science (Undergraduate) <adsu@mun.ca>, Collins, Rosalind (Chemistry) <collins@mun.ca>, Coombs, Donna Geraldine <dcoombs@mun.ca>, Edwards, Regina (Computer Science) <redwards@mun.ca>, Guzzwell, Diane (Earth Sciences) <dguzzwell@mun.ca>, Kenny, Shirley <shirleyk@mun.ca>, Lewis, Betty Ann <elewis@mun.ca>, Morrissey, Leonce (Math & Stats) <leonce@mun.ca>, Psychology <psychsecretary@mun.ca>, Sparkes, Winnie <wsparkes@mun.ca>
30 October 2014

To: Karen Morris - Undergraduate Officer, Biology Department

From: Erin Alcock, Science Research Liaison Librarian

Subject: New Course Biology 3XXX

I have reviewed the proposal for Biology 3XXX: Foundations of Biology: People, ideas and technologies that have influenced the way we look at life and find that Memorial University Libraries have more than sufficient resources to support students studying in this area. There are thousands of works on Aristotle in our collection, hundreds on Darwin and dozens on most of the other figured mentioned. The history of science and biology is already a major focus in our current collection activities. I would be happy to add anything suggested by the instructors to our collection.
Subject: Biochemistry Head <biochead@mun.ca>
Date: 31/10/2014 3:27 PM
To: "morrisk@mun.ca" <morrisk@mun.ca>
CC: Dean of Science <deansci@mun.ca>

Dear Karen,

The Biochemistry Department undergraduate committee and myself, have reviewed the proposed new course. While we do not have any concerns with the course per se, it does have implications for the Biochemistry honours programme. As such we respectfully request that the following be included with the proposal as a secondary calendar change:

In the regulations for the Honours Degree in Biochemistry, section 9.1.2.1.4., p457 of the 2014-2015 University Calendar, add XXXX to the list of excluded Biology courses as indicated below:

Those courses in which a grade "B" or an average of 75% or higher are required, as specified under Academic Standing, clause 1. of the Regulations for the Honours Degree of Bachelor of Science, are 45 credit hours in Biochemistry courses and 15 credit hours in other courses (beyond the 1000-level) chosen from Biochemistry, Biology, or Chemistry. Biology 2040, 2041, XXXX and the former Chemistry 2600, the former Chemistry 2601 may not be used to meet this requirement. Medicine 310A/B counts as Biochemistry for these 60 credit hours.

XXXX would, of course, be replaced with the course number once it has been assigned.

This is consistent with the Dept of Biology's Usage Limitation (UL) for this course and with the Dept of Biochemistry's limitation on using Biology 2040, 2041 for the purposes of calculating Academic Standing in the Honours Degree in Biochemistry.

If there are questions about this, or a feeling it needs to be discussed further in person, please do not hesitate to contact me directly.

Best regards,

Mark

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

Tel: (709) 864-8529
E-mail: biochead@mun.ca; mberry@mun.ca
Subject: RE: Re:
From: Biochemistry Head <biochead@mun.ca>
Date: 31/10/2014 3:40 PM
To: Karen Morris <morrisk@mun.ca>

Karen

No problem. I didn't actually realize either (I'm blaming my newness although I'm not sure how much longer that excuse will continue to work). It was Martin Mulligan that picked it up.

It's good to see this consultative mechanism system does work though.

Have a good weekend

Mark

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

Tel: (709) 864-8529
E-mail: biochead@mun.ca; mberry@mun.ca

From: Karen Morris [morrisk@mun.ca]
Sent: Friday, October 31, 2014 3:35 PM
To: Biochemistry Head
Subject: Re:

Hi Mark,
I am sorry I did not consult with you before as I did not realize (no excuse) that you had those exclusions.
I will add the this to the secondary changes.
Thank you.
Karen

On 31/10/2014 3:27 PM, Biochemistry Head wrote:

Dear Karen

The Biochemistry Department undergraduate committee and myself, have reviewed the proposed new course. While we do not have any concerns with the course per se, it does have implications for the Biochemistry honours programme. As such we respectfully request that the following be included with the proposal as a secondary calendar change:

In the regulations for the Honours Degree in Biochemistry, section 9.1.2.1.4, p457 of the 2014-2015 University Calendar, add 3XXX to the list of excluded Biology courses as indicated below:

Those courses in which a grade "B" or an average of 75% or higher are required, as specified under Academic Standing, clause 1. of the Regulations for the Honours Degree of Bachelor of Science, are 45 credit hours in Biochemistry courses and 15 credit hours in other courses (beyond the 1000-level) chosen from Biochemistry, Biology, or Chemistry. Biology 2040, 2041, 3XXX and the former Chemistry 2600, the former Chemistry 2601 may not be used to meet this requirement. Medicine 310A/B counts as Biochemistry for these 60 credit hours.

3XXX would, of course, be replaced with the course number once it has been assigned.
This is consistent with the Dept of Biology's Usage Limitation (UL) for this course and with the Dept of Biochemistry's Limitation on using Biology 2040, 2041 for the purposes of calculating Academic Standing in the Honours Degree in Biochemistry.

If there are questions about this, or a feeling it needs to be discussed further in person, please do not hesitate to contact me directly.

Best regards

Mark

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

Tel: (709) 864-8529
E-mail: biohead@mun.ca; mberry@mun.ca
Subject: RE: Consultation Request New Course Proposal - Biology 3XXX - Foundations in Biology
From: "Glew, Csop" <cglew@mun.ca>
Date: 13/11/2014 11:51 AM
To: "morrisk@mun.ca" <morrisk@mun.ca>
CC: "Dillon, Carla" <cmdillon@mun.ca>

Good Morning,
I am writing to advise that the School of Pharmacy has no concerns regarding the proposed new elective course by the Department of Biology. However, we would like to suggest that you consider the following as you move forward:

- Under instructional costs - outline whether the costs associated with the field component (e.g., travel, accommodations) for the instructor(s) are being covered from within the existing budget allocation.
- Under consultations – Does someone at the Harlow campus need to be consulted?
- In the course outline -
  - Detail the costs the students are expected to be responsible for (e.g., travel to and from Harlow, travel between Harlow and the various sites, admission fees to the sites, meal costs).
  - Detail other travel related expectations of students (e.g., valid passport, travel insurance, make their own travel arrangements to Harlow?).

Thanks for the opportunity to offer feedback.
Csop Glew

CSOP GLEW, Hon. B.A., M.U.P. | MANAGER OF ACADEMIC PROGRAMS
School of Pharmacy
Memorial University of Newfoundland
St. John's, NL A1B 3V6
Health Sciences Centre I Room H3435
T 709 777 6963 I F 709 777 7044
www.mun.ca/pharmacy

Please note that the deadline to apply for admission for September 2015 is February 1, 2015.

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From: Karen Morris [mailto:morrisk@mun.ca]
Sent: October 28, 2014 10:30 AM
To: Mercer, Stacey; Hicks, Sue; engrconsult@mun.ca; associatevpoffice@grenfell.mun.ca; mluconsultation@ml.mun.ca; dean.medicine@mun.ca; Waterman, Ellen; DeanNurse; pharinfo@mun.ca; Dean of Science; deansocialwork; MacKinnon, Scott; Busby, Lorraine; Bauer, Larry
Subject: Consultation Request New Course Proposal - Biology 3XXX - Foundations in Biology

Hi,

Please find attached a new course proposal for Biology 3XXX - Foundations of Biology - People, ideas and technologies that have influenced the way we look at life.
Fwd: Re: Consultation Request New Course Proposal - Biology...

Subject: Fwd: Re: Consultation Request New Course Proposal - Biology 3XXX - Foundations in Biology
From: Karen Morris <morrisk@mun.ca>
Date: 13/11/2014 4:39 PM
To: "Burry, Joan" <jburry@mun.ca>

------- Original Message -------
Subject: Re: Consultation Request New Course Proposal - Biology 3XXX - Foundations in Biology
Date: Thu, 13 Nov 2014 14:20:21 -0330
From: Karen Morris <morrisk@mun.ca>
To: Glew, Csop <cglew@mun.ca>

Hi Csop,
Thanks for this. We do have information sheets that are done up each year for students who may be considering enrolling in one of our current Harlow field courses and at this time the course instructors are developing a power point presentation that will provide much of the detail you mentioned. Harlow was consulted and visited last year so they have been part of the process and have been encouraging us to increase our course offerings at Harlow.

Thanks
Karen

On 13/11/2014 11:51 AM, Glew, Csop wrote:

Good Morning,
I am writing to advise that the School of Pharmacy has no concerns regarding the proposed new elective course by the Department of Biology. However, we would like to suggest that you consider the following as you move forward:

- Under instructional costs - outline whether the costs associated with the field component (e.g., travel, accommodations) for the instructor(s) are being covered from within the existing budget allocation.
- Under consultations - Does someone at the Harlow campus need to be consulted?
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  - Detail other travel related expectations of students (e.g., valid passport, travel insurance, make their own travel arrangements to Harlow?).

Thanks for the opportunity to offer feedback.
Subject: Fwd: Re: FW: Consultation Request New Course Proposal - Biology 3XXX- Foundations in Biology
From: Karen Morris <morrisk@mun.ca>
Date: 13/11/2014 4:41 PM
To: "Burry, Joan" <jburry@mun.ca>

--- Original Message ---
Subject: Re: FW: Consultation Request New Course Proposal - Biology 3XXX- Foundations in Biology
Date: Fri, 07 Nov 2014 12:29:27 -0330
From: Karen Morris <morrisk@mun.ca>
To: Gallant, Robert <rpgallant@grenfell.mun.ca>

Hi Dr. Gallant,
Thank you.
The proposed course is for non- Biology majors and minors and will overlap with two Biology courses in terms of sites visited, but the students in the proposed course may not necessarily be receiving all the same information or focus. The prerequisite of 60 credit hours will ensure that students are at the third year level.
Not sure if this clears up a possible misconception about the course.
Thanks
Karen

On 07/11/2014 11:52 AM, Gallant, Robert wrote:

Ms. Morris, please see the attached commentary from a member of our unit. The only other feedback I have received from my unit is from a Faculty Member who said they liked the course.

Dr. R. Gallant
Head of Division of Science, Grenfell Campus, Memorial University

From: Parkinson, Don-Roger
Sent: Thursday, October 30, 2014 1:46 PM
To: Daniels, Karen; Gallant, Robert
Subject: RE: Consultation Request New Course Proposal - Biology 3XXX- Foundations in Biology

Dr. Robert Gallant,

With respect to the appended course proposal Biology 3xxx, I wonder if this course should not be slated for the second or first year level. There are no
prerequisites other than a very open credit hour requirement. This in of itself will be problematic since the variety of student abilities in Biology will make the teaching of such a course a nightmare.

Further I do believe that 3rd and 4th year level courses should have rigor in their respective fields (in this case Biology) and these upper level courses should not just be a “come on” courses. So to me, this course looks like “extra padding” without much merit to Biologists since there are not enough Biology pre-requisites listed.

Regards,

D-R.P.

From: Daniels, Karen  
Sent: Tuesday, October 28, 2014 4:45 PM  
To: Division of Science Faculty  
Subject: FW: Consultation Request New Course Proposal - Biology 3XXX-Foundations in Biology

Good Afternoon:

Please see attached for consultation. Please forward any comments to Dr. Robert Gallant.

Thanks,

Karen  
Karen Daniels  
Division of Science  
Grenfell Campus  
Memorial University of Newfoundland  
20 University Drive  
Corner Brook, NL A2H 3G4  
Phone: (709) 637-6215  
Fax: (709) 639-8125  
Email: kdaniels@grenfell.mun.ca

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This electronic communication is governed by the terms and conditions at http://www.mun.ca/cc/policies/electronic_communications_disclaimer_2011.php.
Hi Chris,
I misunderstood your suggestion. The course is a biology course so it would not be listed under the Science course descriptions. They are a separate set of course taught by Science under the Dean of Science office.
Sorry about the confusions.
Thanks
Karen

On 07/11/2014 12:09 PM, Parrish, Chris wrote:

Hi Karen – Our undergraduate studies committee has looked at this proposal and we think it looks like an interesting new course that will make good use of our campus in Harlow. Our only concern is that it is a 3rd year biology course which no biology student can count towards their biology degree, not even those taking a minor. Also, under these circumstances, should it not appear under ‘10.12 Science’ in the calendar?

Chris Parrish
Department of Ocean Sciences
709/864-3225

From: Karen Morris [mailto:morrisk@mun.ca]
Sent: October-28-14 10:30 AM
To: Mercer, Stacey; Hicks, Sue; engrconsult@mun.ca; associatevpoffice@grenfell.mun.ca; miucounselling@mail.mun.ca; dean.medicine@mun.ca; Waterman, Ellen; DeanNurse; pharinfo@mun.ca; Dean of Science; deansocialwork; MacKinnon, Scott; Busby, Lorraine; Bauer, Larry
Subject: Consultation Request New Course Proposal - Biology 3XXX- Foundations in Biology

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Thank you.

Karen

Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
709-864-8021
Subject: FW: Consultation Request New Course Proposal - Biology 3XXX - Foundations in Biology
From: "Fraize, Beverly" <bfraize@mun.ca>
Date: 18/11/2014 11:16 AM
To: "morrisk@mun.ca" <morrisk@mun.ca>

Hello Karen,

I have reviewed the Calendar Changes as per your request and confirm that there would be no impact on the Faculty of Education.

Best regards,

Beverly Fraize
Academic Program Administrator
Undergraduate Programs
Faculty of Education, Room ED 2020
Education Building
Memorial University of Newfoundland
St. John's, NL A1B 3X8
Phone: 709-864-3485
Fax: 709-864-2001
Admission Enquiries: edadmiss@mun.ca
General Enquiries: muneduc@mun.ca

From: Hicks, Sue
Sent: November-03-14 2:51 PM
To: Fraize, Beverly
Cc: Galway, Gerald J.
Subject: FW: Consultation Request New Course Proposal - Biology 3XXX - Foundations In Biology

For review and response. Thank you.

Sue

Susan Hicks
Assistant to the Dean
Faculty of Education
Memorial University of Newfoundland
G.A. Hickman Building
St. John’s, NL A1B 3X8

Please note changes to numbers below.
Telephone: 709-864-8588
Fax: 709-864-8637
www.mun.ca/educ

From: Karen Morris [1]
November 26, 2014

TO: All Members, Faculty Council of Science
FROM: Joan Burry, Secretary
Committee on Undergraduate Studies, Faculty of Science
SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 21, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Biology- new course Biology 3820: Foundations of Biology

2. Department of Earth Sciences:
   (i) New Course- Earth Sciences 4405: Field Course on the Geology of Newfoundland
   (ii) New Course- Earth Sciences 4620: Contaminant Hydrogeology
   (iii) Changes to existing course Earth Sciences 4810
   (iv) Changes to program regulations, for clarity and conciseness
   (v) Change to course numbering scheme to allow for an environmental geoscience stream, and resulting renumbering of two 4000-level courses

Joan Burry
Associate Registrar and
Secretary, Committee
on Undergraduate Studies,
Faculty of Science
EASC 4405 Geology of Newfoundland

Proposal
New Course – Earth Sciences 4405
Field Course on the Geology of Newfoundland

Executive Summary

We propose a new fourth year field and lecture course to fill a gap in the Earth Sciences program. There is a demand for a course that covers the geology of the island, both from the point of view of local interest and because Newfoundland is world renowned for its excellent rock record of important geological and tectonic processes. A similar course has been offered in the past as a Special Topics field course (EASC 4918): we wish to distinguish this course from other, usually international, field courses and offer it on a more regular basis for the benefit of our students.

Resource Implications: Instructional Costs

The course will be taught by a regular faculty member, and the field component will have a graduate teaching assistant to help with the organization and field supervision. Specialists from the Newfoundland Geological Survey may participate in field training in some years, but are not necessary for the course to run.

The field costs will be covered or subsidized by departmental funding for field training, using funds donated by Hibernia Management and Development Company.

Consultations

This proposal was sent to the distribution list for Consultation on Calendar Changes (30 October, 2014).

Library Holdings and/or Other Resources Required

None Required

The costs, if any, associated with this change/these changes can be met from within the existing budget allocation for the Department of Earth Sciences.

Signature of Unit Head (if appropriate):

Date:

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

Date:
Sample Course Outline and Method of Evaluation  
(from the course as delivered under EASC4918 in 2012)

Field course on the Geology of Newfoundland.

1. Lectures on the broad scale geology of Newfoundland and reading at St. John's Campus during the semester
2. Student papers/presentations will focus in more detail on specific aspects of Newfoundland geology and studies in orogens
3. An 8-day field trip after the end of examinations, beginning and ending in St. John's.

Total class hours and supervised field work will consist of approximately 78 contact hours; 14 hours for lectures and student seminars normally during the Winter semester and 64 hours supervised field work across Newfoundland.

The goal of this course is to expose students majoring in Earth Sciences at Memorial University to the geology of this classic cross-section of an ancient collision.

Topics to be covered in lectures by instructor during the regular term include

- Geology of the NE Appalachians of North America (big picture)
- Geology of the ancient continental margin sedimentary sequences (Anticosti Basin) of North America (Humber Zone) and successor basin (Magdalen Basin)
- Geology of the remnants of the Paleozoic Iapetus Ocean (Dunnage Zone)
- Geology of the Exploits Zone/ 'Ganderia' (Gander Zone)
- Geology of the eastern margin of the Iapetus Ocean (Avalon Zone)

With special emphasis on the locations of the field course

Topics to be covered by student seminars will be chosen from a list of subjects that involve rock units actually studied on the trip.

Prerequisites
15 credit hours at the 3000 and/or 4000 levels in Earth Sciences including EASC 3420, and permission of the instructor.

Class size will be limited to 30; selection will be competitive, and based upon grades and the aggregate number of courses completed in Earth Sciences.

Method of Evaluation:

Participation in class and on the field trip: 15%
Term paper: 30%
   - Not to exceed 20 pages, double-spaced, including figures and references
   - 1 page summary of term paper for class as handout due when term paper is due with brief annotated bibliography of references.
EASC 4405 Geology of Newfoundland

Presentations in class and field 15%
  • 10 minutes plus 2 minutes for questions per student – 10 to 12 figures maximum

Notebook 25%
  MUN ESD to provide notebooks before trip

Quizzes (five quizzes throughout the semester on previous lecture) 15%

Texts

Field Guidebook will be provided before field trip. No text, but ca. 20 published papers on Newfoundland geology selected from the international serial literature will be assigned reading.

Some key papers from this group will be:


Instructor(s)

The department has considerable in-house expertise in people who have studied the rocks and contributed to our present-day understanding of the geological history of Newfoundland.

EASC 4405 Geology of Newfoundland

SUMMARY PAGE FOR SENATE

Approval Form

Course Number and Title

Earth Sciences 4405 – Field course on the Geology of Newfoundland

Abbreviated Course Title

Geology of Newfoundland

Calendar Change(s)

4405 Field course on the Geology of Newfoundland is a field-based course offered in an accelerated format, with lectures and student seminars during the regular semester, and a week-long field trip within the island of Newfoundland. The course provides an introduction to the geological history and tectonic development of Newfoundland. The field portion of the course will normally be offered during a special session either preceding or following any given semester.

OR: lecture and field-based course
PR: 15 credit hours in Earth Sciences at the 3000 and/or 4000 levels including EASC 3420, and permission of the instructor.

Rationale

Newfoundland is a natural outdoor laboratory which preserves an unmatched record of globally important processes that occurred in an interesting time window in the Earth's history. Among other notable features, Newfoundland's rocks record the closing of an ancient ocean and the collision of continents, ancient volcanism, the development of sedimentary basins, the early evolution of complex life and a history of glaciation. Newfoundland is internationally recognized in the Bay of Island's UNESCO world heritage site, where part of the ancient ocean floor was pushed over a continental margin; by rocks which have helped to calibrate the geological timescale; and by well-preserved Ediacaran fossils. In this course we will explore these pedagogical riches with our students in our own world-class outdoor classroom.

This course is partly a formalization and generalization of a “cross-island field trip”, which has been offered as a Special Topics course (EASC 4918 Special Topics Field Course) every few years, however the EASC 4918 shell is also for international field courses, and we wish to distinguish this course from international courses and offer it on a more regular basis for the benefit of our students.
### Consultations Sought From

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<thead>
<tr>
<th>Department/Program</th>
<th>Comments Received</th>
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<td>Human Kinetics and Recreation</td>
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<td>Marine Institute</td>
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</table>

#### Library Report Received: Yes

---

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

**Name:**

---

**FOR OFFICE USE ONLY**

**APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES**

**Chair:**

**Secretary:**

**Date:**
Collection Development Division  
Queen Elizabeth II Library  
St. John's, Newfoundland, Canada  
A1B 3Y1  

7 November 2014  

TO: Dr. Alison Leitch, Undergraduate Matters Committee, Department of Earth Sciences  

FROM: Dianne Taylor-Harding, Collection Development Librarian, Earth Sciences  

SUBJECT: Library Resources Review for New Course Proposal -  
EASC 4405 – Field Course on the Geology of Newfoundland  

Upon review of the new course proposal for EASC 4405 – Field Course on the Geology of Newfoundland, I have determined that the Memorial University Libraries have sufficient resources to support the objectives of this course.

The proposed course will provide an introduction to the geological history and tectonic development of Newfoundland. The course will comprise lectures and student seminars during the regular semester and a week-long field trip within Newfoundland. As part of this course, students will be required to complete a term paper and to give presentation in class and in the field.

The Memorial University Libraries collect materials concerning the geology of Newfoundland and Labrador at a comprehensive level to support research and teaching through the post-doctorate level in Earth Sciences. This comprehensive level collection comprises books and monographs, journals, theses, maps, technical reports, government documents, etc.

The Memorial University Libraries have sufficient resources to support this course.

11/7/2014

D.E. Taylor-Harding  
Dianne Taylor-Harding  
Collections Librarian for Earth Sciences
Appendix – Library Holdings Summary

Journals

The Memorial University Libraries subscribe to thousands of ejournals covering topics related to Contaminant Hydrogeology including -

Earth & Environmental Sciences (more than 1,175 ejournal titles)

Reference & Research

The Memorial University Libraries provide access to several online abstracting and indexing databases useful for Quaternary research -

1. **GeoFiles**, a searchable database that indexes an extensive repository of documents on the geoscience of Newfoundland & Labrador, including mineral-exploration assessment reports, reports & maps (published, unpublished open file), theses, books and book excerpts. Some links to online full-text; the Centre for Newfoundland Studies holds print or microform copies of these documents.

2. **GeoRef**, a comprehensive international geosciences database, indexes and abstracts over 3 million records describing articles from 3,500+ journals as well as books, maps, government reports, conference papers, theses / dissertations, from 1669 to present. GeoRef offers in-depth coverage of Hydrogeology and related Environmental geology and Hydrochemistry.

3. **GeoScan**, another bibliographic database, indexes 60,000 records describing scientific publications of the Geological Survey of Canada - provides links to publications available online or for free download.

Books in the Memorial University Libraries

<table>
<thead>
<tr>
<th>LC Subject Headings related to the Geology of Newfoundland &amp; Labrador</th>
<th>Number of Book Titles in the Memorial University Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geology Newfoundland and Labrador</td>
<td>2,202 titles</td>
</tr>
</tbody>
</table>
Textbooks and readings

“A Field Guidebook will be provided before each field trip.

“No text, but ca. 20 published papers on Newfoundland geology selected from the international serial literature will be assigned. Some key papers from this group will be” -

   - QE 471.15 C3 C66 1989 QEI Bookstacks + Online <http://qe2a-proxy.mun.ca/Login?url=http://sp.sepmonline.org/content/sepspcot/1.toc>

   - Print periodicals + Online <http://qe2a-proxy.mun.ca/login?url=http://www.ajsonline.org/>

   - QE 1 G21 S65 NO.304 QEI Bookstacks + Online <http://specialpapers.gsapubs.org/qe2a-proxy.mun.ca/content/304>

   - Print periodicals + Online <http://qe2a-proxy.mun.ca/Login?url=http://www.nrcresearchpress.com/loi/cjes>

   - QE 71 G48 1986 V.F-1 QEI Bookstacks

   - QE 11 L94 1998 QEI Bookstacks + Online <http://qe2a-proxy.mun.ca/login?url=http://sp.lyellcollection.org/content/vol143/issue1/>
November 26, 2014

TO: All Members, Faculty Council of Science

FROM: Joan Burry, Secretary
Committee on Undergraduate Studies, Faculty of Science

SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 21, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Biology- new course Biology 3820: Foundations of Biology

2. Department of Earth Sciences:
   (i) New Course- Earth Sciences 4405: Field Course on the Geology of Newfoundland
   (ii) New Course- Earth Sciences 4620: Contaminant Hydrogeology
   (iii) Changes to existing course Earth Sciences 4610
   (iv) Changes to program regulations, for clarity and conciseness
   (v) Change to course numbering scheme to allow for an environmental geoscience stream, and resulting renumbering of two 4000-level courses

[Signature]
Joan Burry
Associate Registrar and
Secretary, Committee
on Undergraduate Studies,
Faculty of Science
EASC 4620 Contaminant Hydrogeology

Proposal for New Course
EASC 4620 Contaminant Hydrogeology

Executive Summary

The proposed new course "EASC 4620 Contaminant Hydrogeology" examines the physical and chemical processes controlling groundwater contamination. This new course is intended to strengthen the environmental geoscience program in the Department of Earth Sciences, and to better prepare Earth Sciences students for their future careers.

Resource Implications: Instructional Costs

The course will be offered using existing teaching resources available in the Department of Earth Sciences and taught by existing faculty. No additional resources are required.

Consultations

This proposal was sent to the distribution list for Consultation on Calendar Changes (30 October, 2014).

Library Holdings and/or Other Resources Required

Current library holdings are sufficient. No new library resources are required.

The costs associated with the new course can be met from within the existing budget allocation for the Department of Earth Sciences.

Signature of Unit Head (if appropriate): ________________________________

Date: __________________________________________________________________

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

Date: __________________________________________________________________
Sample Course Outline

Contaminant Hydrogeology examines the physical and chemical processes controlling groundwater contamination. Methods for numerical modeling of groundwater flow and contaminant transport are discussed. Students gain hands-on experience in using computer software packages to solve practical problems. Themes include:

1. Groundwater flow review and general groundwater flow equation
2. MODFLOW 1: conceptual model, mathematics, equations, grid design
3. MODFLOW 2: boundaries, sources & sinks, model calibration, prediction, sensitivity analysis
4. MODFLOW 3: documentation and reporting of modeling, post audits
5. Groundwater contamination 1: sources
6. Groundwater contamination 2: inorganic contaminants
7. Groundwater contamination 3: organic contaminants
8. Solute transport processes 1: advection transport
9. Solute transport processes 2: dispersion transport
10. Solute transport processes 3: sorption processes
11. Solute transport processes 4: chemical reactions, radioactive decay, biodegradation
12. Contaminant transport modeling

Method of Evaluation

Class participation (5%)
Laboratory reports (20%)
Mid-term exam (35%)
Final exam (40%)

Textbook(s)


Instructor

Tao Cheng, Department of Earth Sciences
EASC 4620 Contaminant Hydrogeology

SUMMARY PAGE FOR SENATE

Approval Form

Course Title and Number
EASC 4620 Contaminant Hydrogeology

Abbreviated Course Title
Contaminant Hydrogeology

Calendar Description

EASC 4620 Contaminant Hydrogeology examines the physical and chemical processes controlling groundwater contamination. Methods for numerical modeling of groundwater flow and contaminant transport are discussed. Students gain hands-on experience in using computer software packages to solve practical problems.

PR: EASC 3610 (or the former 4610) or permission of instructor
LH: 3

Rationale

In Canada, there have been increasing concerns over the consequences of natural resource development (oil & gas, mining) on the environment, particularly in regard to soil and groundwater. Many potential employers of environmental geoscience students (e.g., environmental consulting companies, government agencies), are tackling groundwater quality and contamination issues, and therefore require their current and perspective employees to have knowledge in groundwater contamination. To fully appreciate and solve many practical and urgent issues such as groundwater depletion, changes in well water quality, and contaminant migration in subsurface environment, geologists must have well-rounded knowledge about groundwater.

At many North American universities, upper level courses on groundwater contamination are taught in addition to introductory courses on groundwater (e.g., McMaster University, University of Calgary, University of Waterloo, University of Wisconsin, and University of Toronto). At Memorial University, an introductory course on groundwater is offered (EASC 3610 Hydrogeology). Due to the nature of that course, EASC 3610 focuses on the basics. In-depth knowledge about the physical and chemical processes affecting groundwater contamination, and practical skills such as numerical modelling of groundwater flow and contaminant transport, are not taught. To fill in the gap, an advanced groundwater course (EASC 4620 Contaminant Hydrogeology) is proposed.

This proposed course will benefit the environmental geoscience program in the Department of Earth Sciences by enriching the Earth sciences curriculum with upper level environmental
courses. Currently, only a few such courses are being offered. The proposed course will better prepare our Earth Sciences students for their future careers by teaching important skill sets and advanced knowledge in groundwater contamination.

<table>
<thead>
<tr>
<th>Consultations Sought From</th>
<th>Comments Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>No</td>
</tr>
<tr>
<td>Business Administration</td>
<td>Yes</td>
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<tr>
<td>Co-operative Education</td>
<td>No</td>
</tr>
<tr>
<td>Education</td>
<td>Yes</td>
</tr>
<tr>
<td>Engineering</td>
<td>Yes</td>
</tr>
<tr>
<td>Grenfell Campus</td>
<td>Yes</td>
</tr>
<tr>
<td>Human Kinetics and Recreation</td>
<td>Yes</td>
</tr>
<tr>
<td>Marine Institute</td>
<td>Yes</td>
</tr>
<tr>
<td>Medicine</td>
<td>Yes</td>
</tr>
<tr>
<td>Music</td>
<td>Yes</td>
</tr>
<tr>
<td>Nursing</td>
<td>Yes</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>Yes</td>
</tr>
<tr>
<td>Science (Math; Biology; Physics)</td>
<td>Yes</td>
</tr>
<tr>
<td>Social Work</td>
<td>No</td>
</tr>
<tr>
<td>Library</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Library Report Received

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

Name

---

FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:

Secretary:

Date:
Collection Development Division
Queen Elizabeth II Library
St. John's, Newfoundland, Canada
A1B 3Y1

7 November 2014

TO: Dr. Alison Leitch, Undergraduate Matters Committee, Department of Earth Sciences

FROM: Dianne Taylor-Harding, Collection Development Librarian, Earth Sciences

SUBJECT: Library Resources Review for New Course Proposal - EASC 4620 - Contaminant Hydrogeology

Upon review of the new course proposal for EASC 4620 - Contaminant Hydrogeology, I have determined that the Memorial University Libraries have sufficient resources to support the objectives of this course.

The proposed course will examine "the physical and chemical processes controlling groundwater contamination. Methods for numerical modeling of groundwater flow and contaminant transport" will be discussed.

The Queen Elizabeth II Library collects materials concerning Hydrogeology to support research and teaching through the post-doctorate level in Earth Sciences. This intensive level collection comprises books and monographs, journals, maps, technical reports and government documents on Contaminant Hydrogeology.

The Memorial University Libraries have sufficient resources to support this course.

11/7/2014

X D.E. Taylor-Harding
Dianne Taylor-Harding
Collections Librarian for Earth Sciences
Appendix – Library Holdings Summary

Journals

The Memorial University Libraries subscribe to thousands of ejournals covering topics related to Contaminant Hydrogeology including -

**Earth & Environmental Sciences** *(more than 1,175 ejournal titles)*

**Civil & Environmental Engineering** *(more than 650 ejournal titles)*

Reference & Research

The Memorial University Libraries provide access to several online abstracting and indexing databases useful for Quaternary research -

1. **Scopus**, a large multidisciplinary database, indexes and abstracts articles in more than 20,000 scholarly journals, conference proceedings and books, including earth sciences, hydrology, and civil engineering from 1995 to the present.

2. **GeoRef**, a comprehensive international geosciences database, indexes and abstracts over 3 million records describing articles from 3,500+ journals as well as books, maps, government reports, conference papers, theses / dissertations, from 1669 to present. GeoRef offers in-depth coverage of Hydrogeology and related Environmental geology and Hydrochemistry.

3. **Water resources abstracts**, a large database originally sponsored by the USGS, that indexes and abstracts technical / scientific literature on water-related topics, including groundwater, supply & treatment, pollution, conservation, & watershed protection.

4. **Web of Science**, another large multidisciplinary database, indexes and abstracts articles in more than 10,000 scholarly journals, conference proceedings and books, including earth sciences, hydrology, and civil engineering, from 1900 to the present.
Books in the Memorial University Libraries

<table>
<thead>
<tr>
<th>LC Subject Headings related to the CONTAMINANT HYDROGEOLOGY</th>
<th>Number of Book Titles in the Memorial University Libraries</th>
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</thead>
<tbody>
<tr>
<td>Aquifers</td>
<td>137 titles</td>
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<tr>
<td>Ecohydrology</td>
<td>19 titles</td>
</tr>
<tr>
<td>Groundwater</td>
<td>1,164 titles</td>
</tr>
<tr>
<td>Groundwater tracers</td>
<td>6 titles</td>
</tr>
<tr>
<td>Hydrogeology</td>
<td>262 titles</td>
</tr>
<tr>
<td>Hydrologic cycle</td>
<td>68 titles</td>
</tr>
<tr>
<td>Hydrology</td>
<td>1,164 titles</td>
</tr>
<tr>
<td>Hydrology, Karst</td>
<td>31 titles</td>
</tr>
<tr>
<td>Leachate</td>
<td>8 titles</td>
</tr>
<tr>
<td>Mine water</td>
<td>18 titles</td>
</tr>
<tr>
<td>Oil field brines</td>
<td>32 titles</td>
</tr>
<tr>
<td>Pollutants</td>
<td>561 titles</td>
</tr>
<tr>
<td>Radioactive tracers in hydrogeology</td>
<td>6 titles</td>
</tr>
<tr>
<td>Soil moisture</td>
<td>123 titles</td>
</tr>
<tr>
<td>Springs</td>
<td>Approx. 100 titles</td>
</tr>
</tbody>
</table>

Textbooks and optional readings

  • In QEII Library

  • In QEII Library

  • In QEII Library
  • Available online (open access)

  • In QEII Library
CONSULTATIONS

Request for Consultations (30 October 2014)

From: Dr. Alison Litch [aleitch@mun.ca]
Sent: Thursday, October 30, 2014 1:00 AM
To: DeanNurse; Busby, Lorraine; Mercer, Stacey; Waterman, Ellen; Consultation, Grenfell; Consultation, Medicine; Consultation, Pharmacy; Hicks, Sue; MacKinnon, Scott; deansocialwork; Bauer, Larry; Consultation, Engineering; Dean of Science; Hickey, Marie; Marine Institute Consultation
Cc: Michelle Miskell
Subject: Consultation request - Earth Sciences

Hello All,

Please find attached a course change proposal and two new course proposals from the Department of Earth Sciences. We propose to:

1) move our 4000 level Hydrogeology course to the 3000 level
2) Introduce a new course 4620 Contaminant Hydrogeology
3) Introduce a new course 4405 Field course on the Geology of Newfoundland

Please review the proposals and forward any comments to me as soon as possible.

Regards,

Alison Litch
(Undergraduate Matters, Earth Sciences)

RESPONSES

From Music received Thu, 30 Oct 2014 08:40:10

Music has no problem with these changes. Ellen Waterman

From Medicine (Cathy Vardy, Vice Dean) received Thu, 30 Oct 2014 12:34:24

Dr. Allison Litch

I have reviewed the course change proposal and the two new course proposals for the Department of Earth Science and they appear fine from the Faculty of Medicine's point of view.

Sincerely
Cathy Vardy
Vice Dean
Faculty of Medicine
----Original Message-----
From: Rourke, Dr. James: Dean of Medicine
Sent: October-30-14 8:52 AM
To: Vardy, Cathy
Cc: Corbett, Paula; Caines, Sherry; Fillier, Joan
Subject: FW: Consultation request - Earth Sciences

From Grenfell received Mon, 3 Nov 2014 13:22:24

Dr, Leitch, please see the coment below on your request for consultation.

Dr. R. Gallant
Head of Division of Science, Grenfell Campus, Memorial University

From: Parkinson, Don-Roger
Sent: Thursday, October 30, 2014 1:57 PM
To: Daniels, Karen; Gallant, Robert
Subject: RE: Consultation request - Earth Sciences

Dear Dr. Robert Gallant,

With respect to the course EASC4610 (Hydrogeology) to EASC3610, I think that this course should be credit restricted with ENV4479 (Groundwater Flow). It is of my view that both courses attempt to cover much of the same material.

Regards,

D-R.P.

From: Daniels, Karen
Sent: Thursday, October 30, 2014 10:50 AM
To: Division of Science Faculty
Subject: FW: Consultation request - Earth Sciences
Good Morning:

Please see attached for consultation and forward any comments to Dr. Robert Gallant.

Regards,

Karen

Karen Daniels
CONSULTATIONS

Division of Science
Grenfell Campus
Memorial University of Newfoundland
20 University Drive
Corner Brook, NL A2H 5G4

Phone: (709) 637-6215
Fax: (709) 639-8125
Email: kdaniels@grenfell.mun.ca

From School of Nursing received Mon, 03 Nov 2014 16:07:36

On behalf of the School of Nursing, we have no questions or concerns.

Donna Moralejo

Donna Moralejo, PhD, RN
Professor and Associate Dean (Graduate Programs)
Memorial University School of Nursing
H2916, Health Sciences Centre
300 Prince Philip Drive
St John's, NL A1B 3V6
Email: moralejo@mun.ca

From the Marine Institute received Tue, 4 Nov 2014 18:03:18

Alison,

Thank you for the opportunity to review the proposed changes to the EASC 4610 Hydrogeology course.

These changes will have no impact on the programs at the Marine Institute. We are happy to support these changes as presented.

Please note for future consultations the Marine Institute consultation e-mail address is miguconsultations@ml.mun.ca

Derek

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University

TEL: 709-778-0586
FAX: 709-778-0394
Derek.Howse@ml.mun.ca

From: Associate VP Office - Academic [mailto:associatevpoffice@grenfell.mun.ca]
Sent: Thursday, October 30, 2014 10:02 AM
To: Gallant, Robert; MIUG Consultations
Cc: Noftall-Bennett, Sharon; Daniels, Karen
Subject: FW: Consultation request - Earth Sciences

Good Morning,

Please see attached for consultation, thank you.

Nora

Nora Lundrigan for
Dr. David Peddle
Associate Vice-President (Grenfell Campus) Academic
Memorial University
Corner Brook, NL
A2H 6P9

Tel: 709 639-6526 Fax:709 637-6218

From the Marine Institute (continued) received Tue, 4 Nov 2014 18:04:20

Alison,

Thank you for the opportunity to review the proposed new course EASC 4620 Contaminant Hydrogeology course.

This course will have no impact on the programs at the Marine Institute.
We are happy to support this proposal as presented.

Derek

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
Earth Sciences program required science courses

9.5.5 Honours B.Sc. Degree in Earth Sciences

Geoscientific careers vary widely in required background. The Honours B.Sc. program is designed with considerable choice in order that students may personalize their programs based on career goals. Note that the flexibility afforded by this program is not without limits. Some courses have prerequisites, and it is ultimately the student’s responsibility to ensure that these prerequisites are satisfied. Students should consult faculty members and the departmental Student Handbook for guidance in selecting courses appropriate to particular career paths.

In addition to the Common Block of Required Courses listed under Major Programs in Earth Sciences, the following requirements must be completed to qualify for the Honours B.Sc. degree in Earth Sciences:

1. Earth Sciences 499A and 499B.

2. At least 27 additional credit hours from Earth Sciences courses at 3000 and/or 4000 levels with a minimum of 12 credit hours from courses at the 4000 level. Credit hours from Earth Sciences 4310 and 4950 cannot be used to fulfill this requirement.

3. Six credit hours from the Faculty of Science courses numbered 2000 or higher. Credit hours from Earth Sciences courses, courses that are cross-listed with Earth Sciences courses, Biology 3844 and the former Physics 2050 are excluded. However, Physics 2820 is permitted.

4. Additional credit hours selected to conform with regulations for the Honours Degree of Bachelor Science so as to achieve a total of 120 credit hours. Students are encouraged to complete a minor in another department.

5. Three of the credit hours used to fulfill either requirement 3, or 4 above must be from Biology, Chemistry, Computer Science, Statistics or Physics. They may be from Mathematics only if Mathematics 2000 has not been taken as part of the Common Block of Required Courses.

9.5.6 General B.Sc. Degree in Earth Sciences

In addition to the Common Block of Required Courses listed under Major Programs in Earth Sciences, the following requirements must be completed to qualify for the General B.Sc. degree in Earth Sciences:

1. Eighteen additional credit hours from Earth Sciences courses at 3000 and/or 4000 levels with a minimum of 9 credit hours from courses at 4000 level. Credit hours from Earth Sciences 4310, 4950 and 499A/B cannot be used to fulfill this requirement.

2. Six credit hours from Science Faculty courses numbered 2000 or higher. Credit hours from Earth Sciences courses, courses that are cross-listed with Earth Sciences courses, Biology 3844 and the former Physics 2050 are excluded. However, Physics 2820 is permitted.

3. Additional credit hours selected to conform with regulations for the General Degree of Bachelor Science so as to achieve a total of 120 credit hours. Students are encouraged to complete a minor in another department.
From the Marine Institute (continued) received Tue, 4 Nov 2014 18:05:16

Alison,

Thank you for the opportunity to review the proposed new course Earth Sciences 4405 Field Course on the Geology of Newfoundland. This new course will have no impact on the programs here at the Marine Institute.

One comment regarding the title of the course. The Executive Summary speaks to the demand for a course that covers the geology of the province of Newfoundland. However the course outline seems to speak specifically to the geology of the island portion only and not of Labrador. In the interest of political correctness perhaps the title should be "Earth Sciences 4405 Field Course on the Geology of the Island of Newfoundland" and the executive summary changed accordingly. Alternatively, the title could be "Earth Sciences 4405 Field Course on the Geology of Newfoundland and Labrador" with additional topics added as necessary to cover the big land.

All the best,

Derek

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University

TEL: 709-778-0586
FAX: 709-778-0394
Derek.Howse@mi.mun.ca

From School of Human Kinetics and Recreation received Tue, 04 Nov 2014 11:12:31

Hi Alison
I have reviewed the proposals identified below and have no concerns with them.
Linda

Linda E. Rohr PhD
Associate Professor
CONSULTATIONS

Associate Dean Undergraduate Studies
School of Human Kinetics and Recreation
Memorial University
St. John's, NL
709.864.6202
709.864.7531 (fax)
PE 2025

From: Dr Alison Leitch [mailto:aleitch@mun.ca]
Sent: October-30-14 1:01 AM
To: DeanNurse; Busby, Lorraine; Mercer, Stacey; Waterman, Ellen;
Consultation, Grenfell; Consultation, Medicine; Consultation, Pharmacy;
Hicks, Sue; MacKinnon, Scott; deansocialwork; Bauer, Larry; Consultation,
Engineering; Dean of Science; Hickey, Marie; Marine Institute Consultation
Cc: Michelle Miskell
Subject: Consultation request - Earth Sciences

Hello All,

Please find attached a course change proposal and two new course proposals
from the Department of Earth Sciences. We propose to:

1) move our 4000 level Hydrogeology course to the 3000 level
2) introduce a new course 4620 Contaminant Hydrogeology
3) introduce a new course 4405 Field course on the Geology of Newfoundland

Please review the proposals and forward any comments to me as soon as
possible.

Regards,

Alison Leitch
(Undergraduate Matters, Earth Sciences)

From Dept Math and Stats received Tue, 04 Nov 2014 15:06:35

The Dept of Math and Stats has no objection to this proposal.

Harold Johnson

From the Faculty of Education received Wed, 5 Nov 2014 15:01:57
Hello Dr. Leitch,

I have reviewed the Calendar Changes as per your request and confirm that there would be no impact on the Faculty of Education.

Best regards,

Beverly Fraize  
Academic Program Administrator  
Undergraduate Programs  
Faculty of Education, Room ED 2020  
Education Building  
Memorial University of Newfoundland  
St. John's, NL A1B 3X8

Phone: 709-864-3485  
Fax: 709-864-2001  
Admission Enquiries: edadmiss@mun.ca  
General Enquiries: muneduc@mun.ca

From the School of Pharmacy received Thu, 13 Nov 2014 15:13:28

Good Morning,  
I am writing to advise that the School of Pharmacy has no concerns with the proposed calendar changes by the Department of Earth Sciences.  
Regards,  

Csop Glew

CSOP GLEW, Hon. B.A., M.U.P. | MANAGER OF ACADEMIC PROGRAMS  
School of Pharmacy  
Memorial University of Newfoundland  
St. John's, NL | A1B 3V6  
Health Sciences Centre | Room H3435  
T 709 777 6963 | F 709 777 7044  
www.mun.ca/pharmacy

From Biology received Mon, 10 Nov 2014 16:30:47

Dear Dr. Leitch,  
The Biology Undergraduate Studies Committee reviewed the proposed change
CONSULTATIONS
Re: EASC 4610, 4620, 4405

to Earth Science 4610 as well as the new course proposals for EASC 4405
Field course on Geology of Newfoundland and EASC 4620 Contaminate
Hydrogeology. We do not have any concerns with the proposals.
Thanks
Karen

*Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John’s, NL A1B 3X9
709-864-8021*

On 30/10/2014 2:45 PM, Kenny, Shirley wrote:
> Hi Karen:
> 
> For you.
> 
> Thanks
> Shirley

> ==============================================================
> Shirley Kenny
> Intermediate Secretary
> Department of Biology
> Memorial University of Newfoundland
> St. John's NL
> Tel: 709-864-7497
> Fax: 709-864-3018

From Physics received Mon, 10 Nov 2014 14:44:36

   Alison

Thank you for the opportunity to comment. The Physics Undergraduate
Studies Committee has had a look at the changes proposed for EASC4610,
EASC 4620, and EASC 4405. No concerns were raised.

Michael Morrow

-------------------------------
Department of Physics and Physical Oceanography
Memorial University of Newfoundland
CONSULTATIONS

Re: EASC 4610, 4620, 4405

St. John's, Newfoundland  Phone: (709) 864 4361
Canada, A1B 3X7  FAX: (709) 864 8739

-------------------------------

From Faculty of Business Administration received Thu, 06 Nov 2014 13:15:17

Hi:

Thank you for the opportunity to comment on this. The Faculty of Business Administration has no concerns with this proposal.

sincerely
Larry Bauer

-------------------------------

From Faculty of Engineering received Thu, 20 Nov 2014 08:38:47

Dear Dr. Lelitch,

At its regular meeting of 2014 November 19, the Committee on Undergraduate Studies of the Faculty of Engineering and Applied Science had no comments to add re your proposed Calendar changes, beyond the comments that I provided in my previous e-mail (below).

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

From Faculty of Engineering received Mon, 10 Nov 2014 08:37:10

Dear Dr. Lelitch,

The proposed Calendar changes regarding cross-listed Earth Sciences courses and the explanatory table for the second digit of EASC courses will join the proposals for the courses EASC 4405, 4610/3610 and 4620 on the agenda of the next meeting of our Committee on Undergraduate Studies, scheduled for November 19.

As an individual, I do not see any impact on the programs of the
Faculty of Engineering and Applied Science. I will reply again shortly our CUGS meeting.

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
November 28, 2014

TO: All Members, Faculty Council of Science

FROM: Joan Burny, Secretary
       Committee on Undergraduate Studies, Faculty of Science

SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 21, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Biology: new course Biology 3820: Foundations of Biology

2. Department of Earth Sciences:
   (i) New Course: Earth Sciences 4405: Field Course on the Geology of Newfoundland
   (ii) New Course: Earth Sciences 4620: Contaminant Hydrogeology
   (iii) Changes to existing course Earth Sciences 4610
   (iv) Changes to program regulations, for clarity and conciseness
   (v) Change to course numbering scheme to allow for an environmental geoscience stream, and resulting renumbering of two 4000-level courses

Joan Burny
Associate Registrar and
Secretary: Committee on Undergraduate Studies, Faculty of Science
Executive Summary

We propose to move our introductory hydrogeology course from the 4000 level to the 3000 level because the material and concepts are appropriate to the 3000 level, and so that a new 4000 level course, which builds on this introductory course, can be introduced at the 4000 level. The two courses together will provide better training in this important field for our environmental geoscience students.

Resource Implications

No new resources are required. The regular faculty member currently teaching the course will continue to do so at the new level.

Consultations

This proposal was sent to the distribution list for Consultation on Calendar Changes (30 October, 2014).

Library Holdings and/or Other Resources Required

The proposed changes will not require augmentation of any information sources of the University including library holdings and the sources on the internet.

There are no additional funding requirements associated with the proposed change.

Signature of Unit Head (if appropriate): ________________________________

Date: ________________________________

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

Date: ________________________________
Change to EASC 4610 Hydrogeology

SUMMARY PAGE FOR SENATE

Approval Form

Course Number and Title
EASC 3610 Hydrogeology

Abbreviated Course Title
Hydrogeology

Proposed Changes to Calendar Description

46403610 Hydrogeology examines geology and its relationship to groundwater occurrence and exploitation: basic theory, groundwater flow systems, surface-groundwater interactions and changes in water quality, field and laboratory techniques, hydrogeological aspects of waste disposal and resource development.

CR: Environmental Science 4479 and the former EASC 4610
LH: 3
PR: Physics 1051 (or 1021); Mathematics 2000 or Statistics 2550 or the former Statistics 2510; EASC 2502 and a minimum of 6 credit hours in Earth Sciences at the 3000 level

Rationale for Changes

EASC 4610 Hydrogeology is one of the "environmental geoscience stream" undergraduate courses offered by the Department of Earth Sciences. After teaching the course 4 times, the instructor of the course (Dr. Tao Cheng) concluded that it is more appropriate to deliver EASC 4610 Hydrogeology as a 3000 level course. Dr. Cheng started to teach the course in Winter 2011. He developed course materials based on (i) calendar descriptions of the course, (ii) course outline from the previous instructor, and (iii) textbook used by the previous instructor. Before Dr. Cheng taught the course in Winter 2011, the only prerequisite for the course was EASC 2502. The prerequisite "a minimum of 6 credit hours in Earth Sciences at the 3000 level" were added in 2012 to prevent third year students from taking this 4000 level course. However, this restriction did not lead to significantly better outcomes from students: prior to this restriction incoming third year students took and successfully passed EASC 4610. The material is new to the students, but prerequisites are all at the 1000 and 2000 levels. Courses similar to EASC 4610 are categorized as third-year courses in other North American universities. For these reasons, Dr. Cheng is proposing the change of level in the Calendar description. The content of the course will not be affected by the proposed changes. However, this change will allow the development of a more advanced, follow-on course in this important topical sub-discipline to be introduced at the 4000 level. The credit restriction with Environmental Science 4479 has been added after consultation with Grenfell campus.
Change to EASC 4610 Hydrogeology

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<tr>
<td>Library</td>
<td>Yes</td>
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Library Report Received: Yes

Approved by Dean, Associate Vice-President (Academic) or Vice-President: Yes/No

Name: ____________________________________________

FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:

Secretary:

Date:
2 November 2014

TO: Dr. Alison Leitch, Undergraduate Matters, Department of Earth Sciences
FROM: Dianne Taylor-Harding, Collection Development Librarian, Earth Sciences
SUBJECT: Library Resources Review for Calendar Changes to Existing Course – EASC4610 Hydrogeology

Upon review of the proposal to "move the introductory hydrogeology course from the 4000 level to the 3000 level", I have determined that the change will have no impact on the collections activities of the Memorial University Libraries.

No additional library materials will be required.

11/2/2014

X D.E. Taylor-Harding

Dianne Taylor-Harding
Collection Librarian, Dept. of Earth Sciences
November 26, 2014

TO: All Members, Faculty Council of Science

FROM: Joan Burry, Secretary
Committee on Undergraduate Studies, Faculty of Science

SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 21, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Biology - new course Biology 3820: Foundations of Biology

2. Department of Earth Sciences:
   (i) New Course - Earth Sciences 4405: Field Course on the Geology of Newfoundland
   (ii) New Course - Earth Sciences 4620: Contaminant Hydrogeology
   (iii) Changes to existing course Earth Sciences 4610
   (iv) Changes to program regulations, for clarity and conciseness
   (v) Change to course numbering scheme to allow for an environmental geoscience stream, and resulting renumbering of two 4000-level courses

Joan Burry
Associate Registrar and
Secretary, Committee
on Undergraduate Studies,
Faculty of Science
Earth Sciences program required science courses

Proposal
Calendar Changes to Earth Sciences Programs

Executive Summary

As part of the requirements for general and honours B.Sc. degrees in Earth Sciences, students take 6 credit hours from Faculty of Sciences courses other than Earth Sciences at 2000 level or higher. Courses that are cross-listed with Earth Sciences courses should be excluded. We would like to add a phrase excluding cross-listed courses in point 3, sections 9.5.5 and 9.5.6 of the calendar.

Resource Implications: Instructional Costs

There are no resource implications associated with these changes.

Consultations

This proposal was sent to the distribution list for Consultation on Calendar Changes (7 November, 2014.)

Library Holdings and/or Other Resources Required

No new library resources are required.

The costs, if any, associated with these changes can be met from within the existing budget allocation for the Department of Earth Sciences.

Signature of Unit Head (if appropriate):

Date:

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

Date:
Earth Sciences program required science courses

SUMMARY PAGE FOR SENATE

Approval Form

Program Title  Earth Sciences

Calendar Changes - See attached

Secondary Calendar Changes

N/A

Rationale

As part of the requirements for general and honours B.Sc. degrees in Earth Sciences under point 3 in sections 9.5.5 and 9.5.6 of the calendar, students take 6 credit hours from Faculty of Sciences courses other than Earth Sciences at 2000 level or higher. The aim of this requirement is to add scientific breadth to the degrees, so courses that are cross-listed with Earth Sciences courses should be excluded; these are Earth Sciences courses in disguise. Presently, Biology 3811 (cross-listed with Earth Sciences 3811) is explicitly excluded. New cross-listed courses Ocean Sciences 2200, Geography 3150 and Geography 4150, and the overlooked cross-listed course Biology 4800 could be added to this list of exclusions, however to save paperwork and time in the future if the list of cross-listed courses changes, this proposal is to add a phrase to specify that all cross-listed courses are excluded.

Consultations Sought From

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</table>

Library Report Received  Yes

Signature:  Dean, Associate Vice-President (Academic) or Vice-President
Earth Sciences program required science courses

Name

FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:

Secretary:

Date:
Request for Consultations (6 November 2014)

From: Dr Alison Leitch [mailto:aleitch@mun.ca]
Sent: Thursday, November 06, 2014 11:22 PM
To: Consultation, Nursing; Consultation, Library; Consultation, Arts; Consultation, Music; Consultation, Grenfell; Rourke, Dr. James: Dean of Medicine; Consultation, Pharmacy; Consultation, Education; Consultation, Co-op Ed; Consultation, SocialWork; Consultation, Business; Consultation, Engineering; Consultation, Science; Consultation, HKR; Marine Institute Consultation
Subject: Consultation request 2 - Earth Sciences

Hello All,

Please find attached two book-keeping type proposals to change calendar entries, from the Department of Earth Sciences. We propose to:

1) update a list of cross-listed Earth Sciences courses that cannot be considered to be non-Earth Sciences courses for degree regulation purposes
2) modify a table which explains the significance of the second digit in the course numbers of Earth Sciences courses. This change means that two 4000 level courses will have to have their numbers changed.

Please review the proposals and forward any comments to me as soon as possible.

Regards,

Alison Leitch
(Undergraduate Matters, Earth Sciences)

---
Alison Leitch
Associate Professor
Department of Earth Sciences
Memorial University
St John's NL A1B 3X5

ph: 709-864-3306
RESPONSES

From Faculty of Business Administration received Fri, 7 Nov 2014 05:30:40

Hi

Thank you for the opportunity to comment on these proposals. The faculty of Business Administration has no concerns with either proposal.

--larry

Larry Bauer, Ph.D.
Associate Professor of Finance
Associate Dean (Academic Programs)
Faculty of Business Administration
Memorial University of Newfoundland

www: http://eeyore.busl.mun.ca
e-mail: lbauer@mun.ca
Tel: (709) 864-8512
Fax: (709) 864-8954

From Music (Ellen Waterman) received Fri, 7 Nov 2014 10:23:11

Hi Alison

Music has no problem with these changes.

Best,
Ellen

From Medicine (Cathy Vardy, Vice Dean) received Fri, 7 Nov 2014 19:02:57

Hi Dr. Leitch

I have reviewed the proposed changes for the Department of Earth Sciences and they appear fine from the Faculty of Medicine's point of view.

Cathy Vardy
Vice Dean
Faculty of Medicine
CONSULTATIONS

From the Marine Institute received Fri, 7 Nov 2014 15:36:37

Allison,

Thank you for the opportunity to review the changes to parts 9.5.5 and 9.5.6 of the Earth Sciences section of the calendar. These changes will have no impact on the programs at the Marine Institute.

We are happy to support these changes as presented.

Derek

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0586
FAX: 709-778-0394
Derek.Howse@mi.mun.ca

From the Marine Institute (continued) received Fri, 7 Nov 2014 15:37:46

Allison,

Thank you for the opportunity to review the changes to part 10.5 of the Earth Sciences section of the calendar. These changes will have no impact on the programs at the Marine Institute.

We are happy to support these changes as presented.

Derek

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0586
FAX: 709-778-0394
Derek.Howse@mi.mun.ca

From Physics received Mon, 10 Nov 2014 14:44:36

Allison

The changes outlined in the documents "Changes_Exist_Program_EASC9-5-5"
and "Changes_Exist_Program_EASC10-5" have been considered by the Physics Undergraduate Studies Committee and no concerns were identified.

Best wishes

Michael Morrow

----------------------------------------------------------------------------------------------------------------------------------

Department of Physics and Physical Oceanography
Memorial University of Newfoundland
St. John's, Newfoundland Phone: (709) 864 4361
Canada, A1B 3X7 FAX: (709) 864 8739
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From Faculty of Engineering received Thu, 20 Nov 2014 08:38:47

Dear Dr. Leitch,

At its regular meeting of 2014 November 19, the Committee on Undergraduate Studies of the Faculty of Engineering and Applied Science had no comments to add re your proposed Calendar changes, beyond the comments that I provided in my previous e-mail (below).

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

From Faculty of Engineering received Mon, 10 Nov 2014 08:37:10

Dear Dr. Leitch,

The proposed Calendar changes regarding cross-listed Earth Sciences courses and the explanatory table for the second digit of EASC courses will join the proposals for the courses EASC 4405, 4610/3610 and 4620 on the agenda of the next meeting of our Committee on Undergraduate Studies, scheduled for November 19.
As an individual, I do not see any impact on the programs of the Faculty of Engineering and Applied Science. I will reply again shortly our CUGS meeting.

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

From School of Human Kinetics and Recreation received Fri, 14 Nov 2014 13:58:56

HI Alison
I have reviewed the proposed changes and have no concerns.
Linda

Linda E. Rohr PhD
Associate Professor
Associate Dean Undergraduate Studies
School of Human Kinetics and Recreation
Memorial University
St. John's, NL
709.864.6202
709.864.7531 (fax)
PE 2025

From Biology received Tue, 18 Nov 2014 11:53:44

HI Alison
The Biology Undergraduate Studies Committee reviewed the proposed changes to the Earth Science program whereby the list of exclusions in sections 9.5.5 and 9.5.6 includes all cross listed Earth Science courses. We have no concerns with such a change.

Thanks
Karen

*Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
709-864-8021*
From Math and Stats received Tue, 18 Nov 2014 13:16:49

The Department of Mathematics and Statistics has no objection to this proposal.
Collection Development Division
Queen Elizabeth II Library
St. John's, Newfoundland, Canada
A1B 3Y1

8 November 2014

TO: Dr. Alison Leitch, Chair, Undergraduate Matters, Department of Earth Sciences
FROM: Dianne Taylor-Harding, Collections Development Librarian, Earth Sciences
SUBJECT: Library Resources Review - Proposed changes to Department of Earth Sciences entries in the 2015-2016 University Calendar

The proposed changes to Department of Earth Sciences entries in the 2015-2016 Memorial University of Newfoundland Calendar will have no impact on collections activities in the Queen Elizabeth II Library:

"As part of the requirements for general and honours B.Sc. degrees in Earth Sciences, students take 6 credit hours from Faculty of Sciences courses other than Earth Sciences at 2000 level or higher. Courses that are cross-listed with Earth Sciences courses are specifically excluded. We would like to add new cross-listed courses Ocean Sciences 2200, Geography 3150 and Geography 4150, and the overlooked cross-listed course Biology 4800 to this list of exclusions in point 3, sections 9.5.5 and 9.5.6 of the calendar."

The Memorial University Libraries will continue to collect materials concerning Earth Sciences to support undergraduate, graduate and faculty research and study at the University.

11/8/2014

X D.E. Taylor-Harding

Dianne E. Taylor-Harding
Collections Librarian - Earth Sciences

St. John's, Newfoundland, Canada A1B 3Y1  Tel: (709) 864-7421  Fax: (709) 864-2153
November 28, 2014

TO: All Members, Faculty Council of Science

FROM: Joan Burny, Secretary
Committee on Undergraduate Studies, Faculty of Science

SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 21, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Biology- new course Biology 3820: Foundations of Biology

2. Department of Earth Sciences:
   (i) New Course- Earth Sciences 4405: Field Course on the Geology of Newfoundland
   (ii) New Course- Earth Sciences 4620: Contaminant Hydrogeology
   (iii) Changes to existing course Earth Sciences 4610
   (iv) Changes to program regulations, for clarity and conciseness
   (v) Change to course numbering scheme to allow for an environmental geoscience stream, and resulting renumbering of two 4000-level courses

[Signature]
Joan Burny
Associate Registrar and
Secretary, Committee on Undergraduate Studies,
Faculty of Science
Proposal

Calendar Changes to Earth Sciences Programs

Executive Summary

In the course numbering scheme set out under section 10.5 of the calendar, we would like to change the stated areas of Earth Sciences indicated by a second digit of "6" or "7". We would like to include environmental geoscience under the list of areas indicated by a second digit of 6, and move petroleum geology from the "6" list to the "7" list. This second change will mean renumbering two 4000 level courses.

Resource Implications: Instructional Costs

There are no resource implications associated with these changes.

Consultations

This proposal was sent to the distribution list for Consultation on Calendar Changes (7 November, 2014.)

Library Holdings and/or Other Resources Required

No new library resources are required.

The costs, if any, associated with these changes can be met from within the existing budget allocation for the Department of Earth Sciences.

Signature of Unit Head (if appropriate): ________________________________

Date: ________________________________

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

Date: ________________________________
SUMMARY PAGE FOR SENATE

Approval Form

Program Title  Earth Sciences

Calendar Changes

10.5 Earth Sciences

The first digit of each course number designates the level (year) of the course. The second digit indicates the area of Earth Sciences into which the course best fits, as follows:

Second Digit
0 - mineralogy and petrology
1 - geophysics
2 - economic geology
3 - stratigraphy and marine geology
4 - structural geology and tectonics
5 - geochemistry
6 - environmental geoscience and technical fields and petroleum geology
7 - sedimentation, petroleum geology and geomorphology
8 - palontology
9 - general and dissertation

Secondary Calendar Changes

4602 4702 Sedimentary Basins and Hydrocarbon Exploration provides a review of sedimentary basin types and associated petroleum systems including concepts applicable to petroleum generation, migration and accumulation. Regional-scale stratigraphic and structural concepts/models are presented as a framework for hydrocarbon fluid flow and entrapment. Laboratories include description and analysis of data typical of basin- and regional-scale exploration and appraisal of hydrocarbon resources using a variety of integrated, interdisciplinary techniques (geological, geophysical and geochemical).
CR: EASC 4601 and the former EASC 4602
LH: 3
PR: EASC 2401, 2702, 3170 and 3420

4603 4704 Reservoir Characterization provides a review of the sedimentary, stratigraphic and structural setting of hydrocarbon reservoirs and the geological controls on reservoir quality. Reservoir types and methods of study are presented to evaluate their key properties for the development and production of hydrocarbons. Laboratories include detailed subsurface correlation and mapping, log analysis, interpretation of reservoir data (e.g. capillary pressure, porosity, permeability and production data).
CR: EASC 4601 and the former EASC 4603
LH: 3
PR: EASC 2401, 2702, 3170 and 3702
Earth Sciences course numbers second digit 6 and 7

Rationale

Ever since environmental geoscience courses were first introduced into the Earth Sciences program, they have been numbered with a second digit of "6" (e.g., 3600 Environmental Geology), however due to an oversight the area of environmental geoscience has not been listed in the numbering scheme. Particularly as our environmental geoscience program is growing, we would like to correct this oversight.

Petroleum geology is an important area of Earth Sciences that is more closely linked to sedimentation than to environmental geoscience. We also think that courses in the two areas of petroleum geology and environmental geoscience should have separate second digits because these courses appear in different 'streams' within the Earth Sciences program: the 'sedimentary basins' stream and the 'environmental geoscience' stream respectively.

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Library Report Received: Yes

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

Name

FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:
Earth Sciences course numbers second digit 6 and 7

Secretary:

Date:
Collection Development Division  
Queen Elizabeth II Library  
St. John's, Newfoundland, Canada  
A1B 3Y1

8 November 2014

TO: Dr. Alison Leitch, Chair, Undergraduate Matters, Department of Earth Sciences  
FROM: Dianne Taylor-Harding, Collections Development Librarian, Earth Sciences  
SUBJECT: Library Resources Review -  
Proposed changes to Department of Earth Sciences entries in the 2015-2016 University Calendar 2

The proposed changes to Department of Earth Sciences entries in the 2015-2016 Memorial University of Newfoundland Calendar will have no impact on collections activities in the Queen Elizabeth II Library:

"In the course numbering scheme set out under section 10.5 of the calendar, we would like to change the stated areas of Earth Sciences indicated by a second digit of "6" or "7". We would like to include environmental geoscience under the list of areas indicated by a second digit of 6, and move petroleum geology from the "6" list to the "7" list."

"This second change will mean renumbering two 4000 level courses."  
- 4692 4702 Sedimentary Basins and Hydrocarbon Exploration  
- 4693 470x Reservoir Characterization

The Memorial University Libraries will continue to collect materials concerning Earth Sciences to support undergraduate, graduate and faculty research and study at the University.  
11/8/2014

D.E. Taylor-Harding  
Dianne E. Taylor-Harding  
Collections Librarian - Earth Sciences
December 2, 2014

TO: All Members, Faculty Council of Science

FROM: Joan Burry, Secretary
Committee on Undergraduate Studies, Faculty of Science

SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 28, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Chemistry- Calendar changes to first year Chemistry courses, including deletion of one course, rearrangement of course content and prerequisite changes to others.

2. Department of Mathematics and Statistics:

(i) Calendar change to regulations governing supplementary examinations
(ii) Addition of a laboratory component to Foundation Mathematics courses

3. Department of Psychology

(i) New course proposals: Psychology 2930, 3820, 3830, 3510, 3511
(iii) Changes to existing Psychology and Behavioural Neuroscience programs.

Joan Burry
Associate Registrar and
Secretary: Committee
on Undergraduate Studies,
Faculty of Science
Proposal to Modify the Memorial First Year Chemistry Course Offerings at the St. John’s Campus Resulting Calendar Changes

Course Number and Title

Chemistry 1031 is to be deleted. This will result in a number of changes to chemistry and other programs in science.
Chemistry 1010 Introductory Chemistry I is to be modified as indicated in the proposal
Chemistry 1011 Introductory Chemistry II is to be modified as indicated in the proposal
Chemistry 1050 General Chemistry I is to be modified as indicated in the proposal
Chemistry 1051 General Chemistry II is to be modified as indicated in the proposal

Resource Implications: Instructional Costs

None.

Resource Implications: Library Holdings and/or Other Resources Required

None.

Signature of Unit Head (if appropriate):

Date:

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

Date:

Proposed Change(s) to Calendar Description

10.3 Chemistry
Credit will be given for no more than one of the former Chemistry 1000,
Chemistry 1010, 1050, 1200, the former 150A/B, no more than one of
Chemistry 1001, 1031, 1051, the former 150A/B, and no more than one of
Chemistry 1001, 1011, 1051, the former 150A/B. Credit will only be given for one of the
following pairs of courses, Chemistry 2301 and Chemistry 2300 (offered at Grenfell
Campus), Chemistry 2302 and the former Chemistry 3301, and Chemistry 3303 and the
former Chemistry 3300. Students may obtain credit for only one of CHEM 2100 or the-
former CHEM 3100. Students may obtain credit for only one of CHEM 3110 or the former
CHEM 4110, the former CHEM 4100 or the former CHEM 4101.
Chemistry courses are designated by CHEM.

1010
Introductory Chemistry I
examines descriptive chemistry; measurements; atoms; molecules; the mole; mole
calculations and reaction stoichiometry; the balancing of redox reactions; gases;
thermochemistry; atomic structure; periodic properties; the physical properties of matter
introduction to chemical kinetics and equilibrium; acids and bases.
AR: attendance is required in the laboratory component of this course. Failure to
attend may result in a failing grade or deregistration from the course.
CR: CHEM 1200
LC: 4
LH: 3 hours biweekly alternating with tutorials
OR: 1.5 hour tutorial per week alternating with labs
PR: It is recommended that students have successfully completed at least 70% in high
school Academic Mathematics 3204 3201, or a pass in any university level
mathematics course
UL: only 6 science credit hours will be awarded for a major or honours in Chemistry
from the following course groups: CHEM 1010/1011/1031, or CHEM 1010/1050/1051
or CHEM 1810/1200/1001 (Grenfell Campus)

1011
Introductory Chemistry II
examines atomic structure; periodic properties; chemical bonding including VSEPR shapes
and polarity; introduction to valence bond theory and hybridization; liquids, solids and
intermolecular forces; chemical kinetics; chemical equilibrium; acids and bases; solubility
equilibrium; electrochemistry.
AR: attendance is required in the laboratory component of this course. Failure to
attend may result in a failing grade or deregistration from the course.
CR: CHEM 1001
LC: 1.53 hours biweekly alternating with tutorials
OR: 1.5 hour tutorial per week alternating with labs
PR: CHEM 1010
UL: only 6 science credit hours will be awarded for a major or honours in Chemistry
from the following course groups: CHEM 1010/1011/1031, or CHEM 1010/1050/1051
or CHEM 1810/1200/1001 (Grenfell Campus)

1031-
Introductory Chemistry III-
prepares students who have completed CHEM 1010 and 1011 for
CHEM 2100, 2210, 2301, 2302 and 2400. It augments the topics covered in-
CHEM 1010 and 1011 with the greater depth and problem-solving emphasis of-
CHEM 1050 and 1051.
AR: attendance is required in the laboratory component of this course. Failure to
attend may result in a failing grade or deregistration from the course.
CO: Mathematics 1001
LC: 4
LH: 3
PR: CHEM 1011 and Mathematics 1001 which may be taken concurrently with CHEM 1031
UL: only 6 science credit hours will be awarded for a major or honours in Chemistry from the following course groups: CHEM 1010/1011/1031, or CHEM 1010/1050/1051, or CHEM 1810/1200/1001 (Grenfell Campus)

1050
General Chemistry I
builds on basic chemistry concepts from high school. Topics include gases; thermochemistry; atomic structure; periodic properties; chemical bonding including valence bond theory; hybridization and introduction to molecular orbital theory; properties of liquids and solids and solutions.
AR: attendance is required in the laboratory component of this course. Failure to attend may result in a failing grade or deregistration from the course.
CO: Mathematics 1000
CR: CHEM 1200
LC: 4
LH: 3
PR: CHEM 1010 with a grade of at least 60% or high school CHEM 3202 with a grade of at least 75%. and Mathematics 1000 which may be taken concurrently with CHEM 1031. It is also recommended that students have successfully completed high school Mathematics 3200 or 3201.
UL: only 6 science credit hours will be awarded for a major or honours in Chemistry from the following course groups: CHEM 1010/1011/1031, or CHEM 1010/1050/1051 or CHEM 1810/1200/1001 (Grenfell Campus)

1051
General Chemistry II
builds on CHEM 1050 topics and on basic chemistry concepts from high school. Topics include solutions, kinetics, chemical equilibrium, equilibria involving acids and bases including polyprotic acids, buffers, acid-base indicators, titration curves, solubility and complex ion equilibrium, thermodynamics, and electrochemistry and descriptive chemistry.
AR: attendance is required in the laboratory component of this course. Failure to attend may result in a failing grade or deregistration from the course.
CO: Mathematics 1001
CR: CHEM 1001
LC: 4
LH: 3
PR: CHEM 1050 and Mathematics 1001 which may be taken concurrently with CHEM 1051
UL: only 6 science credit hours will be awarded for a major or honours in Chemistry from the following course groups: CHEM 1010/1011/1031 or CHEM 1010/1050/1051 or CHEM 1810/1200/1001 (Grenfell Campus)

Minor resulting changes to other course descriptions.

2301
Thermodynamics and Kinetics
builds upon knowledge of physical chemistry from first year. It covers the three laws of thermodynamics for ideal and real systems as well as chemical kinetics. Topics in thermodynamics include the thermodynamics of ideal and real gases, phases, and
solutions, the Maxwell relations, equilibria between phases, and in electrolyte solutions. The integrated rate laws for simple and complex mechanisms, and the temperature dependence of reaction rates in terms of kinetic molecular theory are some of the topics discussed in the kinetics section of the course.

AR: attendance is required in the laboratory component of this course. Failure to attend may result in a failing grade or deregistration from the course.
CO: Mathematics 2000 is recommended
CR: CHEM 2300 (offered at Grenfell Campus)
LH: 3
PR: minimum 60% in CHEM 1051 (or CHEM 1001 or CHEM 1031), Mathematics 1001 and Physics 1051 or Physics 1021

2400
Introductory Organic Chemistry I
is a course on bonding involving carbon; conformations and stereochemistry; introduction to functional groups and nomenclature; properties, syntheses and reactions of hydrocarbons, alkyl halides and alcohols.

AR: attendance is required in the laboratory component of this course. Failure to attend may result in a failing grade or deregistration from the course.
CR: Chem 2440 the former CHEM 2420 2440 and the former 240A/B
LH: 3
CO: CHEM 1051
PR: CHEM 1050, CHEM 1051 or 1031; or CHEM 1010 and 1011 with a grade of at least 80% in each; or CHEM 1011 with a grade of at least 85%; or CHEM 1001 with a grade of at least 65%

10.5 Earth Sciences

2030
Mineralogy
provides an introduction to crystallography and the structure of minerals; introduction to crystal optics; study of the rock forming minerals and minerals of economic significance. Laboratory work comprises study of the structures and symmetries of minerals, chemistry of rock forming minerals, introduction to transmitted light microscopy of rocks, hand specimen recognition of common rocks and minerals.

CO: EASC 2502
CR: the former EASC 203A/B
LH: 3
PR: EASC 1000 and 1002, Chemistry 1051 1051 (or 1051 1011) (or 1001) or equivalent, Physics 1051 (or 1021 or 1054), and Mathematics 1000

2502
Introduction to Geochemistry
provides an overview of both low- and high-temperature geochemistry. Topics include: origin and classification of the elements; chemical differentiation of the solar system and solid Earth; aqueous geochemistry and the stability of minerals; radiogenic and stable isotopes. Geochemical concepts are illustrated using data and processes drawn from Earth systems. The laboratory component emphasizes the development of numerical skills needed in geochemistry.

CO: Mathematics 1001
LH: 3
PR: EASC 1000 and 1002, Chemistry 1041 1051 (or 1051 1011) or equivalent

Resulting minor changes to chemistry programs:

9.3.2 Faculty Advisors
Each student majoring in Chemistry will be assigned a Faculty Advisor who should be consulted on all academic matters. Individual programs must be drawn up in consultation with the advisor.

Note:
Students who have obtained a grade of 3 or better on the Advanced Placement courses in Chemistry will normally be eligible for direct entry into Chemistry 1031-151 or second year courses. Such students must consult the Department before registration.

9.3.3 Minor in Chemistry
Candidates who take a minor in Chemistry will complete Chemistry 1050 and 1051 (or 1010, 1011 and 1031) (or 1200 and 1001) or equivalent, Chemistry 2100, 2210, 2301 (or 2300) or 2302, and 2400, and 6 credit hours in other chemistry courses at the 2000 level or above.

9.3.4 General Degree - Major in Chemistry
The courses required for a Major in Chemistry are:
1. Chemistry 1050 and 1051 (or 1010, 1011 and 1031) (or 1200 and 1001) or equivalent, 2100, 2210, 2301 (or 2300), 2302, 2400, 2401, 3110, 3210, 3211, 3303, 3410, 3411, and 3500.
2. Physics 1050 (or 1020 and 1021) and 1051.

Recommended courses: Biochemistry 2101, Mathematics 2051, Physics 2820 and/or 2750. and 6 credit hours in one of the following languages: French, German, or Russian.

Students considering declaring Chemistry as their Major are encouraged to contact either the Department Head or the Deputy Head (Undergraduate Studies).

9.3.5 Honours Degree in Chemistry
Students wishing to take Honours should consult those sections of the Calendar dealing with Regulations for the Honours Degree of Bachelor of Science. The Honours program in Chemistry consists of at least 63 credit hours in Chemistry courses. It is recommended that candidates also take groups of 18 or more credit hours in each of two other science subjects, normally Biochemistry, Biology, Earth Sciences, Physics, or Mathematics.

9.3.5.1 Required Courses
1. Chemistry 1050 and 1051 (or 1010, 1011 and 1031) (or 1200 and 1001) or equivalent, 2100, 2210, 2301 (or 2300), 2302, 2400, 2401, 3110, 3210, 3211, 3303, 3410, 3411, 3500, 490A/B and 12 credit hours selected from the remaining 4000-level Chemistry courses.
2. Physics 1050 (or 1020 and 1021) and 1051.

9.3.5.2 Other Information
1. Those courses in which a grade of B or an average of 75% or higher are required, as specified in *Regulations for the Honours Degree of Bachelor of Science, Academic Standing*, clause a., are the courses beyond first year used to satisfy clause 1. under *Required Courses* above.

2. Recommended courses: Biochemistry 2100, Biochemistry 2101, Mathematics 2051, Physics 2820 and/or 2750.

3. A thesis based on a selected research topic carried out under the supervision of a member of the Department is to be submitted in the final year.

4. Chemistry 490A/B will normally require the equivalent of nine hours per week for two semesters. Registration in Chemistry 490A/B is restricted to those students who have honours standing. The Honours dissertation will be assessed by a committee comprising the supervisor and one other faculty member.

5. With approval of the Heads of the Chemistry and Biochemistry Departments prior to registration, a number of courses in Biochemistry may be substituted for a like number of Chemistry courses.

6. Six credit hours in one language are recommended: French, German or Russian should be selected in consultation with the Department Head.

7. Prospective Honours students in Chemistry in their first year should take
   a. Six credit hours in English.
   b. Chemistry 1050 and 1051 (or 1010, 1011 and 1031) (or 1200 and 1001) or equivalents.
   c. Physics 1050 and 1051 or 1020 and 1021.
   d. Mathematics 1000 and 1001.
   e. Six credit hours in other courses.

8. Given appropriate circumstances the Honours Chemistry program may be completed in four years. Students should consult the Undergraduate Student Handbook for timetabling details.

9. Students completing first year requirements for any of Chemistry, Mathematics or Physics via the three course options (i.e. Chemistry 1010, 1050, 1011, 1031, 1051 (or 1010, 1011, 1031) (or the former 1800, 1200, 1001), Mathematics 1090, 1000, 1001, Physics 1020, 1021, 1051) instead of the two course options (Chemistry 1050, 1051, Mathematics 1000, 1001, Physics 1050, 1051) will require the corresponding number of extra credits to obtain an Honours degree.

10. Arrangements for subsequent years will depend on the other science subjects being studied and should be made in consultation with the Faculty Advisor.

11. Certain advanced courses may only be offered in alternate years. Candidates therefore should consult the Head of the Department before registration.

12. Certain of the Graduate courses may be taken in the final year of the Honours Program with the permission of the Head of the Department.

13. Details of Joint Honours programs with Biochemistry, Earth Sciences, Mathematics and Physics are outlined under *Joint Programs*.

14. For students who wish to complete the Environmental Science (Chemistry Stream) Major or Honours see the Grenfell Campus section of the Calendar.

**9.3.6 General Degree - Major in Computational Chemistry**
Students wishing to take a Major in Computational Chemistry should consult those regulations of the Calendar dealing with Regulations for the General Degree of Bachelor of Science.

9.3.6.1 Required Courses

1. Chemistry 1050 and 1051 (or 1010, 1011 and 1031) (or 1200 and 1001) or equivalent, 2100, 2210, 2301 (or 2300), 2302, 2400, 2401, 3211, 3303, 4304, and a 3 credit hour chemistry course at the 4th year level.
2. Physics 1050 (or 1020 and 1021), 1051, and 2820.
3. Mathematics 1000, 1001, 2000, 2050, 2051, 2260 (or 3260), 2320, and 3202.
4. Computer Science 1510, 1710, 2710, 2711, 3719, and 3731.
5. English 1080 and English 1110 or equivalent.
6. A sufficient number of elective courses to bring the degree up to a total of 120 credit hours must also be completed.

Recommended courses: Mathematics 3161, 3240, Chemistry 3110, 3210, 3410, 3411, Computer Science 2500, 3550, 4XXX.
Recommended electives: Biochemistry 2101, Physics 3800.

9.3.6.2 Suggested Program of Study

Given appropriate circumstances the Major in Computational Chemistry program can be completed in four years. While students should consult the Undergraduate Handbook for further timetabling details, to complete the program in four years generally will require that students take the following courses in their first year:

1. English 1080 and English 1110 or equivalent.
2. Chemistry 1050 and 1051 (or 1010, 1011 and 1031) (or 1200 and 1001) or their equivalents.
3. Physics 1050 (or 1020 and 1021), and 1051.
4. Mathematics 1000 and 1001
5. Computer Science 1510 and 1710

9.3.7 Honours Degree in Computational Chemistry

Students wishing to take Honours in Computational Chemistry should consult those sections of the Calendar dealing with Regulations for the Honours Degree of Bachelor of Science. The Honours program in Computational Chemistry consists of a minimum of 42 credit hours in Chemistry, a minimum of 24 credit hours in Mathematics, and a minimum of 18 credit hours in Computer Science. An additional 6 credit hours in recommended Chemistry, Mathematics or Computer Science courses are also required in addition to the minimum credit hour requirements.

9.3.7.1 Required Courses

1. Chemistry 1050 and 1051 (or 1010, 1011 and 1031) (or 1200 and 1001) or equivalent, 2100, 2210, 2301 (or 2300), 2302, 2400, 2401, 3211, 3303, 4304, and a 3 credit hour chemistry course at the 4th year level.
2. Physics 1050 (or 1020 and 1021), 1051, and 2820.
3. Mathematics 1000, 1001, 2000, 2050, 2051, 2260 (or 3260), 2320, and 3202.
4. Computer Science 1510, 1710, 2710, 2711, 3719, and 3731.
5. Chemistry 490A/B.
6. English 1080 and English 1110 or equivalent.
7. Two of the recommended courses.
8. A sufficient number of elective courses to bring the degree up to a total of 120 credit hours must also be completed.
Recommended courses: Mathematics 3161, 3240, Chemistry 3110, 3210, 3410, 3411, Computer Science 2500, 3550, 4XXX.
Recommended electives: Biochemistry 2101, Physics 3800.

**9.3.7.2 Suggested Program of Study**
Given appropriate circumstances the Honours in Computational Chemistry program can be completed in four years. While students should consult the Undergraduate Handbook for further timetabling details, to complete the program in four years generally will require that students take the following courses in their first year:
1. English 1080 and English 1110 or equivalent.
2. Chemistry 1050 and 1051 (or 1010, 1011 and 1031) *(or 1200 and 1001)* or their equivalents.
3. Physics 1050 (or 1020 and 1021), and 1051.
4. Mathematics 1000 and 1001
5. Computer Science 1510 and 1710

**9.3.7.3 Other Information**
1. Those courses in which a grade of B or an average of 75% or higher are required, as specified in *Regulations for the Honours Degree of Bachelor of Science, Academic Standing*, are the courses beyond first year used to satisfy the required course list.
2. A thesis based on a selected research topic carried out under the supervision of a member of the Department is to be submitted in the final year.
3. Chemistry 490A/B will normally require the equivalent of nine hours per week for two semesters. Registration in Chemistry 490A/B is restricted to those students who have honours standing. The Honours dissertation will be assessed by a committee comprising the supervisor and one other faculty member.
4. Students completing first year requirements for any of Chemistry, Mathematics or Physics via the three course options (i.e. Chemistry 1010, 1050, 1011, 1031, 1051 or (1010, 1011, 1031) *(or the former 1800, 1200, 1001)*, Mathematics 1090, 1000, 1001, Physics 1020, 1021, 1051) instead of the two course options (Chemistry 1050, 1051, *Chemistry 1200, 1001*, Mathematics 1000, 1001, Physics 1050, 1051) will require the corresponding number of extra credits to obtain an Honours degree.
5. Arrangements for subsequent years will depend on the other science subjects being studied and should be made in consultation with the Faculty Advisor.
6. Certain advanced courses may only be offered in alternate years. Candidates therefore should consult the Head of the Department before registration.
7. Certain of the Graduate courses may be taken in the final year of the Honours Program with the permission of the Head of the Department.

Resulting minor changes to programs in science:

**9.5 Earth Sciences**

**9.5.4.1 Common Block of Required Courses**
All majors in Earth Sciences must complete those courses specified in Clauses 1. through 4. Students should examine prerequisites of 3000 level courses in order to decide which course to select under Clauses 3. and 4.
1. English 1080 and 1110 (or equivalent), Mathematics 1000 and 1001, Earth Sciences 1000 and 1002, one of Chemistry 1040 or 1050 or 1010 or 1200 *(or equivalent)* and one of Chemistry 1011 or 1051 or 1011 or 1001 *(or equivalent)*,
Physics 1050 and 1051 or Physics 1020 and 1021. Students are advised to consult the Department of Physics Course Descriptions section for credit restrictions. Students who intend or are required to complete higher level Physics courses must complete Physics 1051 as well, since it is a prerequisite for higher level Physics courses. Students should review the Department of Physics Calendar entry for these courses.

2. Earth Sciences 2030, 2031, 2401, 2502, 2702, 2905, 3420, 3905.
4. Either Biology 2120 (or Biology 1001 and 1002); or both Physics 2055 and Physics 2820.

9.1.2 Major in Biochemistry

Entry to the Biochemistry Majors program is based on academic standing.

1. To be considered for admission to the program students must have at least 30 credit hours in courses and have successfully completed the following courses (or their equivalents) with a minimum overall average of 60%. In addition, students must be eligible for entry to Chemistry 2400.
   a. English 1080, 1110 (or equivalent)
   b. Chemistry 1050, and 1051 (or Chemistry 1010 and 1050, 1011 or 1200 and 1001)
   c. Mathematics 1000, 1001 (or Mathematics 1090, 1000)
   d. Physics 1050, 1051 (or Physics 1020, 1021), or Biology 1001, 1002

2. Required courses to complete the major:
   a. Biochemistry 2100, 2101, 3105, 3106, 3107, 3108.
   b. At least 12 credit hours in courses from
      Biochemistry 2600, 3203, 4002, 4101, 4103, 4104, 4105, 4200, 4201, 4230-4239.
   c. Medicine 310A/B or 6 credit hours from Biochemistry 4240-4249,
      Biology 2060, 3050, 3401, 3402, 3530, 4200, 4245, 4404, Chemistry 4201.
   d. Biology 1001 and 1002; Mathematics 1001; and Physics 1020 or 1050,
      and 1051 for those students who did not complete them in first year. Students
      may also need to complete Physics 1021 in order to fulfill this requirement.
   e. Chemistry 1051 is a required course for the Major in Biochemistry and must
      normally be completed prior to entrance into 2nd year Chemistry and
      Biochemistry courses. Chemistry 1031 is required for students who complete
      Chemistry 1010 and 1011. It is strongly recommended that these students
      complete Chemistry 1031 prior to second year. See Note 2 below. Students
      who do not meet the requirements for entry into Chemistry 1050 from high
      school can first take Chemistry 1010 followed by Chemistry 1050 and 1051.
   f. Chemistry 2300 or 2301, or Physics 2053; Chemistry 2400, 2401
   g. One of Chemistry 2100, Environmental Sciences 3210, Environmental
      Sciences 3211.

Notes:

1. Students are required to complete at least 78 credit hours in Science courses for the General Degree.
2. Majors who take Chemistry 1010/1011 — but not Chemistry 1031 — as part of their first-year sequence risk wasting a whole year before they can continue taking Biochemistry program courses.

9.1.2.1 Honours Degree in Biochemistry

Students normally should apply for an Honours program at the completion of their third year of studies. Honours students would normally follow the Biochemistry Majors program before applying to honours, and must meet its admissions requirements as follows:

1. To be considered for admission to the majors program prior to admission to honours, students must have at least 30 credit hours in courses and have successfully completed the following courses (or their equivalents) with a minimum overall average of 60%. In addition, students must be eligible for entry to Chemistry 2400.
   a. English 1080, 1110 (or equivalent)
   b. Chemistry 1050, and 1051 or equivalent (or Chemistry 1010, 1011, or 1200 and 1001)
   c. Mathematics 1000, 1001 (or Mathematics 1090, 1000)
   d. Physics 1050, 1051 (or Physics 1020, 1021) or Biology 1001, 1002

2. To be eligible for admission, students must be in Honours standing. To be considered for early admission to an Honours program in Biochemistry at the end of second year, students must have achieved at least 70% in each of Biochemistry 2100 and 2101 and Chemistry 2400, 2401.

3. Required courses:
   a. Biochemistry 2100, 2101, 3105, 3106, 3107, 3108, 4102, 499A, 499B, Medicine 310A/B.
   b. Biochemistry 4210 or 4211.
   c. Twelve credit hours in courses from Biochemistry 4002, 4101, 4103, 4104, 4105, 4200, 4201, 4230-4239.
   d. At least 6 credit hours in courses from Biochemistry 2600, 3203, 4220, 4240-4249, Biology 2060, 3050, 3530, 4200, 4245, 4404, Chemistry 4201.
   e. Biology 1001 and 1002; Mathematics 1001; and Physics 1020 or 1050, and 1051 for those students who did not complete them in first year. Students may also need to complete Physics 1021 in order to fulfill this requirement.
   f. Chemistry 1051 is a required course for the major in Biochemistry and must normally be completed prior to entrance into 2nd year chemistry and biochemistry courses. Students who do not meet the requirements for entry into Chemistry 1050 from high school can take Chemistry 1010 followed by Chemistry 1050 and 1051. Chemistry 1031 is required for students who complete Chemistry 1010 and 1011. It is strongly recommended that these students complete Chemistry 1051 1031 prior to second year.
      (see Notes below).
   g. Chemistry 2300 or 2301 or Physics 2053, Chemistry 2400, 2401, one of Chemistry 3410 or 3411.
   h. One of Chemistry 2100, Chemistry 3500, Environmental Sciences 3210, Environmental Sciences 3211.
   i. Statistics 2550 or equivalent.

Notes:
1. Majors who take Chemistry 1010/1011 but not Chemistry 1031 as part of their first-year sequence risk waiting a whole year before they can continue taking Biochemistry program course.

Minor Revisions to joint programs

5.1.1 Applied Mathematics and Chemistry Joint Honours (B.Sc. Only)
The following courses are required:
1. English 1080 and English 1110 (or equivalent).
2. A computing course. Computer Science 1510 is recommended.
4. Physics 1050 (or 1020) and 1051.
5. Mathematics 1000, 1001, 2000, 2050, 2051, 2130, 2260 (or 3260), 3000, 3001, 3132, 3161, 3202, 3210, 4160.
6. Chemistry 1050 and 1051 (or 1010, 1011 and 1031) (or 1200 and 1001), 2100, 2210, 2301, 2302, 2400, 2401, 3110, 3210 or 3211, 3303, 3500.
7. Six additional credit hours chosen from courses numbered 3000 or higher that are offered by the Department of Chemistry.
8. Mathematics 419A/B or Chemistry 490A/B.
9. A sufficient number of elective courses to bring the degree up to a total of 120 credit hours.

5.1.3 Biochemistry and Cell Biology Joint Honours
Students must have at least an overall average of 65% in English 1080 and 1110 (or equivalent), Mathematics 1000 and 1001, Biology 1001 and 1002, Chemistry 1050 and 1051 (or 1200 and 1001) (or equivalent), Physics 1050 (or 1020) and 1051.

The following courses, including prerequisites where applicable, will be required.
1. Biochemistry 2101, 3105, 3106, 3107, 3108, either 4210 or 4211, 12 credit hours chosen from 4002, 4101, 4102, 4103, 4104, 4105, 4200, 4201, 4230-4249.
2. Biology 2060, 2250, 2600, 2900, 3050 and 9 credit hours chosen from 3500, 3530, 3620, 4000, 4200, 4241. In addition, further Biology courses at the 2000, 3000, or 4000 level must be selected by the student to make up a minimum of 42 credit hours in Biology including Biology 1001 and 1002 but not including Biology 499A or 499B.
3. Either Medicine 310A/B, or Biology 3401 plus one of Biology 3402, 4245 or 4404.
4. Chemistry 2100, 2300 or 2301, 2400, 2401; either 3410 or 3411.
5. Statistics 2550 or equivalent.
7. Other courses to complete the prescribed minimum of 135 credit hours in courses for the Joint Honours Degree.

5.1.4 Biochemistry and Chemistry Joint Honours
The following courses (or their equivalents) are required:
1. Chemistry 1050 and 1051 (or Chemistry 1010, 1011 and 1031) (or 1200 and 1001) or their equivalents, Mathematics 1000 and 1001, Physics 1050 and 1051, 6 credit hours in first year English courses. Biology 1001 and 1002 are highly recommended.
3. Chemistry 2100, 2210, 2300 or 2301, 2302, 2400, 2401, 3110, 3211, 3303, 3410, 3411, 3500, and 6 further credit hours in Chemistry courses at the 4000 level.
4. Biochemistry 2100, 2101, 3105, 3106, 3107, 3108, Medicine 310A/B, either Biochemistry 4210 or 4211, 9 credit hours chosen from Biochemistry 4002, 4101, 4102, 4103, 4104, 4105, 4200, 4201, 4220, 4230-4249.

Note:
Only one of Biochemistry 4105, 4220 may be chosen.

5. Either Chemistry 490A/B or Biochemistry 499A/B.
6. Other courses to complete the prescribed minimum of 135 credit hours in courses for the Joint Honours Degree. Physics 2820 and/or Physics 2750 are recommended.

5.1.5 Biochemistry and Physics Joint Honours
The following courses are required:
1. English 1080 and 1110 (or equivalent), Chemistry 1050 and 1051 (or Chemistry 1010, 1011, and 1031) (or 1200 and 1001), Mathematics 1000 and 1001, Physics 1050 (or 1020) and 1051
2. Chemistry 2400, 2401.
3. Chemistry 2300 or 2301 or equivalent, or Physics 2053
4. Mathematics 2000, 2050, 2260 (or 3260), either Mathematics 3202 or Physics 3810.
5. Biochemistry 2100, 2101, 3105, 3106;
6. Either Biochemistry 3107 and 3108 or Medicine 310A/B;
7. An additional 12 credit hours to be selected from Biochemistry 4002, 4101, 4102, 4103, 4104, 4105, 4200, 4201, 4210 or 4211; 4230-4249;
8. Physics 2055, 2750 or 2056, 2820, 3220, 3400, 3500, 3750, 3820, 3900, plus one 4000 level Physics course.
9. Either Physics 490A/B or Biochemistry 499A/B.
10. Other courses to complete the prescribed minimum of 120 credit hours in courses for the Joint Honours degree.

5.1.6 Biochemistry and Psychology (Behavioural Neuroscience) Joint Honours

Note:
Students completing this program cannot receive credit for Psychology 2920.
The following courses (or equivalent) are required to complete the 120 credit hours in courses required for the degree:
1. Chemistry 1050 and 1051 (or 1200 and 1001) (or equivalent),
   Biology 1001 and 1002, Mathematics 1000 and 1001, Physics 1050 (or 1020) and 1051, English 1080 and 1110.
2. Biochemistry 2100, 2101, 3105, 3106, 3107, 3108, Medicine 310A/B, either 4210 or 4211, 9 credit hours chosen from Biochemistry 4002, 4101, 4102, 4103, 4104, 4105, 4200, 4201, 4220, 4230-4249.

Note:
Only one of 4105 and 4220 may be chosen.

3. Psychology 1000, 1001, 2520, 2570, 2910, 2911, 3800, 3801, 3900, two further courses in Psychology chosen from the following: 3050, 3100, 3250, 3350, 3450, 3620, 3650, 3750; two 4000 level courses in Psychology of which one must be a research experience course.
4. Either Biochemistry 499A/B or Psychology 499A/B.
5. Chemistry 2300 or 2301, 2400, 2401.

5.1.15 Computer Science and Physics Joint Honours
The following courses are prescribed:
1. Chemistry 1050 and 1051 (or Chemistry 1010, 1011, and 1031) (or 1200 and 1001).
2. a. Computer Science 1710, 2710, 2711, 2742, 2760, 3715, 3716, 3719, 3724, 3725, 3731, 3754, 4770.
   b. Nine additional credit hours in Computer Science courses numbered 3000 or higher, including at least 6 credit hours in courses numbered 4000 or higher.
3. a. Physics 1050 (or 1020) and 1051.
   b. Physics 2053, 2055, 2750 or 2056, 2820, 3220, 3400, 3500, 3750, 3820, 4500, 4820 and 3230 or 3900.
4. Physics 490A/B or Computer Science 4780.
5. Physics 3810 or Mathematics 3202.
   b. Mathematics 2000, 2050, 2260 (or 3260) and 2320.

5.1.19 Earth Sciences and Physics Joint Honours
This program was formerly in the Earth Sciences section of the calendar as an Honours B.Sc. Degree in Geophysics. The following courses will be required:
1. English 1080 and 1110 (or equivalent), Mathematics 1000 and 1001, Earth Sciences 1000 and 1002, Chemistry 1010 1050 and 1011 1051 (or equivalent Chemistry 1010 and 1011) (or 1200 and 1001), Physics 1050 (or 1020) and 1051.
2. Earth Sciences 2030, 2401, 2502, 2702, 2905, 3170, 3172, 3420, 3905, 4171, 4173, 4179.
3. Physics 2055, 2750 or 2056, 2820, 3220, 3230, 3500, 3820, 4820; plus 9 other credit hours in Physics courses at 3000 level or higher.
4. Mathematics 2000, 2050, 2260 (or 3260) and 3202.
5. Either Earth Sciences 499A/B or Physics 490A/B.
6. Other courses to complete at least a minimum of 120 credit hours.

5.2.9 Earth Sciences and Physics Joint Major
This program was formerly in the Earth Sciences section of the calendar as a General B.Sc. Degree in Geophysics. The following courses will be required:
1. English 1080 and 1110 (or equivalent), Mathematics 1000 and 1001, Earth Sciences 1000 and 1002, Chemistry 1010 1050 and 1011 1051 (or equivalent Chemistry 1010 and 1011), (or 1200 and 1001), Physics 1050 (or 1020) and 1051.
2. Earth Sciences 2030, 2401, 2502, 2702, 2905, 3170, 3172, 3420, 3905; plus a 3 credit hour course in Earth Sciences 4100 series.
3. at least 30 credit hours in Physics courses at the 2000 level or higher, including Physics 2055, 2056 or 2750, 2820, 3220, 3500.
5. Other courses to complete at least a minimum requirement of 120 credit hours in courses for the General Degree.

Rationale for Change(s)

Eliminating CHEM 1031
- Data shows that students who come through the 1010/1011/1031 stream are not as well prepared for second year courses such as Chemistry 2301 and 2210 as those from the 1050/1051 stream. On average a 1031 student’s grades drop 7.1% from first year to 2301 vs a 1.9% drop from 1051. More astounding, 58% of 1051 students achieve an A in 2301 whereas only 11% of 1031 students achieve A’s. Part of the reason for the 1031 stream not being as effective is that it is a course that fills in holes left out of certain topics. For example, in 1010, students were taught to write electron configurations without understanding why atomic orbitals were organized the way they are.
- The latest chemistry academic program review pointed to inefficiencies in the number of 1st year offerings
- High school students are usually not able to complete all three biology, chemistry, and physics level III courses so there is a need for preparatory courses at MUN. The chemistry department wishes to have one preparatory course (1010), to be followed by a common set of courses (1050/1051) that are shown to be excellent in preparing students in the faculty of science.
- We would like to make 1050/1051 the standard in the faculty of science, however, we realize the current necessity to have a two course option (1010/1011) for some departments (HKR and Biology). It is hoped that the 1050/1051 option will be recommended to all FOS students who qualify for entrance.

Eliminating MATH 1000 and 1001 corequisites for CHEM 1050 and 1051, respectively
- There is no calculus used in teaching first year chemistry. Therefore all students taking this course do not need to be taking MATH 1000 or MATH 1001 as corequisites. Students do require MATH 1000 for CHEM 2210 and MATH 1001 for CHEM 2301 and 2302 as these courses have demands for calculus.
based math. There are FOS students and others who we feel should require university level chemistry 1050/1051 that do not necessarily require both MATH courses.

- Many aspects of chemistry are quantitative and, obviously, students require math skills and should have a good background in math from high school.
- The current regulations prohibit students with high school chemistry (with good grades) from taking CHEM 1050 and 1051 because they are not enrolled in MATH 1000 or do not need MATH 1001 for their degrees, most notably biology majors or honours students.

Reduction of the Entrance Requirement Grade of High School Chemistry 3202 from 75 to 65

- Ample literature exists that shows that there is little to no correlation between high school chemistry grades and first year chemistry success beyond an understanding of stoichiometry. (10.1021/ed083p1703, 10.1021/ed056p173, 10.1021/ed073p1150, http://www.chem.utoronto.ca/~dstone/teachers/Stone-Disconnect-Slides.pdf)

- There is no reason why a student with an average lower than 75 in CHEM 3202 is not able to pass the course with good study habits. Furthermore, because of the current regulation students with 80's are guided by their teachers/advisors or simply decide to take CHEM 1010 because they think they will get a good mark. CHEM 1010 is designed for students with no chemistry backgrounds and spends most of the time on very basic topics such as primitive theories of the atom, basic chemical reactions, and stoichiometry, topics mainly covered in high school. As such, it is easy for a student who has already covered this material to be overconfident or bored with the course material and not spend enough time studying, which can have disastrous results.

- The range of student abilities in this course is extremely wide so instructors have a very difficult time gearing the level to students with no chemistry background to those who have a higher level of chemistry, coming into the course with 70's, 80's and 90's. The course needs to be a truly preparative course for CHEM 1050, a University level course.

Note 1: First year chemistry courses in all of the chemistry departments at the following universities have no incoming grade associated with high school chemistry only the credit. DAL\(^{a}\), UPEI\(^{a}\), UNB\(^{a}\), UofO\(^{a}\), UW\(^{a}\), MAC\(^{a}\), UMan\(^{a}\), USask, UofA, UBC
\(^{a}\): all offer a preparatory chemistry course

*only UNB requires a corequisite calculus (derivatives) course for 1\(^{st}\) yr chem course

Note 2: Besides the placement tests in Mathematics, no first year courses that we are aware of in the FOS other than chemistry has a grade prerequisite stipulated for a high school course.

The costs, if any, associated with this change/these changes can be met from within the existing budget allocation or authorized new funding for [NAME OF UNIT HERE]. [DELETE]
Signature of Unit Head (if appropriate): ____________________________

Date: ____________________________________________

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

Date: ____________________________________________
SUMMARY PAGE FOR SENATE

Approval Form

Course Title and Number

Chemistry 1010
Chemistry 1011
Chemistry 1050
Chemistry 1051
Chemistry 1031 to be deleted

Abreviated Course Title

Introductory Chemistry I
Introductory Chemistry II
General Chemistry I
General Chemistry II
Introductory Chemistry III to be deleted

Calendar Description Change(s)

Chemistry 1031 is to be deleted.
A few topics have been exchanged between Chemistry 1010 and Chemistry 1011.
Chemistry 1050 and Chemistry 1051 have undergone a few minor deletions and additions of topics.
The co-requisite math requirements for Chemistry 1050 and Chemistry 1051 have been dropped.
The prerequisite minimum grade in high school chemistry 3202 for entrance into Chemistry 1050 is to be dropped from 75% to 65%.

Rationale

Statistics show that students who follow the Chemistry 1010, 1011, 1031 path to enable them to do second year chemistry courses are noticeably less successful than students who follow the Chemistry 1050/1051 route with generally lower grades and more failures. Students who require most second year chemistry courses for their program and who start with Chemistry 1010 will follow this with Chemistry 1050 and Chemistry 1051.
A few topics have been exchanged between Chemistry 1010 and Chemistry 1011 to benefit students who will proceed to Chemistry 1050 from Chemistry 1010.
Chemistry 1050 and Chemistry 1051 have undergone a few minor deletions and additions of topics to provide a more balanced curriculum. The co-requisite math requirements for Chemistry 1050 and Chemistry 1051 have been dropped as calculus is not required for a student to successfully understand the course material. There is no calculus required on assignments, tests or exam. The prerequisite minimum grade in high school chemistry 3202 for entrance into Chemistry 1050 is to be dropped from 75% to 65%. There is evidence to suggest that students with 65% or better in high school chemistry should pass Chemistry 1050 successfully.

Consultations Sought From

Grenfell

Comments Received

yes
Marine Institute: yes
Mathematics and Statistics: yes
Computer Science: no
Physics: yes
Biochemistry: yes
Biology: yes
Psychology: yes
Ocean Sciences: yes
Earth Sciences: no
Pharmacy: yes
Engineering: yes
Marine Institute: yes

Library Report Received: yes

Approved by Dean, Associate Vice-President (Academic) or Vice-President

Yes/No

Name

FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:

Secretary:

Date:

Consultation email: sent 19/09/2014 4:47 pm

Hello everyone,

Please send your comments regarding proposed changes to the first year chemistry courses offered on this campus.

sincerely,

Chris Flinn
Deputy Head, Undergraduate Studies,
MUN Chemistry Department

Responses to consultation email:

Department of Mathematics and Statistics:
Hi Chris:

The Dept of Math and Stats has no objection to your proposal for First-Year Chem Calendar changes.

The strikeout in the PR for CHEM 1011 changing Academic Mathematics 3204 to 3201 gets lost in the horizontal bar of the 4.

H. Johnson
Math & Stats

Faculty of Engineering

Dear Dr. Flinn,

In addition to my preliminary comments of September 23, (which today’s meeting of our Committee on Undergraduate Studies endorsed), I can report that our CUGS strongly supports these proposed changes to the set of first year Chemistry courses.

For students interested in Engineering, the chemistry requirement in first year will be much clearer: just CHEM 1050 (either directly from high school or via CHEM 1010).

We also support the proposed changes in the prerequisites for CHEM 1050.

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

Quoting Engineering Consultations <engrconsult@mun.ca> on 2014 09 23:

Dear Dr. Flinn,

In advance of the meeting of our Committee on Undergraduate Studies on Wed. October 15, I have some preliminary comments on the set of proposed Calendar changes to first year Chemistry courses.

Students in Engineering One who do not complete CHEM 1050 with a grade of at least 55 are ineligible for promotion to Academic Term 3. For students lacking the level 3 high school chemistry course, these changes will make the route CHEM 1010 -> CHEM 1050 much clearer. It is CHEM 1050 that we really need.

Will these changes allow for at least one section of CHEM 1050 to be offered in each Spring semester? That would allow much greater scheduling flexibility for our students in Engineering One.
CHEM 1051 is required in Engineering by the Process major only. Early indications are of support from the Department of Process Engineering for these changes.

Following are two points that I believe are typos:

In CHEM 1011 the line "LH: 3 hours biweekly alternating with labs" should be "LH: 3 hours biweekly alternating with tutorials".

In CHEM 1051 the mathematics requirement should be removed entirely from the prerequisite line in order to be consistent with the rest of the document, especially the rationale on the summary page. The prerequisite line for CHEM 1051 should read simply "PR: CHEM 1050"

I will transmit a full reply shortly after October 15.

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

Department of Biology

Hi Chris,
The Biology Undergraduate Studies Committee has reviewed the proposed changes to the Chemistry program and is in support of such changes. We will continue to advise students intending on majoring in Biology, that they can do either Chemistry 1010 & 1011 or 1050 & 1051 in first year.
Thanks
Karen

Karen Morris
Undergraduate Officer
Dept. of Biology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
709-864-8021

Department of Psychology

Hi Chris,
We've examined your proposed changes to 1st year Chemistry courses and have the following comments and questions.

- These revisions don't appear to pose any problems for Chemistry requirements in our Psychology or Behavioural Neuroscience degree programs.

- The rationale for the revisions makes sense, and therefore they should improve your 1st year offerings and how they mesh with 2nd year courses.

- There may be a typo on the 1st page where the description of the laboratory hours (LH) for 1011 appears. It now reads: "LH: 3 hours biweekly alternating with labs". I'm guessing it's meant to mirror the existing description of the LH component for 1010 (but doesn't).

- Why delete 1031 from the PR for the 2nd year CHEM courses? Shouldn't students who've already taken 1031 be able to use it as the PR for those courses?

- Why is CHEM 2300 (Grenfell) deleted from requirements for Biochem/Behavioural Neuroscience joint honours program? No rationale is provided for that change.

Chuck Malsbury
Deputy Head & Undergraduate Officer

Department of Psychology

Department of Physics

Chris

You are welcome.

We have looked through the changes and think that they look fine. This simplifies the chemistry streams somewhat and seems quite reasonable.

Michael Morrow

On 23/09/2014 6:34 PM, Chris Flinn wrote:
Hi Michael,

Thanks for picking this up. I have fixed it.

cheers,

Chris Flinn

On 22/09/2014 9:15 AM, Michael Morrow wrote:
Chris

Under Chemistry 1051, I still see
PR: CHEM 1050 and Mathematics 1001 which may be taken concurrently with CHEM 1051

Is it intended that Math 1001 still be a concurrent prerequisite for Chem 1051? That doesn't seem to be consistent with the rationale at the end of your package.

Thanks

Mike

Marine Institute

Chris,

Thank you for the opportunity to review the proposed changes to the first year Chemistry entry in the calendar. We have no issue with these changes and are happy to support these as presented.

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0586
FAX: 709-778-0394
Derek.Howse@mi.mun.ca

Grenfell

Dr. Rob Gallant,

Head of Science,

Please see the list of queries and comments from various Chemistry faculty of Environmental Science from Grenfell Campus, MUN. Please forward such comments to Dr. Chris Flynn, Deputy Head, Undergraduate Studies, Chemistry, St. John's Campus with your document.

Regards,

Don-Roger,

Chair of Environmental Science,

Grenfell Campus, MUN

Corner Brook, NL
Comments on proposed changes to Chemistry (St. John's) First-year Curriculum and Impact on other programs

Comments:

No Organic anywhere in the First year?

S. Abhyankar

Comments:

It seems odd with intro to equilibrium in semester 1 then solubility equilibria tucked away at the end of semester 2.

G. Rayner-Canham

Comments:

1. I have no objections to the modifications to the Chemistry 1010, 1011, 1050 and 1051 Calendar descriptions or the respective laboratory/tutorial components.

2. I have no objection to the change in highschool entry requirements for Chemistry 1050.

3. For the foreseeable future Grenfell will continue to offer Chem 1810 as the entry course for students who lack recent or any highschool Chemistry preparation and Chem 1200 will be the normal entry course for all other students. Chemistry 1050 is offered at Grenfell only to fulfill the requirements of Engineering.

4. Throughout the document there is an inconsistent use of the term "equivalent". For Chem 2210 (Introductory Inorganic Chemistry) the pre-requisite is written as: "CHEM 1051 or equivalent (or 1001)." This would suggest that "or equivalent" is directed towards students who have completed a comparable course outside of the MUN system. However, in the change proposed for the pre-requisite for Earth Science 2502 (Introduction to Geochemistry) the prerequisite is now: "EASC 1000 and 1001, Chemistry 1051 (or 1011 or equivalent)." Here, it could be argued that the "or equivalent" is directed towards Grenfell Campus. After all, would Chemistry 1001 not be considered equivalent to Chemistry 1011, especially since Chemistry 1001 mandates 3 hours laboratory sessions each week, while the laboratory experience is less in Chemistry 1011 that requires a 3 hour laboratory on weeks alternating with a 1.5 hour tutorial. I note that the current calendar gives the pre-requisites for Chem 2440 (Organic Chemistry for Biologists) as: Chem 1011 (or 1001 or 1051). Why not be equally specific throughout the pre-requisite listings for courses? The "or equivalent" that appears in the Required courses (9.3.4 and 9.3.5.1) after "2301" can be dropped. Chemistry 2300 has not been offered on Grenfell Campus for two academic years now; we offer the same 2301 course. If here "or equivalent" is meant to "grandfather" students who completed 2300 on either campus prior to two years ago, then I understand this change, otherwise I do not. The issue appears again in the editorial changes to the Biochemistry program where under 9.1.2.1.1.b. it is proposed that the current list (Chemistry 1050, 1051 (or Chemistry 1011,1011 or 1200,1001)) be changed to Chemistry 1050 and 1051 or equivalent. Again the "or equivalent" is ambiguous. If the pre-requisites to Chemistry 2400 are not modified (point #6, vide infra) then a Biochemistry Major/Honours
student will require Chem 1051 or Chemistry 1001 with a 65% standing. Why not simply state this: Chemistry 1050 and 1051 or Chemistry 1200 and 1001, with a 65% grade in 1001?

5. For consistency and clarity I suggest repeating the same formula for the prerequisites suggested for Chemistry 2100 (Analytical Chemistry I) be extended to all of the courses whose pre-requisites are being modified. Thus, Chem 2100 pre-requisite list is: CHEM 1051 or equivalent

6. (or 1001) with a grade of at least 60%. To me this means that a student who completes Chem 1051 or 1001 with less than 60% in either would be barred from registration of CHEM 2100. However, for Chemistry 2301 (Thermodynamics and Kinetics) the pre-requisites read: "minimum 60% in CHEM 1051 or equivalent (comment #4 vide supra) (or CHEM 1001)." This seems ambiguous to me. It could be interpreted as requiring a student to achieve 60% in Chemistry 1051 or equivalent OR simply completing Chemistry 1001. To be perfectly clear I would suggest: "CHEM 1051 or 1001 with a grade of at least 60% in either course." I would extend this to Chemistry 2302 (Quantum Chemistry and Spectroscopy) which, by the way, is now routinely offered on Grenfell Campus.

7. It is unclear to me why, with these changes of pre-requisites for 2nd year courses, the pre-requisites for Chemistry 2400 have not been re-visited. Is Chemistry 2400 really so much more difficult than the Quantum Chemistry and Spectroscopy course that entrance into 2400 requires the achievement of a 65% in Chemistry 1001 but apparently so much easier than Quantum Chemistry and Spectroscopy when it comes to Chemistry 1051 where only a flat pass is needed to register for 2400 but a 60% needed to register for 2302? This would appear to be an opportune time to reconsider the pre-requisites for all the 2nd year course offerings in Chemistry.

8. In the section 9.3.5.1 Required Courses this "or equivalent" business appears again. Students who wish to complete the Honours program (or under 9.3.3 Minor or under 9.3.4 Major) are directed to complete Chemistry 1050 and 1051 or equivalent. Would it must be more "student friendly" to simply state: Chemistry 1050 and 1051 or Chemistry 1200 and 1001, with a grade of 65% in 1000? (Note again, that a consistent 60% from 1051 and/or 1001, would simply these matters).

9. Finally, given the various points of information given under the heading 9.3.5.2 Other Information, it would be collegial to add a point 14. as follows: for students who wish to complete the Environmental Science (Chemistry Stream) Major or Honours see the Grenfell Campus section of the Calendar.

Respectfully,

Julian M. Dust,
Assoc. Prof. Chemistry and Environmental Science

Comments:

1) I would like the removal of Chem 1810 form the sequence 1810/1200 and 1001. Chem 1810 is not mandatory and as such, it does not belong in this sequence. Chem 1810 is there to offer
guidance to students that have not completed chemistry in highschool and thus it offers them a chance to get up to speed. However if a student wishes to go directly into chem 1200 they can.

2) The ordering of molecular shapes should be taught in the winter semester followed by some basic M.O. and some discussion of carbon and its bonding.

3) I think it problematic that one can get through first year chemistry without doing some organic chemistry. Certainly this approach makes teaching Chem 2400 students more difficult, and wastes more time on trivial naming and bonding concepts.

4) Mark Percentages must be kept constant. Choose 65% or 60% throughout first year, second year and highschool for course entrances.

Regards,
Don-Roger Parkinson

Pharmacy

Hello Dr. Flinn
The proposed change to first year chemistry courses was recently discussed by School of Pharmacy faculty and staff. Overall, we are supportive of the proposed changes, in particular lowering the grade threshold for students to enter CHEM 1050 and eliminating CHEM 1031.

We would also like to make the following comment in regards to the school's admissions process. A potential challenge for us will be around transfer credit assessment for those students applying to Pharmacy who complete their introductory chemistry courses at other universities, as in many instances transfer credit has been awarded for CHEM 1010 and 1011, and not CHEM 1050 and 1051. We receive approximately 125-140 applications each year from students who complete their first year chemistry courses at universities other than MUN, and these students require unofficial transfer credit assessment to determine their eligibility for entry to Pharmacy as CHEM 1010/1011 alone is not sufficient to meet our entry requirements. This is a time sensitive process as we must determine whether students have met the prerequisite course requirements for admission, in order to invite them for an interview and be considered for admission in May of each year. We would anticipate that the proposed changes to the first year chemistry courses at MUN may result in changes to the transfer credit determination for first year chemistry courses completed at other universities.

Thank you for allowing us the opportunity to provide comments.
Regards,
Csop Glew

CSOP GLEW, Hon. B.A., M.U.P.  I  MANAGER OF ACADEMIC PROGRAMS
School of Pharmacy
Memorial University of Newfoundland
St. John's, NL  I  A1B 3V6
Health Sciences Centre  I  Room H3435
T  709 777 6963  I  F  709 777 7044

Library Consultation

Collection Development Division
Queen Elizabeth II Library
26 September 2014

To: Chris Flinn, Department of Chemistry

From: Erin Alcock, Science Research Liaison Librarian

Subject: Chemistry Calendar Changes to Existing Courses

The proposed changes to courses in Chemistry undergraduate programs will have no effect on the library system. MUN Libraries will continue to support students, faculty and staff in the Department of Chemistry.

Department of Biochemistry

Hi Chris,

Biochemistry’s undergraduate studies committee has looked at the proposal for the changes to the chemistry first year courses. Overall, we support the changes.

We would like to request two small alterations to the calendar changes you propose...

9.1.2.1. Honour Degree in Biochemistry - The note (“1. Majors who take Chemistry 1050 (or 1010/1011) but not Chemistry 1051 or 1031 as part of their first year sequence risk waiting a whole year before they can continue taking Biochemistry program course”) should be removed. Anyone who is still around and in the position to need 1031 has already missed a year or more.

5.1.4 Biochemistry and Chemistry Joint Honours - The note (“Only one of Biochemistry 4105, 4220 may be chosen”) can be removed. This is consistent with what did did for our honours and would help at least one student currently doing the joint honours.

Best,

Valerie

.................
Valerie Booth
Associate Professor
Canada Research Chair in Membrane Proteins
Deputy Head (undergrad) Department of Biochemistry
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
December 2, 2014

TO: All Members, Faculty Council of Science
FROM: Joan Burn, Secretary
Committee on Undergraduate Studies, Faculty of Science
SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 28, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Chemistry - Calendar changes to first year Chemistry courses, including deletion of one course, rearrangement of course content and prerequisite changes to others.

2. Department of Mathematics and Statistics:
   (i) Calendar change to regulations governing supplementary examinations
   (ii) Addition of a laboratory component to Foundation Mathematics courses

3. Department of Psychology
   (i) New course proposals: Psychology 2930, 3820, 3830, 3510, 3511
   (iii) Changes to existing Psychology and Behavioural Neuroscience programs.

Joan Burn
Associate Registrar and
Secretary: Committee
on Undergraduate Studies,
Faculty of Science
Proposal

Calendar Changes to Degree Regulations:
Faculty of Science

Executive Summary

We propose to relax the regulation governing supplementary examinations offered by the Department of Mathematics and Statistics, such that only certain courses will offer supplementary examinations rather than all courses.

Resource Implications: Instructional Costs

None.

Consultations

Comments were received from the Marine Institute, the Department of Biochemistry, and the Department of Biology. All were supportive of the proposal.

Library Holdings and/or Other Resources Required

As indicated in the attached memo from Dianne Taylor-Harding, Collections Librarian (Mathematics and Statistics), this proposal will not require additional library holdings.

The costs, if any, associated with this change/these changes can be met from within the existing budget allocation or authorized new funding for the Faculty of Science.

Signature of Unit Head (if appropriate): ____________________________

Date:

______________________________

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

______________________________

Date:

______________________________
SUMMARY PAGE FOR SENATE

Approval Form

Calendar Changes

Under the Faculty of Science, page 453, 2014-2015 Calendar, 6.3 (Regulations to Govern Supplementary Examinations in the Departments of Biochemistry, Computer Science, Mathematics and Statistics, and Physics and Physical Oceanography), amend Regulation 1 to read:

"1. Supplementary examinations will be allowed in certain of the Biochemistry, Computer Science, Mathematics and Statistics, and Physics and Physical Oceanography courses, and all Mathematics and Statistics courses which have written final examinations. In each course, students will be informed as to the possibility of a supplementary examination during the first week of classes. This information will be provided in writing, as part of the evaluation scheme for the course."

Secondary Calendar Changes

None.

Rationale

The Department of Mathematics and Statistics recently completed a review of the performance of its students in supplementary exams, with data from the last five years being examined. It was found that, during that period, 191 students wrote supplementary exams in the Department's 1000-level courses, 53 students at the 2000-level, and 15 students at the 3000-level and above. The rate at which students passed the course as a result of the supplementary exam was 66.5% for 1000-level courses, 47.2% at the 2000-level, and 33.3% at the 3000-level and above. In light of the small number of students availing of supplementary exams at the 3000-level and above, their poor performance on the supplementary exams, and the substantial effort required to construct and mark appropriate supplementary exams in upper-level courses, the Department wishes to have the flexibility to cease offering supplementary exams in its 3000- and 4000-level courses. As such, we propose to harmonise the language used for all four departments to which Regulation 6.3 applies.

Consultations Sought From

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<th>Comments Received</th>
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<td>1. Grenfell Campus</td>
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<td>2. Marine Institute</td>
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<td>9. Department of Ocean Sciences</td>
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<tr>
<td>10. Department of Physics and Physical Oceanography</td>
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<td>11. Department of Psychology</td>
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</tbody>
</table>
Library Report Received  Yes

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

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APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair: 
Secretary: 
Date: 
Subject: Request for Consultation: Mathematics 102F, 102N, 103F, 104F, 2000 and Supplementary Exams in Mathematics and Statistics
From: Shannon Patrick Sullivan <shannon@mun.ca>
Date: 07/11/2014 2:51 PM
To: dtaylor@mun.ca

Hi Dianne,

Attached are proposals to add a two-hour laboratory to the Foundation courses Mathematics 102F, 102N, 103F and 104F; amend the Calendar description for Mathematics 2000 (Calculus III); and amend the Faculty of Science regulations pertaining to supplementary exams offered by the Department of Mathematics and Statistics.

I am forwarding them to you for your comments on the availability of appropriate Library resources to support these proposals.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John's • NL • Canada
shannon@mun.ca • www.ucs.mun.ca/~shannon

Attachments:

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<td>28.8 kb</td>
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<tr>
<td>Mathematics - Supplementary Exams.pdf</td>
<td>23.3 kb</td>
</tr>
</tbody>
</table>
TO: Dr. Shannon Sullivan, Senior Faculty Advisor, Dept. of Mathematics & Statistics
FROM: Dianne Taylor-Harding, Collections Development Librarian, Mathematics & Statistics
SUBJECT: Library Resources Review – Proposed Calendar Change 2015/6 in regulation governing supplementary examinations offered by the Department of Mathematics & Statistics

The Department of Mathematics and Statistics has proposed a change in Regulation 1 (Under the Faculty of Science, page 453, 2014-2015 Calendar, 6.3 - Regulations to Govern Supplementary Examinations in the Departments of Biochemistry, Computer Science, Mathematics and Statistics, and Physics and Physical Oceanography) governing supplementary examinations offered by the Department, “such that only certain courses will offer supplementary examinations rather than all courses.”

This calendar change will have no impact on collections activities in the Queen Elizabeth II Library. The Memorial University Libraries will continue to collect materials covering Mathematics and Statistics to support undergraduate, graduate and faculty research and study at the University.

11/19/2014

X D.E. Taylor-Harding
Dianne E. Taylor-Harding
Collections Librarian, Mathematics & Statistics
Subject: Request for Consultation: Supplementary Exams in Mathematics and Statistics
From: Shannon Patrick Sullivan <shannon@mun.ca>
Date: 07/11/2014 2:44 PM
To: associatevpoffice@grenfell.mun.ca, miugconsultations@mi.mun.ca, staceym@mun.ca, chemhead@mun.ca, cs-chair@mun.ca, bdeyoung@mun.ca, biohead@mun.ca, dinnes@mun.ca, jhanchar@mun.ca, fletcher@mun.ca, psychology.head@mun.ca

Greetings,

Attached is a proposal to amend the Faculty of Science regulations pertaining to supplementary exams offered by the Department of Mathematics and Statistics.

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John's - NL - Canada
shannon@mun.ca · www.ucs.mun.ca/~shannon

-- Attachments: --
Mathematics - Supplementary Exams.pdf 23.3 kB
Subject: RE: Request for Consultation: Mathematics 102F, 102N, 103F, 104F
From: Biochemistry Head <biohead@mun.ca>
Date: 10/11/2014 8:37 AM
To: Shannon Patrick Sullivan <shannon@mun.ca>

Shannon

No concerns from Biochemistry with any of the three sets of proposed changes.

Mark

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

Tel: (709) 864-8529
E-mail: biohead@mun.ca; mberry@mun.ca

From: Shannon Patrick Sullivan [shannon@mun.ca]
Sent: Friday, November 7, 2014 2:50 PM
To: associatevpoffice@grenfell.mun.ca; miegconsultations@mi.mun.ca; Mercer, Stacey; chemhead@mun.ca; cs-chair@mun.ca; bdeyoung@mun.ca; engrconsult@mun.ca; Biochemistry Head; dinnes@mun.ca; jhanchar@mun.ca; Fletcher, Garth; psychology.head@mun.ca; Bauer, Larry; Mellor, Judith; Hicks, Sue; Hickey, Marie; pharminfo@mun.ca; dean@med.mun.ca; Waterman, Ellen; DeanNurse; deansocialwork
Subject: Request for Consultation: Mathematics 102F, 102N, 103F, 104F

Greetings,

Attached is a proposal to add a two-hour laboratory to the Foundation courses Mathematics 102F, 102N, 103F and 104F.

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John's · NL · Canada
shannon@mun.ca · www.ucs.mun.ca/~shannon
Hi Shannon,
The Biology Undergraduate Studies Committee reviewed the proposed changes to the degree regulation regarding supplementary exams offered by the department of Mathematics and Statistics. We have no issues with the proposed changes.

Thanks
Karen

Karen Morris  
Undergraduate Officer  
Department of Biology  
Memorial University of Newfoundland  
St. John's, NL A1B 3X9  
709-864-8021

On 07/11/2014 2:50 PM, David Innes wrote:

-------- Original Message --------
Subject:Request for Consultation: Supplementary Exams in Mathematics and Statistics  
Date:Fri, 07 Nov 2014 14:44:08 -0330  
From:Shannon Patrick Sullivan <shannon@mun.ca>  
To:associatevpooffice@grenfell.mun.ca, miugconsultations@mi.mun.ca, staceym@mun.ca, chemhead@mun.ca, cs-chair@mun.ca, bdeyoung@mun.ca, biohead@mun.ca, dinnes@mun.ca, jhanchar@mun.ca, fletcher@mun.ca, psychology.head@mun.ca

Greetings,

Attached is a proposal to amend the Faculty of Science regulations pertaining to supplementary exams offered by the Department of Mathematics and Statistics.

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon
December 2, 2014

TO: All Members, Faculty Council of Science
FROM: Joan Burry, Secretary
       Committee on Undergraduate Studies, Faculty of Science
SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 28, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Chemistry: Calendar changes to first year Chemistry courses, including deletion of one course, rearrangement of course content and prerequisite changes to others.

2. Department of Mathematics and Statistics:
   (i) Calendar change to regulations governing supplementary examinations
   (ii) Addition of a laboratory component to Foundation Mathematics courses

3. Department of Psychology:
   (i) New course proposals: Psychology 2930, 3820, 3830, 3510, 3511
   (iii) Changes to existing Psychology and Behavioural Neuroscience programs.

[Signature]

Joan Burry
Associate Registrar and
Secretary, Committee
on Undergraduate Studies,
Faculty of Science
Proposal
Calendar Changes to Existing Course:
Mathematics 102F, 102N, 103F, 104F

Executive Summary

We propose to add a two-hour laboratory to each of the four Foundation courses in Mathematics.

Resource Implications: Instructional Costs

Including compulsory labs for students at the Mathematics Learning Centre (MLC) will require no additional resources. Since all MLC students are assigned individualized programmes, introducing these labs only requires a reallocation of instructor contact time with students to student assemblies at labs away from other forms of individualized contact time outside of scheduled classroom sessions. Since all instructors at the MLC have teaching assignments following a flex-time arrangement, that is, all instructors do their share of early morning, suppertime, and evening teaching, the required adjustment to the current teaching slot assignments within the MLC facility is not an issue. (Please note that all instructors at the MLC are members of CUPE, not MUNFA, with the exception of Dr. Sherry Mantyka.)

Consultations

Comments were received from the Marine Institute, the Faculty of Business Administration, the Faculty of Engineering and Applied Science, the Faculty of Medicine, the School of Music, the School of Pharmacy, the Department of Biochemistry, and the Department of Biology. All were supportive of the proposal.

Library Holdings and/or Other Resources Required

As indicated in the attached memo from Dianne Taylor-Harding, Collections Librarian (Mathematics and Statistics), this proposal will not require additional library holdings.

The costs, if any, associated with this change/these changes can be met from within the existing budget allocation or authorized new funding for the Faculty of Science.

Signature of Unit Head (if appropriate): _________________________________

Date: _________________________________

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

Date: _________________________________
SUMMARY PAGE FOR SENATE

Approval Form

Course Number and Title

Mathematics 102F Mathematics Skills Program
Mathematics 102N Mathematical Skills Program for the B.N. (Collaborative) Program
Mathematics 103F Mathematics Skills Program
Mathematics 104F Mathematics Skills Program

Abbreviated Course Title

Math Skills Programme
Math Skills Pgm for the BN Pgm
Math Skills Programme
Math Skills Programme

Calendar Changes

Under the Faculty of Science, page 501, 2014-2015 Calendar, 10.8.1 (Foundation Courses), amend the course description for Mathematics 102F to read:

"102F Mathematics Skills Program is a non-credit course intended for students who either have a weak background in mathematics or are returning to the subject after some years. The course enables students to master mathematical operations such as those involving whole numbers, fractions, decimals, percents, integers, exponents, linear equations and algebraic expressions.

CH: 0
LH: 2"

Under the Faculty of Science, page 501, 2014-2015 Calendar, 10.8.1 (Foundation Courses), amend the course description for Mathematics 102N to read:

"102N Mathematics Skills Program for the B.N. (Collaborative) Program is a non-credit course intended for students of the B.N. (Collaborative) Program who have a weak background in mathematics and/or have not done mathematics in some years. The course enables students to master mathematical operations such as those involving whole numbers, fractions, decimals, percents, units of measurement, ratios and proportions.

CH: 0
LH: 2"

Under the Faculty of Science, page 501, 2014-2015 Calendar, 10.8.1 (Foundation Courses), amend the course description for Mathematics 103F to read:

"103F Mathematics Skills Program is non-credit course intended for students who either have a weak background in mathematics or are returning to the subject after some years. The course enables students to master mathematical operations such as those involving rational expressions and equations, units of
measurement, ratios and proportions, formulas, graphs of linear equations, systems of linear equations, basic geometry and trigonometry and number systems.

CH: 0
LH: 2
PR: Mathematics 102F"

Under the Faculty of Science, page 501, 2014-2015 Calendar, 10.8.1 (Foundation Courses), amend the course description for Mathematics 104F to read:

"104F Mathematics Skills Program is a non-credit course intended for those students who either have a weak background in mathematics or are returning to the subject after some years. The course enables students to master mathematical operations such as those involving number systems, algebraic and rational expressions, linear and rational equations, formulas, exponents, radicals, quadratic equations and logarithms.

CH: 0
LH: 2
PR: Mathematics 103F"

Secondary Calendar Changes

None.

Rationale

The four Foundation courses currently employ a system of individualised contact time. However, the MLC has found that the incoming student body is much weaker than in years past. As such, to make more effective and efficient use of instructor time, the MLC wishes to introduce laboratory sessions during which instructors can lead group activities. The MLC anticipates that the inclusion of these laboratory sessions in the Foundation courses will increase pass rates by 10 to 20%. 

Please note that we are not proposing an amendment to the accelerated course Mathematics 103F/1051. This accelerated course has not been offered for several years due to the selfsame deterioration in the abilities of incoming students that has inspired the present proposal. The MLC does not foresee a demand for the accelerated course, and will likely be recommending its deletion from the Calendar in the near future.

Consultations Sought From

<table>
<thead>
<tr>
<th>Consultations Sought From</th>
<th>Comments Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Grenfell Campus</td>
<td>No</td>
</tr>
<tr>
<td>2. Marine Institute</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Faculty of Arts</td>
<td>No</td>
</tr>
<tr>
<td>4. Faculty of Business Administration</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Faculty of Education</td>
<td>No</td>
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<tr>
<td>6. Faculty of Engineering and Applied Science</td>
<td>Yes</td>
</tr>
<tr>
<td>7. Faculty of Medicine</td>
<td>Yes</td>
</tr>
<tr>
<td>8. School of Human Kinetics and Recreation</td>
<td>No</td>
</tr>
<tr>
<td>9. School of Music</td>
<td>Yes</td>
</tr>
<tr>
<td>10. School of Nursing</td>
<td>No</td>
</tr>
<tr>
<td>11. School of Pharmacy</td>
<td>Yes</td>
</tr>
</tbody>
</table>
12. School of Social Work  No
13. Department of Biochemistry  Yes
14. Department of Biology  Yes
15. Department of Chemistry  No
16. Department of Computer Science  No
17. Department of Earth Sciences  No
18. Department of Ocean Sciences  No
19. Department of Physics and Physical Oceanography  No
20. Department of Psychology  No

Library Report Received  Yes

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

Name

FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair: ____________________________
Secretary: ____________________________
Date: ____________________________
Subject: Request for Consultation: Mathematics 102F, 102N, 103F, 104F, 2000 and Supplementary Exams in Mathematics and Statistics

From: Shannon Patrick Sullivan <shannon@mun.ca>

Date: 07/11/2014 2:51 PM

To: dtaylor@mun.ca

Hi Dianne,

Attached are proposals to add a two-hour laboratory to the Foundation courses Mathematics 102F, 102N, 103F and 104F; amend the Calendar description for Mathematics 2000 (Calculus III); and amend the Faculty of Science regulations pertaining to supplementary exams offered by the Department of Mathematics and Statistics.

I am forwarding them to you for your comments on the availability of appropriate Library resources to support these proposals.

Thanks,
Shannon

--

Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John's · NL · Canada
shannon@mun.ca · www.ucs.mun.ca/~shannon

<table>
<thead>
<tr>
<th>Attachment Name</th>
<th>Size</th>
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<tr>
<td>Mathematics 2000.pdf</td>
<td>24.3 kB</td>
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<tr>
<td>Mathematics - Foundation Courses.pdf</td>
<td>28.8 kB</td>
</tr>
<tr>
<td>Mathematics - Supplementary Exams.pdf</td>
<td>23.3 kB</td>
</tr>
</tbody>
</table>
Collections Development Division  
Queen Elizabeth II Library  
St. John's, Newfoundland, Canada  
A1B 3Y1

10 November 2014

TO: Dr. Shannon Sullivan, Senior Faculty Advisor, Dept. of Mathematics & Statistics  
FROM: Dianne Taylor-Harding, Collections Development Librarian, Mathematics & Statistics  
SUBJECT: Library Resources Review -  
Proposed Calendar Changes for courses MATH 102F, 102N, 103F, 104F

The Department of Mathematics and Statistics has proposed changes in the descriptions of courses MATH 102F, 102N, 103F, 104F for the 2015/16 University Calendar. A two-hour laboratory will be added to each of the four Foundation Courses in Mathematics; calendar descriptions for these Mathematics Skills courses will be amended to include laboratory hours.

These calendar changes will have no impact on collections activities in the Queen Elizabeth II Library. The Memorial University Libraries will continue to collect materials covering Mathematics and Statistics to support undergraduate, graduate and faculty research and study at the University.

11/10/2014

X D.E. Taylor-Harding  
Dianne E. Taylor-Harding  
Collections Librarian, Mathematics & Statistics

St. John's, Newfoundland, Canada A1B 3Y1       Tel: (709) 864-7421      Fax: (709) 864-2153
Subject: Request for Consultation: Mathematics 102F, 102N, 103F, 104F
From: Shannon Patrick Sullivan <shannon@mun.ca>
Date: 07/11/2014 2:49 PM
To: associatevpooffice@grenfell.mun.ca, miugconsultations@mi.mun.ca, staceym@mun.ca, chemhead@mun.ca, cs-chair@mun.ca, bdeyoung@mun.ca, engrconsult@mun.ca, biochead@mun.ca, dinnes@mun.ca, jhanchar@mun.ca, fletcher@mun.ca, psychology.head@mun.ca, lbaue@mun.ca, jmellor@mun.ca, shicks@mun.ca, mehickey@mun.ca, pharminfo@mun.ca, dean@med.mun.ca, ellenw@mun.ca, deannurse@mun.ca, deansocialwork@mun.ca

Greetings,

Attached is a proposal to add a two-hour laboratory to the Foundation courses Mathematics 102F, 102N, 103F and 104F.

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John's • NL • Canada
shannon@mun.ca • www.ucs.mun.ca/~shannon

--Attachments:-------------------------------------

Mathematics - Foundation Courses.pdf 28.8 kB
Subject: RE: Request for Consultation: Mathematics 102F, 102N, 103F, 104F
From: MIUG Consultations <MIUGconsultations@mi.mun.ca>
Date: 10/11/2014 3:08 PM
To: Shannon Patrick Sullivan <shannon@mun.ca>

Shannon,

Thank you for the opportunity to review the proposed changes to the Mathematics courses 102F, 102N, 103F, 104F. These changes will have no impact on the programs at the Marine Institute.

We are happy to support these changes as presented.

Derek
Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-8586
FAX: 709-778-0394
Derek.Howse@mi.mun.ca

-----Original Message-----
From: Shannon Patrick Sullivan [mailto:shannon@mun.ca]
Sent: Friday, November 07, 2014 2:50 PM
To: associateypoffice@grenfell.mun.ca; MIUG Consultations; stacey@mun.ca;
chemhead@mun.ca; cs-chair@mun.ca; bdeyoung@mun.ca; enarconsult@mun.ca; biohead@mun.ca;
dinnes@mun.ca; ihanchar@mun.ca; fletcher@mun.ca; psychology.head@mun.ca; lbauer@mun.ca;
mellor@mun.ca; shicks@mun.ca; mehickey@mun.ca; pharinfo@mun.ca; dean@med.mun.ca;
elenw@mun.ca; deannurse@mun.ca; deansocialwork@mun.ca
Subject: Request for Consultation: Mathematics 102F, 102N, 103F, 104F

Greetings,

Attached is a proposal to add a two-hour laboratory to the Foundation courses Mathematics 102F, 102N, 103F and 104F.

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

--

Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science Memorial University of Newfoundland St.
John's * NL * Canada shannon@mun.ca * www.ucm.mun.ca/~shannon
This email is governed by the Terms and Conditions found in our Disclaimer<http://www.mi.mun.ca/ict/disclaimer>.
Subject: Re: Request for Consultation: Mathematics 102F, 102N, 103F, 104F
From: Larry Bauer <lbauer@mun.ca>
Date: 21/11/2014 1:38 PM
To: Shannon Patrick Sullivan <shannon@mun.ca>

Hello:

Thank you for the opportunity to comment on this proposal. The Faculty of Business Administration has no concerns with the proposed changes.

--larry

Shannon Patrick Sullivan wrote:

Greetings,

Attached is a proposal to add a two-hour laboratory to the Foundation courses Mathematics 102F, 102N, 103F and 104F.

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

--
--

Larry Bauer, Ph.D.
Associate Professor of Finance
Associate Dean (Undergraduate Programs)
Faculty of Business Administration
Memorial University of Newfoundland
St. John's Nfld, A1B 3X5

www: http://www.business.mun.ca
e-mail: lbauer@mun.ca
Tel: (709) 864-8512
Fax: (709) 864-8954

Subject: Re: Request for Consultation: Mathematics 2000; 10xF
From: Engineering Consultations <engrconsult@mun.ca>
Date: 20/11/2014 8:51 AM
To: Shannon Patrick Sullivan <shannon@mun.ca>
CC: Andrew Fisher <adfisher@mun.ca>, Jayde Edmunds <edmundsj@mun.ca>

Dear Dr. Sullivan,

At its regular meeting of 2014 November 19, the Committee on Undergraduate Studies of the Faculty of Engineering and Applied Science had no comments to add re your proposed Calendar changes, beyond the comments that I provided in my previous e-mail (below).

I add one note: one direct impact on our Faculty arises from the fact that MATH 2000 is a required course for one of our majors, Ocean and Naval Architectural Engineering (ONAE). The Committee supports your proposed changes.

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

Quoting Engineering Consultations <engrconsult@mun.ca> on 2014 11 10:

Dear Dr. Sullivan,

The proposed Calendar changes regarding MATH 2000 and the four Mathematics Foundation courses will be on the agenda of the next meeting of our Committee on Undergraduate Studies, scheduled for November 19.

As the instructor of ENGI 3424 Engineering Mathematics and ENGI 3425 Mathematics for Civil Engineering I (which include much of the content of MATH 2000), I support fully the restoration of the topic of complex numbers to the teaching of MATH 2050 (as noted in the rationale for the change to MATH 2000). In ENGI 3424 I do spend two or three lectures introducing complex numbers to the extent necessary for Euler's formula to be applied in both series and Laplace transforms. I agree fully with the addition of Euler's formula to the Calendar entry for MATH 2000.

I do not see any direct impact from the changes to MATH 102F, 102N, 103F and 104F on the programs of the Faculty of Engineering and Applied Science. It seems to me that the addition of the laboratory hours to these courses will be of great benefit to the students in these courses.

I will reply again shortly after the Engineering CUGS meeting.

Yours sincerely,

Dr. Glyn George, Chair
Subject: FW: Request for Consultation: Mathematics 102F, 102N, 103F, 104F
From: cvardy@mun.ca
Date: 07/11/2014 3:19 PM
To: <shannon@mun.ca>
CC: <Joan.Fillier@med.mun.ca>, <Paula.Corbett@med.mun.ca>

Hi Dr. Sullivan

I have reviewed the proposal for the addition of a two hour laboratory to the Foundation courses of Mathematics 102F, 102N, 103F AND 104F and it appears fine from the Faculty of Medicine's point of view.

Cathy Vardy
Vice Dean
Faculty of Medicine

-----Original Message-----
From: Rourke, Dr. James: Dean of Medicine
Sent: November-07-14 2:59 PM
To: Vardy, Cathy
Cc: Corbett, Paula; Caines, Sherry; Fillier, Joan
Subject: FW: Request for Consultation: Mathematics 102F, 102N, 103F, 104F

-----Original Message-----
From: Shannon Patrick Sullivan [mailto: shannon@mun.ca]
Sent: Friday, November 07, 2014 2:50 PM
To: associatevpoffice@grenfell.mun.ca; miugconsultations@mi.mun.ca; staceyim@mun.ca; chemhead@mun.ca; cs-chair@mun.ca; bdeyoung@mun.ca; engrconsult@mun.ca; biohead@mun.ca; dinnis@mun.ca; lhanchar@mun.ca; fletcher@mun.ca; psychology.head@mun.ca; lbauer@mun.ca; jmellor@mun.ca; shicks@mun.ca; mehidiccy@mun.ca; pharminfo@mun.ca; Rourke, Dr. James:
Dean of Medicine; elliew@mun.ca; deannurse@mun.ca; deansocialwork@mun.ca
Subject: Request for Consultation: Mathematics 102F, 102N, 103F, 104F

Greetings,

Attached is a proposal to add a two-hour laboratory to the Foundation courses Mathematics 102F, 102N, 103F and 104F.

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science Memorial University of Newfoundland St. John’s * NL * Canada shannon@mun.ca * www.uocs.mun.ca/~shannon

---Attachments:

Mathematics - Foundation Courses.pdf 28.8 kB
Subject: RE: Request for Consultation: Mathematics 102F, 102N, 103F, 104F
From: "Waterman, Ellen" <ellenw@mun.ca>
Date: 10/11/2014 5:22 PM
To: Shannon Patrick Sullivan <shannon@mun.ca>

Hi Shannon

Music has no comments.

Best,
Ellen

-----Original Message-----
From: Shannon Patrick Sullivan [mailto:shannon@mun.ca]
Sent: Friday, November 07, 2014 2:50 PM
To: associatevpoffice@grenfell.mun.ca; miugconsultations@mi.mun.ca; Mercer, Stacey; chemhead@mun.ca; cs-chair@mun.ca; bdevyoung@mun.ca; engrconsult@mun.ca; Biochemistry Head; dinnes@mun.ca; jhanchar@mun.ca; Fletcher, Garth; psychology.head@mun.ca; Bauer, Larry; Mellow, Judith; Hicks, Sue; Hickey, Marie; pharminfo@mun.ca; dean@med.mun.ca; Waterman, Ellen; DeanNurse; deansocialwork
Subject: Request for Consultation: Mathematics 102F, 102N, 103F, 104F

Greetings,

Attached is a proposal to add a two-hour laboratory to the Foundation courses Mathematics 102F, 102N, 103F and 104F.

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science Memorial University of Newfoundland St. John’s * NL * Canada shannon@mun.ca * www.ucs.mun.ca/~shannon
Subject: RE: Request for Consultation: Mathematics 102F, 102N, 103F, 104F
From: "Glew, Csop" <cglew@mun.ca>
Date: 26/11/2014 12:17 PM
To: "shannon@mun.ca" <shannon@mun.ca>
CC: "Dillon, Carla" <cmdillon@mun.ca>

Hello Dr. Sullivan
I am writing to advise that the School of Pharmacy has no concerns or comments regarding your department's proposed calendar changes.
Regards,
Csop Glew

CSOP GLEW, Hon. B.A., M.U.P. I MANAGER OF ACADEMIC PROGRAMS
School of Pharmacy
Memorial University of Newfoundland
St. John's, NL I A1B 3V6
Health Sciences Centre I Room H3435
T 709 777 6963 I F 709 777 7044
www.mun.ca/pharmacy

Please note that the deadline to apply for admission for September 2015 is February 1, 2015.

Where people and ideas become.
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-----Original Message-----
From: Bugler, Heather
Sent: November 7, 2014 2:55 PM
To: Glew, Csop
Subject: FW: Request for Consultation: Mathematics 102F, 102N, 103F, 104F

For you.

Heather
Heather Bugler
Secretary to the Dean
School of Pharmacy
Memorial University of Newfoundland
Room 3441, Health Sciences Centre
300 Prince Philip Parkway
St. John's, NL A1B 3V6
Tele: 709-777-8300
Fax: 709-777-7044

www.mun.ca/pharmacy

Where people and ideas become

Follow us:
Facebook: www.facebook.com/schoolofpharmacy Twitter: www.twitter.com/schoolofpharm
Please note that the deadline to apply for admission in September, 2015 is February 1, 2015.
Subject: RE: Request for Consultation: Mathematics 102F, 102N, 103F, 104F
From: Biochemistry Head <biohead@mun.ca>
Date: 10/11/2014 8:37 AM
To: Shannon Patrick Sullivan <shannon@mun.ca>

Shannon

No concerns from Biochemistry with any of the three sets of proposed changes.

Mark

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

Tel: (709) 864-8529
E-mail: biohead@mun.ca; mberry@mun.ca

From: Shannon Patrick Sullivan [shannon@mun.ca]
Sent: Friday, November 7, 2014 2:50 PM
To: associatevpoffice@grenfell.mun.ca; miugconsultations@mi.mun.ca; Nercer, Stacey; chemhead@mun.ca; cs-chair@mun.ca; bdeyoung@mun.ca; engrconsult@mun.ca; Biochemistry Head; dinnes@mun.ca; jhanchar@mun.ca; Fletcher, Garth; psychology.head@mun.ca; Bauer, Larry; Mellor, Judith; Hicks, Sue; Hickey, Marie; pharinfo@mun.ca; dean@med.mun.ca; Waterman, Ellen; DeanNurse; deansocialwork
Subject: Request for Consultation: Mathematics 102F, 102N, 103F, 104F

Greetings,

Attached is a proposal to add a two-hour laboratory to the Foundation courses Mathematics 102F, 102N, 103F and 104F.

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

--

Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John's · NL · Canada
shannon@mun.ca · www.uws.mun.ca/~shannon
Hi Shannon,

The Biology Undergraduate Studies Committee reviewed the proposed calendar changes to Math 102F, 102N, 103F, 140F. We have no concerns with the proposed changes.

Thanks
Karen

Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
709-864-8021

On 07/11/2014 2:51 PM, David Innes wrote:

------ Original Message ------

Subject: Request for Consultation: Mathematics 102F, 102N, 103F, 104F
Date: Fri, 07 Nov 2014 14:49:30 -0330
From: Shannon Patrick Sullivan <shannon@mun.ca>
To: associateypoffice@grenfell.mun.ca, miugconsultations@mi.mun.ca, staceym@mun.ca, chemhead@mun.ca, cs-chair@mun.ca, bdevyoung@mun.ca, engrconsult@mun.ca, biochehead@mun.ca, dinnes@mun.ca, jhanchar@mun.ca, fletcher@mun.ca, psychology.head@mun.ca, lbauer@mun.ca, jmellor@mun.ca, shicks@mun.ca, mehickey@mun.ca, pharinfo@mun.ca, dean@med.mun.ca, ellenw@mun.ca, deannurse@mun.ca, deansocialwork@mun.ca

Greetings,

Attached is a proposal to add a two-hour laboratory to the Foundation courses Mathematics 102F, 102N, 103F and 104F.

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

---
December 2, 2014

TO: All Members, Faculty Council of Science

FROM: Joan Burry, Secretary
        Committee on Undergraduate Studies, Faculty of Science

SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 28, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Chemistry: Calendar changes to first year Chemistry courses, including deletion of one course, rearrangement of course content and prerequisite changes to others.

2. Department of Mathematics and Statistics:
   (i) Calendar change to regulations governing supplementary examinations
   (ii) Addition of a laboratory component to Foundation Mathematics courses

3. Department of Psychology
   (i) New course proposals: Psychology 2930, 3820, 3830, 3510, 3511
   (iii) Changes to existing Psychology and Behavioural Neuroscience programs.

Joan Burry

Associate Registrar and
Secretary: Committee
on Undergraduate Studies,
Faculty of Science
Proposal
Calendar Changes to Existing Course: Mathematics 2000

Executive Summary
We propose to revise the course description for Math 2000 (Calculus III) for greater clarity. In so doing, we intend to introduce complex numbers as an additional course topic.

Resource Implications: Instructional Costs
None.

Consultations
Comments were received from Grenfell Campus, the Marine Institute, the Faculty of Engineering and Applied Science, the Department of Biochemistry, the Department of Biology, and the Department of Chemistry. All were supportive of the proposal. Grenfell Campus requested one small change to the course description, and that this proposal be reflected in their section of the Calendar.

Library Holdings and/or Other Resources Required
As indicated in the attached memo from Dianne Taylor-Harding, Collections Librarian (Mathematics and Statistics), this proposal will not require additional library holdings.

The costs, if any, associated with this change/these changes can be met from within the existing budget allocation or authorized new funding for the Faculty of Science.

Signature of Unit Head (if appropriate):

Date:

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

Date:
SUMMARY PAGE FOR SENATE

Approval Form

Course Number and Title
Mathematics 2000 Calculus III

Abbreviated Course Title
Calculus III

Calendar Changes

Under the Faculty of Science, page 501, 2014-2015 Calendar, 10.8.3 (Mathematics Courses), amend the course description for Mathematics 2000 to read:

"2000 Calculus III is a study of the differential calculus of functions of two variables, an introduction to convergence of infinite sequences and series, an introduction to infinite sequences and series, and to the differential and integral calculus of multivariate functions. Topics include tests for the convergence of infinite series, power series, Taylor and Maclaurin series, complex numbers including Euler's formula, partial differentiation, and double integrals in Cartesian and polar coordinates.

CR: the former Engineering 1411, the former Engineering 1412, the former Engineering 2412, or the former Engineering 2413
PR: MATH 1001"

Secondary Calendar Changes

Under Grenfell Campus, page 330, 2014-2015 Calendar, 12.20 (Mathematics and Statistics), amend the course description for Mathematics 2000 to read:

"2000 Calculus III is a study of the differential calculus of functions of two variables, an introduction to convergence of infinite sequences and series, an introduction to infinite sequences and series, and to the differential and integral calculus of multivariate functions. Topics include tests for the convergence of infinite series, power series, Taylor and Maclaurin series, complex numbers including Euler's formula, partial differentiation, and double integrals in Cartesian and polar coordinates.

CR: the former Engineering 1411, the former Engineering 1412, the former Engineering 2412, or the former Engineering 2413
LH: 1.5
PR: MATH 1001"

Rationale

Complex numbers are no longer taught in the Newfoundland and Labrador high school curriculum. While they are a topic in Mathematics 1090 (Algebra and Trigonometry) and in the Foundation Mathematics stream, most students who go on to register for higher-level Mathematics and Statistics courses enter Memorial taking either Mathematics 1000 (Calculus I) or Mathematics 1001 (Calculus
II). To rectify this situation, we propose adding one to two lectures on complex numbers to both Mathematics 2000 and Mathematics 2050 (Linear Algebra I); at least one of these courses is taken by all majors and minors in Mathematics and Statistics. (There is no need to change the Calendar description for Mathematics 2050 because it already lists complex numbers as a topic; in reality, this material has been omitted from the course for many years, but we now intend to revive it.) Both courses will offer a short treatment of complex arithmetic and the complex plane. The material will then be tailored to suit the major topics of each course; Mathematics 2000 will include an investigation of Euler's formula and DeMoivre's Theorem via Taylor series and polar coordinates, while Mathematics 2050 will compare the properties of complex numbers to the properties of vectors. A set of handouts will be prepared by the Department which will be made available to students in these courses.

The addition of complex numbers to the Mathematics 2000 curriculum also provides an opportunity to enhance its existing Calendar description. Currently, this is both unhelpfully terse and inaccurate, as it omits any reference to a major unit of the course dealing with the integral calculus of multivariate functions.

<table>
<thead>
<tr>
<th>Consultations Sought From</th>
<th>Comments Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Grenfell Campus</td>
<td>Yes</td>
</tr>
<tr>
<td>2. Marine Institute</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Faculty of Arts</td>
<td>No</td>
</tr>
<tr>
<td>4. Faculty of Engineering and Applied Science</td>
<td>Yes</td>
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<tr>
<td>5. Department of Biochemistry</td>
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<td>6. Department of Biology</td>
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<tr>
<td>7. Department of Chemistry</td>
<td>Yes</td>
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<tr>
<td>8. Department of Computer Science</td>
<td>No</td>
</tr>
<tr>
<td>9. Department of Earth Sciences</td>
<td>No</td>
</tr>
<tr>
<td>10. Department of Ocean Sciences</td>
<td>No</td>
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<tr>
<td>11. Department of Physics and Physical Oceanography</td>
<td>No</td>
</tr>
<tr>
<td>12. Department of Psychology</td>
<td>No</td>
</tr>
</tbody>
</table>

Library Report Received: Yes

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

Name
FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair: 

Secretary: 

Date: 

Hi Dianne,

Attached are proposals to add a two-hour laboratory to the Foundation courses Mathematics 102F, 102N, 103F and 104F; amend the Calendar description for Mathematics 2000 (Calculus III); and amend the Faculty of Science regulations pertaining to supplementary exams offered by the Department of Mathematics and Statistics.

I am forwarding them to you for your comments on the availability of appropriate Library resources to support these proposals.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John's • NL • Canada
shannon@mun.ca • www.ucs.mun.ca/~shannon

---Attachments:---

Mathematics 2000.pdf 24.3 kB
Mathematics - Foundation Courses.pdf 28.8 kB
Mathematics - Supplementary Exams.pdf 23.3 kB
TO: Dr. Shannon Sullivan, Senior Faculty Advisor, Dept. of Mathematics & Statistics  
FROM: Dianne Taylor-Harding, Collections Development Librarian, Mathematics & Statistics  
SUBJECT: Library Resources Review - Proposed Calendar Changes for course Mathematics 2000

The Department of Mathematics and Statistics has proposed changes in the description of course MATH2000 for the 2015/16 University Calendar. The course description for Mathematics 2000 will be amended to read:

**MATH2000 Calculus III** is an introduction to infinite sequences and series, and to the differential and integral calculus of multivariate functions. Topics include tests for the convergence of infinite series, power series, Taylor and Maclaurin series including Euler’s formula, partial differentiation, and double integrals in Cartesian and polar coordinates.  
CR: the former Engineering 1411, the former Engineering 1412, the former Engineering 2412, or the former Engineering 2413  
PR: MATH 1001

These calendar changes will have no impact on collections activities in the Queen Elizabeth II Library. The Memorial University Libraries will continue to collect materials covering Mathematics and Statistics to support undergraduate, graduate and faculty research and study at the University.

11/11/2014

\[\text{x}\]
D.E. Taylor-Harding  
Dianne E. Taylor-Harding  
Collections Librarian, Mathematics & Statistics
Subject: Request for Consultation: Mathematics 2000
From: Shannon Patrick Sullivan <shannon@mun.ca>
Date: 07/11/2014 2:41 PM
To: associatepoffice@grenfell.mun.ca, miugconsultations@mi.mun.ca, staceym@mun.ca, chemhead@mun.ca, cs-chair@mun.ca, bdeyoung@mun.ca, engrconsult@mun.ca, biochead@mun.ca, dinnes@mun.ca, jhanchar@mun.ca, fletcher@mun.ca, psychology.head@mun.ca

Greetings,

Attached is a proposal to amend the Calendar description for Mathematics 2000 (Calculus III).

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
St. John's · NL · Canada
shannon@mun.ca · www.ucs.mun.ca/~shannon

Attachments:

Mathematics 2000.pdf 24.3 kB
Subject: Proposed changes to Math 2000
From: "Howell, Jared" <jahowell@grenfell.mun.ca>
Date: 24/11/2014 4:20 PM
To: Shannon Patrick Sullivan <shannon@mun.ca>
CC: "Gallant, Robert" <rpgallant@grenfell.mun.ca>

Shannon,

We have had some discussion on this topic. The following points came up:

1. We like the fact that this course description will actually list some of the specific topics taught in the course.

2. We think that if a few classes on complex numbers are to be added the following should be considered:
   i. Actually including complex numbers in the description:

   2000 Calculus III is an introduction to infinite sequences and series, and to the differential and integral calculus of multivariate functions. Topics include tests for the convergence of infinite series, power series, Taylor and Maclaurin series, complex numbers including Euler’s formula, partial differentiation, and double integrals in Cartesian and polar coordinates.
   
   CR: the former Engineering 1411, the former Engineering 1412, the former Engineering 2412, or the former Engineering 2413
   PR: MATH 1001

   ii. This may leave very little time to cover all the topics sufficiently. This may be met with the omission of some of the sequences and series content that does not lead directly to power series, possibly moving some of convergence tests to a subsequent course.

Overall we do accept the description to be superior to the current description and thus would appreciate it if the same change was added to the Grenfell section of the calendar as a secondary change on your proposal.

Dr. Jared Howell

Chair of Computational Mathematics
Memorial University
Grenfell campus
AS3013
This electronic communication is governed by the terms and conditions at http://www.mun.ca/cc/policies/electronic_communications_disclaimer_2011.php.
Subject: RE: Request for Consultation: Mathematics 2000
From: MIUG Consultations <MIUGconsultations@mi.mun.ca>
Date: 10/11/2014 3:43 PM
To: Shannon Patrick Sullivan <shannon@mun.ca>

Shannon,

Thank you for the opportunity to review the proposed change to the Calendar description of Mathematics 2000. This change will have no impact on the programs at the Marine Institute.

We are happy to support this change as presented.

Derek

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0586
FAX: 709-778-0394
Derek.Howse@mi.mun.ca

-----Original Message-----
From: Shannon Patrick Sullivan [mailto:shannon@mun.ca]
Sent: Friday, November 07, 2014 2:42 PM
To: associatevpoffice@grenfell.mun.ca; MIUG Consultations; staceym@mun.ca;
chemhead@mun.ca; cs-chair@mun.ca; bdeyoung@mun.ca; engrconsult@mun.ca; biohead@mun.ca;
dinnes@mun.ca; jhanchar@mun.ca; fletcher@mun.ca; psychology.head@mun.ca
Subject: Request for Consultation: Mathematics 2000

Greetings,

Attached is a proposal to amend the Calendar description for Mathematics 2000 (Calculus III).

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science Memorial University of Newfoundland St.
John's * NL * Canada shannon@mun.ca * www.ucs.mun.ca/~shannon
This email is governed by the Terms and Conditions found in our
Subject: Re: Request for Consultation: Mathematics 2000; 10xF
From: Engineering Consultations <engrconsult@mun.ca>
Date: 20/11/2014 8:51 AM
To: Shannon Patrick Sullivan <shannon@mun.ca>
CC: Andrew Fisher <adfisher@mun.ca>, Jayde Edmunds <edmundsj@mun.ca>

Dear Dr. Sullivan,

At its regular meeting of 2014 November 19, the Committee on Undergraduate Studies of the Faculty of Engineering and Applied Science had no comments to add re your proposed Calendar changes, beyond the comments that I provided in my previous e-mail (below).

I add one note: one direct impact on our Faculty arises from the fact that MATH 2000 is a required course for one of our majors, Ocean and Naval Architectural Engineering (ONAE). The Committee supports your proposed changes.

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

Quoting Engineering Consultations <engrconsult@mun.ca> on 2014 11 10:

Dear Dr. Sullivan,

The proposed Calendar changes regarding MATH 2000 and the four Mathematics Foundation courses will be on the agenda of the next meeting of our Committee on Undergraduate Studies, scheduled for November 19.

As the instructor of ENGI 3424 Engineering Mathematics and ENGI 3425 Mathematics for Civil Engineering I (which include much of the content of MATH 2000), I support fully the restoration of the topic of complex numbers to the teaching of MATH 2050 (as noted in the rationale for the change to MATH 2000). In ENGI 3424 I do spend two or three lectures introducing complex numbers to the extent necessary for Euler's formula to be applied in both series and Laplace transforms. I agree fully with the addition of Euler's formula to the Calendar entry for MATH 2000.

I do not see any direct impact from the changes to MATH 102F, 102N, 103F and 104F on the programs of the Faculty of Engineering and Applied Science. It seems to me that the addition of the laboratory hours to these courses will be of great benefit to the students in these courses.

I will reply again shortly after the Engineering CUGS meeting.

Yours sincerely,

Dr. Glyn George, Chair
Hi Shannon,
The Biology Undergraduate Studies Committee reviewed the proposed changes to Math 2000 and have no concerns or issues with the proposed changes.
Thanks
Karen

Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
709-864-8021

On 07/11/2014 2:50 PM, David Innes wrote:

FYI

-------- Original Message --------

Subject: Request for Consultation: Mathematics 2000
Date: Fri, 07 Nov 2014 14:41:37 -0330
From: Shannon Patrick Sullivan <shannon@mun.ca>
To: associatevpoffice@grenfell.mun.ca, miugconsultations@ml.mun.ca, staceym@mun.ca, chemhead@mun.ca, cs-chair@mun.ca, bdeyoung@mun.ca, engconsult@mun.ca, biohead@mun.ca, dinnes@mun.ca, jhanchar@mun.ca, fletcher@mun.ca, psychology.head@mun.ca

Greetings,

Attached is a proposal to amend the Calendar description for Mathematics 2000 (Calculus III).

If you have any comments on this proposal, we would appreciate receiving your responses no later than Friday, December 5th.

Thanks,
Shannon

--
Dr. Shannon Patrick Sullivan
Dept. of Mathematics & Statistics
Senior Faculty Advisor, Faculty of Science
Memorial University of Newfoundland
Subject: consultations: math 2000
From: Chris Flinn <cgflinn@mun.ca>
Date: 19/11/2014 2:36 PM
To: shannon@mun.ca
CC: Head of Chemistry <chemhead@mun.ca>

Hi Shannon,

Feedback, mainly from the physical chemistry faculty, has been very positive. The chemistry department supports this change. This makes math 2000 an even more valuable course for chemistry majors and honours students.

cheers,

Chris Flinn
Deputy Head, Undergraduate Studies
MUN Chemistry Department
December 2, 2014

TO: All Members, Faculty Council of Science
FROM: Joan Burry, Secretary
Committee on Undergraduate Studies, Faculty of Science
SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 28, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Chemistry- Calendar changes to first year Chemistry courses, including deletion of one course, rearrangement of course content and prerequisite changes to others.

2. Department of Mathematics and Statistics:
   (i) Calendar change to regulations governing supplementary examinations
   (ii) Addition of a laboratory component to Foundation Mathematics courses

3. Department of Psychology
   (i) New course proposals: Psychology 2930, 3820, 3830, 3510, 3511
   (iii) Changes to existing Psychology and Behavioural Neuroscience programs.

Joan Burry
Associate Registrar and
Secretary: Committee
on Undergraduate Studies,
Faculty of Science
Proposal
New Courses

Executive Summary
The Psychology Department proposes to create five new courses.

PSYC 2930, Research and Writing in Psychology: required for PSYC and BHNRT major.

PSYC 3820, Research Techniques in Behavioural Neuroscience: required for BHNRT major.

PSYC 3830, Behavioural Endocrinology: elective for PSYC and BHNRT major.

PSYC 3510/3511, Directed Study: elective for PSYC and BHNRT major.

Resource Implications: Instructional Costs
No new costs will be incurred for either instructors or infrastructure. The 5 new courses will be taught by current faculty as part of their regular teaching load. PSYC 2930 will be introduced in the fall of 2015, at the time an existing required course (PSYC 2570) is eliminated. PSYC 3820 will be introduced in the fall of 2016, at the time an existing required course (PSYC 3801) is eliminated. PSYC 3830 will be offered as faculty resources permit. PSYC 3510/3511 will count as part of a faculty member’s teaching credit for supervision. Credit for supervising students in this course follows the existing departmental Teaching Equivalency document: Supervision of a completed report will count as 0.25 of a course. Offering these courses will most likely be neutral with respect to teaching resources required, as faculty members cannot receive more than one course credit per year for supervision. Current faculty who could provide students with research opportunities supervise a great number of honours students and graduate students and are therefore unable to accrue any additional credit for taking on students in the Directed Studies course.

Consultations
Appropriate academic units have been consulted. See email attached.

Library Holdings and/or Other Resources Required
The library has been contacted. Current library holdings are adequate to cover the needs of these new courses. See email attached.

The costs, if any, associated with these changes can be met from within the existing budget allocation or authorized new funding for the Department of Psychology.
Proposal for New Courses

Signature of Unit Head (If appropriate): ________________________________

Date: ________________________________

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

Date: ________________________________
Proposal for New Courses

Sample Course Outline and Method of Evaluation

Psychology 2930 – Research and Writing in Psychology
Fall 2015

Instructor: Christina Thorpe
Office: SN 3069
Phone: 864-4806
Email: cthorpe@mun.ca
Office Hours: TBA or by appointment

Teaching Assistants: There will be 5-7 TAs. These will be announced later.

Schedule: Mondays, Wednesdays and Fridays, TBA

Important note: e-mails will be answered on weekdays during normal working hours. We will try our best to respond as quickly as possible. However, do not expect immediate responses. Please limit e-mail questions to ones that can be answered briefly. For more complex questions, please drop by during office hours or make an appointment to talk to either the Instructor or the TA.

Course Summary

This course is designed to ensure all Psychology and Behavioural Neuroscience majors have a strong foundation in the fundamentals of preparing written and oral psychology reports, emphasizing organization, correct use of terminology, adherence to APA style, concise description, preparation of abstracts, integration of numerical data, and oral presentation skills.

Course Requirements

You are responsible for all material discussed in the lectures and the material in the textbook. It is important to come to class, as I will be discussing topics that are not covered in the textbook.


Desire2Learn site: This class will have a D2L site. On this site you will find the following: course materials, course syllabus, grades, announcements. Please do NOT use the D2L site to e-mail me – rather please use the e-mail address given above. To access your D2L website go to the following website (https://online.mun.ca/) and follow the instructions. If you have any problems with this please contact the TA.
Proposal for New Courses

Course Objectives

- Students will be able to write a variety of different psychology reports including mini-reviews, essays, reviews, and research reports/manuscripts.
- Students will practice their oral presentation skills so that they can express what they have learned in a professional manner.
- Students will practice critical reading of published psychology articles (including original research reports and review papers).
- Students will practice editing other students' papers in a professional manner.
- Students will learn to work effectively in groups.

Tentative Topics To Be Covered

- Electronic and library searches for materials (Guest lecture by librarian)
- Ethical research guidelines and Tri-Council policies (Guest lectures by Animal Care Services and ICEHR)
- Common grammatical mistakes
- Plagiarism
- Writing an essay or research paper
- Writing a lab report
- Presentation of data (e.g., how to write Results section in APA format, how to make proper graphs and tables)
- APA style and format
- Oral presentations and seminars
- Professional development issues (guest lectures by Career Planning and Development, Graduate Studies, Honours coordinator, Co-op coordinator). If time allows.

Evaluation

Course grades will be determined on the basis of your performance on written assignments, presentations, quality of peer feedback, and class participation.

The due dates and breakdown of grades is as follows:

For many of the classes students will be broken into three discussion groups, each lead by a TA. In these discussion groups students will discuss research articles both in terms of the material covered and how it is written. This will enable students to see first-hand how research is presented and discover research topics that they might be interested in pursuing further in their undergraduate degree. Participation in these groups will count for 10% of your overall grade in the course.
Proposal for New Courses

**Essay #1**
Students will write a review paper on one of five possible topics. The list of possible topics will be provided on D2L and discussed in class. Students will need to find a minimum of 10 original research articles. The main body of the paper (i.e., not including cover page, abstract and references) will be 5-6 pages double-spaced.

**Draft 1** (2%) is due September 21 at noon. This draft will be graded by 5 of your peers. The lowest and highest grade will be removed and your mark will be based on the average of the middle three grades.

**Feedback of Draft 1** is due September 25 at noon. You will be expected to grade the papers of five of your classmates. You are expected to provide constructive feedback on APA formatting, grammar, organization, and overall quality of the paper.

**Draft 2** (13%) is due September 30 at noon. You are expected to improve upon your draft by incorporating the feedback of your peers and observations that you made based on grading your peers. This version will be marked by two of your TAs. You grade will be based on the average of their marks.

**Essay #2**
Students will be able to choose a topic on their own to write about. However, you are encouraged to discuss the topic with the TA and/or prof. Again, the paper will be 5-6 pages double-spaced.

**Draft 1** (8%) is due October 7 at noon. It will be graded by one TA.

**Draft 2** (12%) is due October 19 at noon. This draft will be graded by the professor.

**Research Report #1**
This research report will be based upon an experiment/study that we do in class. You will be expected to write a complete lab report (i.e., Cover page, Abstract, Introduction, Methods, Results, Conclusions, References, Figures and/or Tables).

**Draft 1** (2%) will be graded by your peers. It is due October 26 at noon.

**Feedback of Draft 1** is due October 30 at noon.

**Draft 2** (13%) is due November 6 at noon. It will be graded by two of your TAs.

**Research Report #2**
This research report will be based upon an experiment/study that we do in class. You will be expected to write a complete lab report (i.e., Cover page, Abstract, Introduction, Methods, Results, Conclusions, References, Figures and/or Tables).

**Draft 1** (8%) will be graded by one of your TAs. It is due November 13 at noon.
Proposal for New Courses

*Draft 2 (12%)* is due November 25 at noon. It will be graded by the professor.

**Presentation (10%)**
Students will be expected to give a 5 minute presentation to their Discussion group summarizing a paper that they read. Students must e-mail a pdf of the paper to the TA and professor at least one week prior to their scheduled presentation day. The dates for the presentations will be November 20, 23, 25 and 27. The TA leading your discussion group will grade the presentations.

**Quality of Peer Feedback** will count for 5% of the overall grade. This will be graded by the professor.

**Chapter Summaries**
Students will also be required to write 5 mini-papers or summaries of the chapters in the textbook. These papers will be a maximum of 1 double-spaced page and will be marked as pass or fail. Each paper “passed” will count as 1 mark towards their final grade.

**General points about assignment:**
- It is important that students work independently on these papers. Consequences for plagiarism are severe at Memorial University of Newfoundland (See Section 5.11.4 Academic Offences of the University Calendar).
- Assignments must be completed in Microsoft Word. We will be using the track changes function. If you do not have Word on your personal computer, you may use the computers in the Psychology lab (or any of the labs on campus).
- You will submit your papers to both the instructor and the TA using the dropbox feature of D2L.
- Because of the feedback nature of this assignment, strict penalties will be in place for late submissions. *Late assignments will be deducted 10% for every day that they are late.*

---

**Additional Points**
- All students are encouraged to note the current MUN Calendar concerning drop and add dates, general undergraduate regulations and academic offences. Please note that any violation of “proper conduct” (e.g., disruption of class etc.) will result in your removal from this course.
- Students who require physical or academic accommodations are encouraged to speak privately to the instructor so that appropriate accommodations can be made in order that you may participate fully in the course. All conversations will remain confidential.
- Memorial University has many services to provide support to its students. These include, but are not limited to, the Counselling Centre (which offers workshops on study tips, test taking, etc), International students office, QEI Library, Writing Centre, Psych Society
Proposal for New Courses

Help Centre. If there are areas in which you are struggling or need extra assistance please contact either the instructor or the TA. If we cannot assist you directly we will attempt to refer you to the right people. We are here to help!

*The schedules, policies, and assignments in this course are subject to change in the event of extenuating circumstances or by mutual agreement between the instructor and the students.

Sample Course Outline and Method of Evaluation

Psychology 3820, Research Techniques in Behavioural Neuroscience

Fall 2016
Course Outline

Instructor: Dr. Jacqueline Blundell
Office: SN-1061
Phone: 864-7957
e-mail: jblundell@mun.ca

Lab instructor: Mr. Steve Milway
smilway@play.psych.mun.ca
Teaching assistants: TBA

Course Description: This course is designed to provide students with a better understanding of the techniques used to answer specific research questions in behavioral neuroscience. In this course, we will visit various (~ 8) laboratories on campus that are engaged in research relevant to behavioral neuroscience. In addition to laboratory observations and hands on tutorials, readings, discussions, presentations, and writing assignments will strengthen our understanding of the techniques used in behavioral neuroscience.

Evaluation:
Assignments (8 x 6% each, total of 48%): Each week, students will complete a short written assignment (for example, a summary of a research article or description of the technique we will observe) relevant to the specific lab we visit.

Class Participation (10%): Students will be expected to contribute to class discussions during the weekly lab visits and student presentations.

Laboratory Report (32%): The students will be expected to write a laboratory report based on data collected in one of the labs visited. This will be due at the end of the semester.

Presentation (10%): Students will give an oral presentation on their laboratory report.
Proposal for New Courses

Sample Course Outline and Method of Evaluation

Psychology 3830, Behavioural Endocrinology

Winter 2016

Instructor: Carolyn Walsh, PhD
Office: SN-3089
Tel: 864-4738
E-mail: carolynw@mun.ca

Office Hours: TBA
Class Location/Time: TBA
Teaching Assistants: TBA


Course Description: Behavioural endocrinology explores the behavioural effects of hormones and the question of how hormones act on the brain to influence behaviour. Topics include: basic concepts in neuroendocrinology, reproductive behaviour (sexual and parental), sexual differentiation of the brain and behaviour, aggressive behaviour, and the neuroendocrinology of stress, including the effects of stress on the brain and behaviour.

Evaluation Details:

Testing: 2 Mid-term Tests (20% each; total 40%) & Comprehensive Final Exam (35%)
Dates of midterms will NOT be altered unless the University is closed at the assigned date.

Assignment: Worth 25%; there will be one overall assignment to be submitted, to be submitted in two parts, each worth a percentage of your mark.

The Assignment will be a review of the literature on a research topic that you find particularly interesting in behavioural endocrinology; further details will be given in class.
Proposal for New Courses

Psychology 3830 Class Schedule- Winter 2016

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture topic</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Chapter 1/Chapter 2</td>
</tr>
<tr>
<td></td>
<td>Introduction to the Study of Behavioural Endocrinology</td>
</tr>
<tr>
<td></td>
<td>The Endocrine System</td>
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<tr>
<td>Week 2</td>
<td>Chapter 3</td>
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<tr>
<td></td>
<td>Sex Differences: Determination/Differentiation</td>
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<td>Week 3</td>
<td>Chapter 4</td>
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<tr>
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<td>Sex Differences: Animal Models and Humans</td>
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<tr>
<td>Week 4</td>
<td>Chapter 5/6</td>
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<td></td>
<td>Reproductive Behaviour</td>
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<tr>
<td>Week 5</td>
<td>Chapter 6 (cont'd)</td>
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<td>MIDTERM #1- 20% (Chapters 1-6)</td>
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<tr>
<td>Week 6</td>
<td>Chapter 7</td>
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<td>Parental Behaviour</td>
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<td>Week 7</td>
<td>Chapter 8</td>
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<td>Hormones &amp; Social Behaviour</td>
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<td>MT BREAK</td>
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<td>Week 8</td>
<td>Chapters 9/10</td>
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<td>Homeostasis &amp; Biological Rhythms</td>
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<td>Week 9</td>
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<td>Stress</td>
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<td>Week 10</td>
<td>Chapter 11 (cont'd)</td>
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<td>MIDTERM TEST #2- 20% (Ch 7-11)</td>
</tr>
<tr>
<td>Week 11</td>
<td>Chapter 12</td>
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<tr>
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<td>Learning and Memory</td>
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<tr>
<td>Week 12</td>
<td>Chapter 13</td>
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<td></td>
<td>Hormones and Affective Disorders</td>
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<tr>
<td>Week 13</td>
<td>Assigned Readings</td>
</tr>
<tr>
<td></td>
<td>Recent Developments in Behavioural Endocrinology</td>
</tr>
</tbody>
</table>
Proposal for New Courses

Sample Course Outline and Method of Evaluation

Psychology 3510/3511, Directed Study

Sample Syllabus

Instructor: Dr. Ian Neath  
Office: SN-3066H  
Phone: 864-3159  
Email: inreach@mun.ca

Calendar Description

3510 Directed Study provides an opportunity to work with an individual faculty member on a research project. The student will submit a formal written report of the research conducted. Permission of the instructor is required.

Required Textbooks

There are no required textbooks. Rather, assigned readings will all be journal articles that are available at the library (see below).

Evaluation

There are 3 components to the overall grade for this course:

1) 20% Mark assigned to research performance (e.g., timely completion of ethics training; interactions with volunteer participants; compliance with the research protocol; quality of preparation for individual meetings; presentation to the lab)
2) 70% Mark assigned to formal written report by supervisor
3) 10% Mark assigned to formal written report by Honours Thesis Coordinator

Research Experience

I have been conducting research on the effects of long-term memory factors on short-term memory performance. For example, one common measure of the capacity of short-term memory is memory span, the number of items that can be immediately recalled in order. However, memory span is affected by a number of lexical factors, including word frequency. The current project is investigating two other lexical factors, neighbourhood size and neighbourhood frequency. You will assist in collecting and analyzing data as part of this project.

Requirements

Like most research in cognitive psychology, this research requires testing volunteer participants one at a time. You will be trained on ethical issues and will be required to complete the TCPS2 Course on Research Ethics (http://tcps2core.ca/welcome). You will then receive additional training on appropriate procedures at Memorial, including the importance of the informed consent process.
Proposal for New Courses

You will work with other lab personnel to recruit, schedule, and test volunteer participants. You will also be asked to score some data and will also participate in conducting inter-scorer reliability measures.

You will attend lab meetings, and will be asked to present your research at a lab meeting at the end of the semester.

You will write a formal APA-style report of your research. This report is due on the last day of classes. To help you meet this deadline, the schedule below lists some deadlines for submitting various parts of the report. You will receive feedback on your drafts.

In both the lab meetings and in one-on-one meetings, you will be given the opportunity to discuss both the details of the specific research as well as how the project fits in with various theories of memory. You will be given readings from the primary literature, but you will also be asked to do a literature review to supplement these readings.

Time Commitment
This is a three credit hour course, and your time commitment is expected to be the same as for any other similar course. However, much of your schedule will be more variable because much of it will depend on the availability of volunteer participants. You will not test participants on any holiday or weekend.

Plagiarism
You are also responsible for knowing what constitutes plagiarism. Note that this course uses the APA definition of plagiarism, which is more specific than the University's definition.

Schedule
In addition to the items listed below, there will be lab meetings (day and time TBA) as well as additional one-on-one meetings with the instructor (day and times TBA).

Week 1 ..................... Lab orientation, ethics training, completion of TCPS2 CORE
Week 2 ..................... Training on specifics of experiment
Week 3-13 ................. Testing volunteer participants
Week 6 ..................... Introduction section due
Week 8 ..................... Methods section due
Week 10 ................... Outline of results section due
Week 11 ................... Outline of discussion and references due
Week 12 ................... Presentation during lab meeting
Week 13 .................. Research report due

Initial Reading List

Proposal for New Courses


Proposal for New Courses

SUMMARY PAGE FOR SENATE

Approval Form

Course Number and Title

PSYC 2930, Research and Writing in Psychology

Abbreviated Course Title

Research and Writing in Psychology

Calendar Change

2930 Research and Writing in Psychology is an introduction to the fundamentals of preparing psychology reports, emphasizing organization, correct use of terminology, adherence to appropriate discipline style, concise and accurate description, preparation of abstracts, and integration of numerical data. Topics for reports will be selected each semester by the instructor.

PR: Admission to a Major in Psychology or Behavioural Neuroscience

Secondary Calendar Changes

See section in the document, "proposal to revise existing programs" that integrates the 5 new courses into our degree requirements.

Rationale

This course will become a required course for the Psychology and Behavioural Neuroscience degree programs.

It is expected that instructors will tailor the course to their own area of expertise and will include demonstrations and/or labs that serve as the basis of written reports. It is intended that the course be designed to meet the criteria for a "critical reading and writing" course as defined by the Faculty of Arts. Currently all B.A. students are required to complete a research/writing course. Arts is in the process of changing this to a "critical reading and writing" course. It would be advantageous to our Psychology B.A. students if they could use this course to meet that requirement.

The rationale for proposing this course is that students are not being given a sufficient number of meaningful writing assignments sufficiently early in their undergraduate career. In this context, the term “meaningful writing assignment” means that the student receives detailed feedback on his or her assignments such that feedback may be incorporated into subsequent
Proposal for New Courses

assignments in the course. This may take the form of multiple writing assignments throughout the semester or a draft and a final version of an assignment. This contrasts with writing a paper that is turned in at the end of the course and which many students will never see again.

The Psychology Department is also proposing to eliminate PSYC 2570, Understanding Individual Differences. PSYC 2570 is currently required for the Psychology and Behavioural Neuroscience degree programs. Thus, deleting PSYC 2570 while adding PSYC 2930, makes this recommendation neutral with respect to faculty teaching resources.

The rationale is the following: During the last curriculum revision, PSYC 2520 and PSYC 2570 were required so that all students had exposure to neuroscience (2520) as well as (for want of a better term) exposure to a focus on individuals (2570). It is likely that whereas students still need to be forced to take a neuroscience course (2520), it is less likely that students are avoiding all courses with content similar to that of 2570. Moreover, 2570 has not been a popular course historically. Therefore, the second year would be re-organized as follows:

1. Instruction on research methods and statistics (2910/2911), to lay the foundation for the 3000-level courses
2. Instruction on writing and communicating in psychology (2930), again to lay the foundation for upper-level courses.
3. Instruction on neuroscience as it relates to other areas (2520), on the assumption that many majors might not ordinarily choose to take a 3000-level neuroscience course
4. No instruction on individual differences, on the assumption that many majors will take upper-level courses in related areas.

Course Number and Title

PSYC 3820, Research Techniques in Behavioural Neuroscience

Abbreviated Course Title

Techniques in Behavioural Neuroscience

Calendar Change

PSYC 3820 Research Techniques in Behavioural Neuroscience allows students to increase their understanding of how knowledge is generated in the study of neuroscience and behaviour. Students will visit various laboratories on campus that are engaged in research relevant to these fields. In addition to observations and hands-on tutorials, readings, discussions, and writing assignments will strengthen students' understanding of the techniques used to answer specific research questions in neuroscience and behaviour.

PR: PSYC 2520, 2930 and 2911, Biology 1001 and 1002, and admission to a Major in Psychology or Behavioural Neuroscience
Proposal for New Courses

Secondary Calendar Changes

See section in the document, "proposal to revise existing programs" that integrates the 5 new courses into our degree requirements.

Rationale

The Psychology Department recently completed an Academic Program Review. In the section of its report dealing with the Behavioural Neuroscience degree program, the Review Panel made several recommendations. These include the following.

First, it noted a lack of neuroscience-specific course offerings as a weakness of the program and encouraged the development of new courses to remedy this. It also recommended that the BHNRR degree program be restructured to be more interdisciplinary. Finally, it recommended increasing connections with neuroscientists in the Faculty of Medicine. In accepting this advice, we propose this new course, which will be interdisciplinary and invite participation of those doing research in any area relevant to neuroscience and behaviour. For example, this will include neuroscientists in Psychology as well as in the Division of Biomedical Sciences in Medicine. It will also include those doing animal behaviour research in Psychology and Biology as well as geneticists with an interest in behaviour in Biology and the Faculty of Medicine. The organization of the course will be the responsibility of the Psychology Department, and will be assigned to one, or possibly two, faculty members in Psychology. It is expected that faculty from other academic units will participate in the course from year to year.

Our students receive some exposure to neuroscience research techniques in Psychology 4870, Research Experience in Neuroscience. However, that experience is limited and comes late in a student's program. Offering this interdisciplinary course in the 3rd year will expose students to a variety of research techniques earlier in their program. It will also allow them to become acquainted with faculty outside of Psychology who have different approaches and employ different methods related to neuroscience and behaviour. One advantage of this is that students who intend to complete an honours degree will have a better idea of the research opportunities available to them.

Course Number and Title

PSYC 3830, Behavioural Endocrinology

Abbreviated Course Title

Behavioural Endocrinology

Calendar Change

PSYC 3830 Behavioural Endocrinology explores the behavioural effects of hormones and the question of how hormones act on the brain to influence behaviour. Topics include: basic
Proposal for New Courses

concepts in neuroendocrinology, reproductive behaviour (sexual and parental), sexual
differentiation of the brain and behaviour, aggressive behaviour, and the neuroendocrinology of
stress, including the effects of stress on the brain and behaviour.

PR: PSYC 2520, 2930 and 2911, Biology 1001 and 1002, and admission to a Major in
Psychology or Behavioural Neuroscience

Secondary Calendar Changes

See section in the document, "proposal to revise existing programs" that integrates the 5 new
courses into our degree requirements.

Rationale

The effects of hormones on behaviour are many and can be powerful. Some of these are
covered in PSYC 3533, Sexual Behaviour, and PSYC 3750, Animal Behaviour I. However,
coverage in those courses is very limited and primarily describes behavioural effects of
hormones without addressing mechanisms in any depth. In contrast, the new course will focus
on mechanisms, i.e. how hormones act on the brain to change behaviour. Thus it includes
basic concepts of molecular and cellular endocrinology as they apply to the brain, e.g. the
nature of hormone receptors, where such receptors are found in the brain, and how hormonelike neurons and circuits mediate the effects of hormones on behaviour. As such, it is
designed to increase our course offerings for students in our Behavioural Neuroscience degree
program. We note that there will be some content overlap with Biology 4550, Principles of
Endocrinology. However, we don't feel a credit restriction is necessary. If faculty resources
permit we plan to offer this course once each year. Carolyn Walsh has agreed to teach it.
However, since it is an elective, its occasional absence won't prevent BHNR students from
completing their programs.

Course Number and Title

PSYC 3510/3511, Directed Study

Abbreviated Course Title

Directed Study

Calendar Changes

3510 Directed Study provides an opportunity to work with an individual faculty member
on a research project. The student will submit a formal written report of the research
conducted. Permission of the instructor is required.
Proposal for New Courses

PR: PSYC 2910, 2911 and 2930 and admission to a Major in Psychology or Behavioural Neuroscience

3511 Directed Study provides an opportunity to work with an individual faculty member on a research project. The student will submit a formal written report of the research conducted. Permission of the instructor is required.

PR: PSYC 2910, 2911 and 2930 and admission to a Major in Psychology or Behavioural Neuroscience

Secondary Calendar Changes

See section in the document, "proposal to revise existing programs" that integrates the 5 new courses into our degree requirements.

Rationale

The Directed Study courses are electives designed to offer our majors additional research opportunities. They can be thought of as a scaled-down version of the honours thesis (PSYC 499A/B). The student works on a research project, supervised by the instructor, and writes a report. There are two Directed Study courses so that a given student can have two such opportunities. These courses do not replace any existing courses or requirements for the major; rather, they are optional courses that students can take if they so wish.

These courses would likely work differently for different faculty. For example, one faculty member may have 3 or 4 students, each testing subjects for an experiment. A different faculty member may be able to supervise only 1 student, and that student may be doing collection of data from archival sources. The students benefit by getting exposure to lab work prior to the honours thesis, and by working with an additional faculty member who will know them well when the students request letters of recommendation.

Consultations Sought From

<table>
<thead>
<tr>
<th>Faculty of Science, Department of:</th>
<th>Comments Received</th>
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<tbody>
<tr>
<td>Biochemistry</td>
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<td>Chemistry</td>
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<td>Computer Science</td>
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<td>Mathematics and Statistics</td>
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<td>Ocean Sciences</td>
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<tr>
<td>Physics and Physical Oceanography</td>
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</table>

Other Academic Units
Proposal for New Courses

Faculty of Arts
Grenfell VP Office
Marine Institute
Faculty of Education
School of Human Kinetics and Recreation
School of Nursing
School of Social Work

Library Report Received

no
no
yes
yes
no
no

yes

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

Name          Dr. Mark Abrahams
              Dean, Faculty of Science

FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:
Secretary:
Date:
December 2, 2014

TO: All Members, Faculty Council of Science

FROM: Joan Burry, Secretary
Committee on Undergraduate Studies, Faculty of Science

SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 28, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Chemistry- Calendar changes to first year Chemistry courses, including deletion of one course, rearrangement of course content and prerequisite changes to others.

2. Department of Mathematics and Statistics:
   (i) Calendar change to regulations governing supplementary examinations
   (ii) Addition of a laboratory component to Foundation Mathematics courses

3. Department of Psychology
   (i) New course proposals: Psychology 2930, 3820, 3830, 3510, 3511
   (iii) Changes to existing Psychology and Behavioural Neuroscience programs.

Joan Burry
Associate Registrar and
Secretary: Committee
on Undergraduate Studies,
Faculty of Science
Proposal to Change Existing Courses

Proposal
Calendar Changes to Existing Courses

Executive Summary

The Psychology Department has recently undergone an Academic Program Review. This process led the department to evaluate our course offerings. As a result we are proposing changes to our Psychology and Behavioural Neuroscience (BHNR) degree programs. These include revisions of existing courses, the creation of five new courses and the elimination of two courses. We propose to eliminate one course (PSYC 2570, Understanding Individual Differences) as of fall 2015, and plan to eliminate a second course (PSYC 3801, Behavioural Neuroscience) as of fall 2016, as a new course (PSYC 3820, Research Techniques in Behavioural Neuroscience) is introduced. This form describes changes to three courses and elimination of one course (PSYC 2570) that are currently part of our degree programs, as well as changes to three of our non-restricted or “service” courses in the area of developmental psychology. The proposed changes to the three non-restricted courses are described first, followed by the changes to the majors courses.

Resource Implications: Instructional Costs

No new costs will be incurred for either instructors or infrastructure.

Consultations

Appropriate academic units have been consulted. See email attached.

Library Holdings and/or Other Resources Required

The library has been contacted. See email attached.

The costs, if any, associated with these changes can be met from within the existing budget allocation or authorized new funding for the Department of Psychology.

Signature of Unit Head (if appropriate): ______________________________

Date: ______________________________

Signature of Dean/Associate Vice-President (Academic)/Vice-President: ______________________________
Proposal to Change Existing Courses

Date: ____________________________
Proposal to Change Existing Courses

SUMMARY PAGE FOR SENATE

Approval Form

Changes to Non-Restricted Courses

Course Numbers and Titles

PSYC 2010  The Psychology of Human Development I
PSYC 2011  The Psychology of Human Development II
PSYC 2012  Adult Development from Young Adulthood to Old Age

Abbreviated Course Titles

Psychology of Human Development I
Psychology of Human Development II
Adult Development

Calendar Change(s)

in section 10.11.1 of the calendar:

2010 Biological and Cognitive Development. The Psychology of Human Development I is a survey of principles underlying human development from the prenatal stage to adolescence. Topics covered will include sensorimotor, biological, physical, linguistic, perceptual, sensory, cognitive and motivational-intellectual changes.

CR: PSYC 2025, PSYC 3050
PR: PSYC 1000 and 1001
UL: cannot be used towards the Psychology major

2011 The Psychology of Human Development II. Social and Personality Development is an examination of relevant research on human socialization and personality development with special emphasis on parenting influences, attachment, imitation, sex role and moral development in childhood and adolescence.

CR: PSYC 2025 and PSYC 2011
PR: PSYC 1000 and 1001
UL: cannot be used towards the Psychology major

2012-2030 Adult Development from Young Adulthood to Old Age. examines physical and psychological changes from early adulthood until the end of the lifespan. Topics include career choices, love partnerships, parenting and grandparenting, cognitive changes, interpersonal changes, and healthy aging.
Proposal to Change Existing Courses

CR: the former PSYC 3052 and PSYC 2012
PR: PSYC 1000 and 1001
UL: cannot be used towards the Psychology major

Secondary Calendar Changes

The Bachelor of Social Work program requires either 2010 or 2011, so it should now require either 2010 or 2020 as indicated in the following table from Section 6.1 of the Calendar.

Table 1 Bachelor of Social Work (as a First Degree)

<table>
<thead>
<tr>
<th>Year / Term</th>
<th>Required Courses</th>
<th>Elective Courses</th>
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<tbody>
<tr>
<td>Year 1</td>
<td>6 credit hours in English</td>
<td>12 credit hours in non-social work elective courses. No more than 6 of these credit hours can be taken from areas other than arts and science.</td>
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| Fall and Winter | Psychology 1000 and 1001  
                    | SCWK 1710  
                    | Sociology 1000                                                     |                                                                                                                                 |
| Year 2       | One of Political Science 1010, 2600, 2800, Sociology 2230 or 2240                |                                                                                                                                 |
| Fall         | Psychology 2010 or Psychology 2014 - 2020                                         |                                                                                                                                 |
|              | SCWK 2211                                                                         |                                                                                                                                 |
|              | SCWK 2320                                                                         |                                                                                                                                 |
|              | SCWK 2711                                                                         |                                                                                                                                 |
| Year 2       | One of Philosophy 2551, 2552, 2553, or 2591                                       |                                                                                                                                 |
| Winter       | Psychology 2010 or Psychology 2014 - 2020                                         |                                                                                                                                 |
|              | (whichever one has not been taken during Fall above)                               |                                                                                                                                 |
|              | SCWK 2321                                                                         |                                                                                                                                 |
|              | SCWK 2520                                                                         |                                                                                                                                 |
|              | 3 credit hours in Sociology at the 2000 level or above                             |                                                                                                                                 |

In the Fisheries and Marine Institute, Psychology 2010, 2011, 2012 are currently Group C Electives in the Bachelor of Technology – Health Science Technology Option (p 281 Table 4 of the 2014/2015 calendar). Revisions to that section of the Calendar will be required. This was pointed out by Derek Howse of the Marine Institute in an email message dated Nov. 10, 2014. Please see the revised table below.
Proposal to Change Existing Courses

Table 4 Bachelor of Technology - Health Science Technology Option

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Group A Electives</th>
<th>Group B Electives</th>
<th>Group C Electives</th>
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<tr>
<td>• 3 credit hours in English at the 1000 level</td>
<td>• Business 1101 or 210 2</td>
<td>• Economics 2010</td>
<td>• Biology 2040 or 2041 1</td>
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<td>• MSTM 4040</td>
<td>• Business 4000</td>
<td>• Economics 2020</td>
<td>• Nursing 3023</td>
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<tr>
<td>• MSTM 4060</td>
<td>• Economics 3360</td>
<td>• Economics 3080</td>
<td>• Nursing 4701</td>
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<td>• MSTM 4090</td>
<td>• MSTM 4011</td>
<td>• Geography 4410</td>
<td>• Psychology 2010</td>
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<td>• MSTM 410A/B</td>
<td>• MSTM 4012</td>
<td>• MSTM 4014</td>
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<td>• Statistics 1510 or 2500</td>
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<td>• MSTM 4030</td>
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<td>• Philosophy 1100</td>
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<tr>
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<td></td>
<td>• Sociology 2120</td>
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</table>

Rationale

We are proposing to change the titles, course descriptions and course numbers for three courses, PSYC 2010, PSYC 2011, and PSYC 2012. For PSYC 2010, we propose to change the title and the course description. For PSYC 2011, we propose to change the course number, title and course description. For PSYC 2012, we propose to change the course number to fit into the pattern of the new set of course numbers and to simplify the title.

The rationale for changing these three courses is to make it clear that these are 3 independent courses. Because of the titles of 2010 and 2011, and because the three course numbers are consecutive, many students think the courses must be taken in sequence and that 2010 must be taken before 2011, and 2011 must be taken before 2012. Changing the titles and numbers should remove this misconception. At the same time, some minor changes to the course descriptions are proposed to more accurately reflect the content of the courses.
Proposal to Change Existing Courses

SUMMARY PAGE FOR SENATE

Approval Form

Changes to Majors Courses

Course Numbers and Titles

PSYC 2520  Mind and Brain
PSYC 3250  Learning
PSYC 3800  Neuroscience
PSYC 2570  Understanding Individual Differences

Abbreviated Course Titles

PSYC 2520  Mind and Brain
PSYC 3250  Learning
PSYC 3800  Neuroscience
PSYC 2570  Individual Differences

Calendar Change(s)

In section 10.11.2 of the calendar:

2520 Mind and Brain Introduction to Behavioural Neuroscience is based on the idea that psychological and neuroscience research efforts are synergistic. Neuroscience research can reveal mechanisms that help explain the mind and behavior, while concepts developed by psychological research often define the topics that neuroscience investigates. Topics such as memory, emotion, mental illness, and sleep will illustrate the utility of multiple research perspectives for developing a more complete understanding of psychological issues. The course will survey a broad range of topics that include the fundamentals of neuroanatomy, neurophysiology, and neurodevelopment, as well as higher level functions such as motivation, emotion, sleep, memory, language, and mental illness.

PR: PSYC 1000 and 1001 and admission to a Major in Psychology or Behavioural Neuroscience; minors may be permitted to take this course if space permits.

3250 Learning (formerly PSYC-2250) Neurobiology of Learning and Memory examines how organisms adjust their behaviour to regularities in the environment as a result of experience. Experience changes behavior by modifying the nervous system. We will take a multidisciplinary approach, combining information from psychology and neuroscience, to study learning and memory. Students will gain an understanding of sensitization, habituation, and classical and operant conditioning using animal models, with a particular emphasis on the synaptic and molecular changes that occur with learning and memory.
Proposal to Change Existing Courses

CR: **PSYC 2240, the former PSYC 2225, the former PSYC 2250**

PR: **PSYC 2520, 2570, 2930 and 2911, and admission to a Major in Psychology or Behavioural Neuroscience**

3800 **Cellular Neuroscience** addresses the structure and function of neurons and neural circuits and examines principles of electrochemical neural communication at the macroscopic, microscopic and molecular level. The relevance of this knowledge to understanding brain mechanisms of normal and diseased brain functions will be touched upon. The molecular basis of the formation of some types of memories will be explored.

PR: **PSYC 2520, 2570 2930 and 2911, Biology 1001 and 1002, and admission to a Major in Psychology or Behavioural Neuroscience**

2570 **Understanding Individual Differences**

uses current conceptualizations of personality and ability as a focus. The course will review issues related to the measurement of individual differences, including test characteristics and ethics. Research from a variety of perspectives will be used to illustrate the contributions of different areas of psychology to our understanding of individual differences.

PR: **PSYC 1000 and 1001 and admission to a Major in Psychology or Behavioural Neuroscience**

minors may be permitted to take this course if space permits

Secondary Calendar Changes

Changes will be required in program requirements for the Psychology and Behavioural Neuroscience majors and in joint degree programs with Biology and Biochemistry. These are described in a separate form, Changes to Existing Programs.

Rationale

**PSYC 2520** The title and Calendar description of PSYC 2520 have been revised. Over a period of years, the content of this course changed from one that presented an amalgamation of cognitive psychology and neuroscience to one that conforms to the more common 2nd year introductory behavioural neuroscience course. The new name and revised description reflect this.

**PSYC 3250** The title and Calendar description of PSYC 3250 have been revised. PSYC 3250 will become a required course for BHN R majors and will continue to be offered twice each year with a cap of 40 students. The current Psychology 3250 course had not been revised in a number of years. Current research on learning has focused on the neurobiology of learning, rather than behavioural paradigms. The department feels that in preparing undergraduates for future studies in psychology and neuroscience, they need a strong background in the neurobiological mechanisms of learning. The revised 3250 course would still teach students the importance of behavioural investigations of learning.
Proposal to Change Existing Courses

However, they would also learn what neuroscientists, molecular biologists, biochemists, electrophysiologists and molecular geneticists have added to our understanding.

**PSYC 3800** The title of PSYC 3800 has been revised and first year Biology courses have been added as pre-requisites. The revised title will better reflect the content of the course. First year Biology courses have been added as pre-requisites, as it is felt that students without this background will be handicapped.

**PSYC 2570** We are proposing to create a new required course, PSYC 2930, Research and Writing in Psychology. At the same time we propose to eliminate a required course, PSYC 2570, Understanding Individual Differences. The rationale is the following: During the last curriculum revision, PSYC 2520 and PSYC 2570 were required so that all students had exposure to neuroscience (2520) as well as (for want of a better term) exposure to a focus on individuals (2570). It is likely that whereas students still need to be forced to take a neuroscience course (2520), it is less likely that students are avoiding all courses with content similar to that of 2570. Moreover, 2570 has not been a popular course historically. Therefore, the second year would be re-organized as follows:

1. Instruction on research methods and statistics (2910/2911), to lay the foundation for the 3000-level courses
2. Instruction on writing and communicating in psychology (2930), again to lay the foundation for upper-level courses.
3. Instruction on neuroscience as it relates to other areas (2520), on the assumption that many majors might not ordinarily choose to take a 3000-level neuroscience course
4. No instruction on individual differences, on the assumption that many majors will take upper-level courses in related areas.

**PSYC 3801** will be offered in 2015/2016, but will be eliminated for 2016/2017 as PSYC 3820 is introduced. Over a period of years, the content of PSYC 2520 has changed from one that presented an amalgamation of cognitive psychology and neuroscience to one that conforms to the more common introductory behavioural neuroscience survey course. Because of that, it was felt there was too much overlap with the material covered in PSYC 3801. Eliminating this required course will allow us to create a new required course (PSYC 3820, Research Techniques in Behavioural Neuroscience) without requiring additional faculty resources.

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Consultations Sought From

<table>
<thead>
<tr>
<th>Faculty of Science, Department of:</th>
<th>Comments Received</th>
</tr>
</thead>
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<td>Biochemistry</td>
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<tr>
<td>Chemistry</td>
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<td>Computer Science</td>
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<tr>
<td>Earth Sciences</td>
<td>no</td>
</tr>
<tr>
<td>Mathematics and Statistics</td>
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</tr>
</tbody>
</table>
Proposal to Change Existing Courses

Ocean Sciences no
Physics and Physical Oceanography yes

Other Academic Units

Faculty of Arts no
Grenfell VP Office no
Marine Institute yes
Faculty of Education yes
School of Human Kinetics and Recreation yes
School of Nursing no
School of Social Work no

Library Report Received yes

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

Name Dr. Mark Abrahams
Dean, Faculty of Science

FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair: 

Secretary: 

Date: 

9
Dear colleagues,

The Psychology Department has recently undergone an Academic Program Review. This process led the department to evaluate our course offerings. As a result we are proposing changes to our Psychology and Behavioural Neuroscience (BHNR) degree programs. Our proposed changes are outlined below and are described in detail in the 3 attachments. In addition we are proposing minor revisions to 3 of our non-restricted or "service" courses in the area of developmental psychology.

Revisions of 3 existing courses:
PSYC 2520, Mind and Brain
PSYC 3250, Learning
PSYC 3800, Neuroscience

Addition of 4 new courses:
PSYC 29xx, Research and Writing in Psychology
PSYC 3820, Research Techniques in Behavioural Neuroscience
PSYC 3830, Behavioural Endocrinology
PSYC 3xx1/3xx2, Directed Study

Elimination of two courses:
PSYC 2570, Understanding Individual Differences
PSYC 3801, Behavioural Neuroscience

Please review the proposals and send your comments to me as soon as possible.

Thank you for your attention to this.

Chuck Malsbury
Undergraduate Officer
Department of Psychology
864-7685 (office)
Dear colleagues,

The Psychology Department has recently undergone an Academic Program Review. This process led the department to evaluate our course offerings. As a result we are proposing changes to our Psychology and Behavioural Neuroscience (BHN) degree programs. Our proposed changes are outlined below and are described in detail in the 3 attachments. In addition we are proposing minor revisions to 3 of our non-restricted or “service” courses in the area of developmental psychology.

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PSYC 3830, Behavioural Endocrinology
PSYC 3xx1/3xx2, Directed Study

Elimination of two courses:
PSYC 2570, Understanding Individual Differences
PSYC 3801, Behavioural Neuroscience

Please review the proposals and send your comments to me as soon as possible.

Thank you for your attention to this.

Chuck Malsbury
Undergraduate Officer
Department of Psychology
864-7685 (office)
Charles Malsbury

From: Charles Malsbury <malsbury@play.psych.mun.ca>
Sent: Tuesday, November 04, 2014 4:29 PM
To: dkeep@mun.ca
Subject: proposals for 4 new courses
Attachments: PSYC 3820 calendar description & syllabus.docx; PSYC 29xx, calendar description & syllabus.docx; PSYC 3xx1 & 3xx2, calendar description & syllabus.docx; PSYC 3830, calendar description & syllabus.docx

Dianne Keeping
Collection Development Librarian
Social Sciences

Ms. Keeping,

We are in the process of requesting approval for four new courses. The tentative numbers and titles of these are:

- PSYC 29xx, Research and Writing in Psychology
- PSYC 3820, Research Techniques in Behavioural Neuroscience
- PSYC 3830, Behavioural Endocrinology
- PSYC 3xx1/3xx2, Directed Study

I've attached proposed Calendar descriptions, the rationale for each, and sample syllabi.

Please review this material and let me know if the library has the resources required to support these courses. Thank you for your attention to this.

Chuck Malsbury
Deputy Head and Undergraduate Officer
Department of Psychology
864-7685 (office)
25 November 2014

TO: Dr. Charles Malsbury, Department of Psychology

FROM: Dr. Dianne Keeping, Collection Development Librarian (Social Sciences)

SUBJECT: New Course Proposal, Research and Writing in Psychology (PSYC 29xx)

The new course proposal titled, *Psychology 29xx, Research and Writing in Psychology*, is described as “an introduction to the fundamentals of psychology reports, emphasizing organization, correct use of terminology, adherence to appropriate discipline style, concise and accurate description, preparation of abstracts, and integration of numerical data.” A copy of the course text is currently on order, and with a wide variety of APA style guides, 692 catalogue entries on the topic of “Report Writing”, and 37 on the topic of “Psychology — authorship”, the University Library appears to be particularly well equipped to support the stated objectives of this course.

The Information Services Division at the QEI Library is available to provide course specific research instruction sessions for students upon request by the course instructor. Additional information about the Library and Information Literacy Instruction program is available on the Library’s website: http://www.library.mun.ca/Instruction/overviewsys.php.

The University Library has a strong Psychology collection, which includes access to the important article indexes and databases for the discipline, the key journal titles, and a large collection of monographs to support the undergraduate, graduate, and faculty research of the Department of Psychology. The Library does have sufficient resources to support this proposed course.
25 November 2014

TO: Dr. Charles Malmbury, Department of Psychology

FROM: Dr. Dianne Keeping, Collection Development Librarian (Social Sciences)

SUBJECT: New Course Proposal, Research Techniques in Behavioural Neuroscience (PSYC 3820)

Based on my review of the proposal for Psychology 3820, Research Methods in Behavioral Neuroscience, I have concluded that Memorial University Libraries does have sufficient resources to support the stated objectives of this proposed course. The University Library has a strong Psychology collection, which includes access to the important article indexes and databases for the discipline, the key journal titles, and a large collection of monographs to support the undergraduate, graduate, and faculty research of the Department of Psychology. The Library collection also includes resources to support academic programs in Biology and Medicine, which would be of use to psychology students engaged in behavioural neuroscience research (see Table 1).

The Library currently has 188 ejournals on the topic of Neuroscience, 428 ejournals on Neurology, and 828 ejournals on the general topic of Psychology. A review of Library of Congress subject headings for Behavioral Neuroscience and related areas indicates that the University Library has a sufficient range of supplementary resources to support research projects that are likely to be pursued by students enrolled in the course (see Table 2).

Additional resources may be purchased for the Library as needed. The Library’s Document Delivery service may also be used to acquire copies of resources that are not currently available in the collection.
### Library Holdings Summary

#### Table 1: Selected Article Indexes & Databases with Behavioral Neuroscience Coverage

<table>
<thead>
<tr>
<th>Title</th>
<th>Availability</th>
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<tr>
<td>Animal Behavior Abstracts</td>
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</tr>
<tr>
<td>Biological Abstracts</td>
<td>Internet access available to MUN users only.</td>
</tr>
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<td>ProQuest Social Sciences Premium Collection</td>
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</tr>
<tr>
<td>Psychology and Behavioral Sciences Collection</td>
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</tr>
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<td>PsycARTICLES</td>
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<td>PsycCRITIQUES</td>
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<td>PsycINFO</td>
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<td>PubMed</td>
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<tr>
<td>Sage Research Methods Online</td>
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<tr>
<td>Scopus</td>
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<tr>
<td>Web of science</td>
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#### Table 2: Selected Library of Congress Subject Headings for Available Library Resources

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<tr>
<th>LC Subject Headings</th>
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<tr>
<td>Cognitive Neuroscience</td>
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<td>Neurosciences</td>
<td>740</td>
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<tr>
<td>Psychology, experimental</td>
<td>255</td>
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<tr>
<td>Psychology – research - methodology</td>
<td>218</td>
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<tr>
<td>Psychophysiology</td>
<td>442</td>
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</table>

*Catalogue entries as of the date of this memo
25 November 2014

TO: Dr. Charles Malsbury, Department of Psychology

FROM: Dr. Dianne Keeping, Collection Development Librarian (Social Sciences)

SUBJECT: New Course Proposal, Behavioural Endocrinology (PSYC 3830)

Based on my review of the proposal for Psychology 3830, Behavioural Endocrinology, I have concluded that Memorial University Libraries does have sufficient resources to support the stated objectives of this proposed course. The University Library has a strong Psychology collection, which includes access to the important article indexes and databases for the discipline, the key journal titles, and a large collection of monographs to support the undergraduate, graduate, and faculty research of the Department of Psychology.

The Library has a copy of the text to be assigned in the proposed course. The collection also currently includes 108 journals specifically on the topic of Endocrinology and a review of Library of Congress subject headings related to Behavioural Endocrinology indicates that the University Library has a sufficient range of supplementary resources to support research topics likely to be covered in the literature review assignment described in the course proposal (see Tables). Additional resources may be purchased for the Library as needed. The Library's Document Delivery service may also be used to acquire copies of resources that are not currently available in the collection.

The Information Services Division at the QEII Library is available to provide course specific research instruction sessions for students upon request by the course instructor. Additional information about the Library and Information Literacy Instruction program is available on the Library website: http://www.library.mun.ca/instruction/overviewsvs.php.
### Library Holdings Summary

#### Table 1: Selected Article Indexes & Databases with Behavioural Endocrinology Coverage

<table>
<thead>
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<th>Title</th>
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<tr>
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<td>7</td>
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<td>4</td>
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<tr>
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<tr>
<td>Neuroendocrinology</td>
<td>122</td>
</tr>
<tr>
<td>Sex (psychology)</td>
<td>886</td>
</tr>
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<td>Sex (biology)</td>
<td>123</td>
</tr>
<tr>
<td>Sex differences (psychology)</td>
<td>371</td>
</tr>
<tr>
<td>Parental behavior in animals</td>
<td>69</td>
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<tr>
<td>Human reproduction – endocrine aspects</td>
<td>6</td>
</tr>
<tr>
<td>Stress (physiology)</td>
<td>268</td>
</tr>
<tr>
<td>Learning, psychology of</td>
<td>1262</td>
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<tr>
<td>Affective disorders</td>
<td>124</td>
</tr>
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</table>

*Catalogue entries as of the date of this memo
25 November 2014

TO: Dr. Charles Malsbury, Department of Psychology

FROM: Dr. Dianne Keeping, Collection Development Librarian (Social Sciences)

SUBJECT: New Course Proposal, Directed Study (PSYC 3xx1)

Upon review of the proposal for Psychology 3xx1, Directed Study, I have concluded that Memorial University Libraries does have sufficient resources to support the stated objectives of this proposed course. Given the nature of this type of course, it is not possible to know exactly what resources students enrolled in the course will require for their directed study from year to year; however, all 13 of the articles cited in the initial reading list are currently available in the Library. The University Library has a strong Psychology collection, which includes access to the important article indexes and databases for the discipline, the key journal titles, and a large collection of monographs to support the Bachelors, Masters, Doctoral, and faculty research of the Department of Psychology. There are, undoubtedly, ample resources for students enrolled in the proposed course to consult while conducting their research projects. The Library’s Document Delivery service may also be used to acquire resources that are not available locally.
Charles Malsbury

From: Karen Morris <morrisk@mun.ca>
Sent: Friday, November 21, 2014 4:18 PM
To: Charles Malsbury
Subject: Re: FW: Request for approval of changes to Psychology & Behavioural Neuroscience degree programs

Thanks Chuck.
Karen

On 21/11/2014 4:13 PM, Charles Malsbury wrote:

As I said in my previous email, the written report would be weighted heavily, e.g. 80% as in the sample syllabus. However, different instructors will probably want to vary this somewhat depending on the project.

Chuck

From: Karen Morris [mailto:morrisk@mun.ca]
Sent: Friday, November 21, 2014 3:46 PM
To: Charles Malsbury
Cc: Ian Neath
Subject: Re: FW: Request for approval of changes to Psychology & Behavioural Neuroscience degree programs

Hi Chuck,
Thank you for this. I guess I did not explain what was meant by standardized method of evaluation. What we were asking is - if a number of students were taking the course each with different instructors/ supervisors would all have the same weighting in terms of
of eg. 20% research performance
80% formal written report.

Thanks
Karen

On 21/11/2014 3:04 PM, Charles Malsbury wrote:

Karen Morris
Undergraduate Officer
Department of Biology

Karen,

Thank you for your comments. Regarding your question about the method of evaluation for our Directed Study courses, the Calendar description states that a written report of the student’s research is required, and it is expected that instructors will weight that component heavily. In Dr. Neath’s example syllabus, 80% of the final mark is based on the report, and we expect that will be typical. However, it would be difficult to standardize the report itself, i.e. design
a rubric that would apply to all projects, as the type of research opportunities in psychology vary so much (from "standard" bench science to testing human volunteers to observing animals to archival research, to name only a few). Indeed, while many areas follow the American Psychological Association format, a number of other areas have their own format. Instead, we propose doing what we currently do to evaluate honours theses (which span the same range of research). Each year, there are between 30 and 40 honours theses. The Honours Thesis Coordinator reads all of these and is in a position to see that the marking by each thesis supervisor is appropriate. This system has worked well for a long time, and we propose the same for the proposed Directed Study courses. That is, we are calling on the Honours Thesis Coordinator to provide part of the overall evaluation for all students taking these courses. This should ensure some degree of consistency.

Chuck Malsbury
Deputy Head and Undergraduate Officer
Department of Psychology

---

From: Karen Morris [mailto:morrisk@mun.ca]
Sent: Thursday, November 20, 2014 3:41 PM
To: Charles Malsbury
Cc: Wall, Mary
Subject: Re: FW: Request for approval of changes to Psychology & Behavioural Neuroscience degree programs

Hi Chuck,

The Biology Undergraduate Studies Committee reviewed the proposed changes to the Psychology & Behavioural Neuroscience degree programs and the new course proposals.

Based on our review and information received from you, the committee has no majors concerns with the proposals.

We do have a question regarding the proposed PSYC 3XX1/3XX2 Directed Study courses. We are assuming that many students could be taking the course(s) with different Instructors so would there be a standardized method of evaluation?

Thanks
Karen

Karen Morris
Undergraduate Officer
Department of Biology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
709-864-8021
Charles Malsbury

From: Linda Rohr <lerohr@mun.ca>
Sent: Thursday, November 20, 2014 3:30 PM
To: Charles Malebury
Subject: Re: calendar changes

Hi Chuck
Thank you for forwarding the documents to me. I have reviewed and do not have any concerns with the proposed calendar changes.
Linda

Linda E. Rohr PhD
Associate Professor
Associate Dean Undergraduate Studies
School of Human Kinetics and Recreation
Memorial University
St. John's, NL
709.864.6202
709.864.7531 (fax)
PE 2025

From: Charles Malsbury <malsbury@play.psych.mun.ca>
Date: Tuesday, November 18, 2014 9:33 AM
To: Linda Rohr <lerohr@mun.ca>
Subject: RE: calendar changes

Hi Linda,

Please see the 3 attachments.

Thanks, Chuck
864-7685 (office)

From: Linda Rohr [mailto:lerohr@mun.ca]
Sent: Tuesday, November 18, 2014 9:11 AM
To: malsbury@play.psych.mun.ca
Subject: calendar changes

Hi Chuck
Can you please send me the attachments from the message below? I did not receive them.
Thanks,
Linda

Linda E. Rohr PhD
Associate Professor
Associate Dean Undergraduate Studies
School of Human Kinetics and Recreation
Memorial University
St. John's, NL
709.864.6202
709.864.7531 (fax)
Dr. Martin Mulligan  
Chair, Biochemistry Undergraduate Studies Committee  

Hi Martin,

Thank you for your committee’s support of our proposed Calendar changes and your comments about them.

The first of those comments concerned the proportion of the grade awarded by peers in our proposed new course, now numbered PSYC 2930 (Research and Writing in Psychology). Your comment was that the proportion was too high for a 2000 level course. In accordance with your concern, we have revised the method of evaluation to bring the percentage of the total mark awarded by peers down from 14% to 4%.

The next comments concerned the proposed new Directed Studies courses, now numbered PSYC 3510 and 3511. Dr. Neath prepared the sample syllabus describing how he would organize the course. Below you’ll find his response to your committee’s comments.

Finally, you requested that we delete a note from section 5.1.6.2 of the Calendar, which describes the requirements for the Biochemistry and Psychology (Behavioural Neuroscience) Joint Honours program. We have revised that clause, which appears in the “secondary changes” part of our proposed changes to existing programs, to delete that note.

Chuck Malsbury  
Deputy Head & Undergraduate Officer  
Department of Psychology

---

Dr. Neath’s response to Biochemistry concerning PSYC 3510 and 3511

We apologize for not being sufficiently clear on a number of points.

The syllabus submitted with the proposal to create Psychology 3510/3511 Directed Study was a sample syllabus and not necessarily a syllabus all instructors would use. Research in psychology varies, and with that, the type of experience students will receive will also vary. For example, some psychologists use archival data, some psychologists study animals, and some psychologists are closer to traditional “bench” scientists in biochemistry, and some rely on volunteer participants.

Students taking this course should be well-versed in the APA definition of plagiarism. It is posted on the Department’s web site, it is sent to all instructors for distribution in their classes at the beginning of each semester, and it is part of the focus of a lecture of research ethics in PSYC 2910, a required research methods course that all students will have taken prior to enrolling in the directed study course. Finally, it is part of the ethics training described in Week 1. The primary difference is that APA’s definition explicitly states that no matter how much you might rephrase or reword a sentence, paragraph, or idea, it is still plagiarism if you do not
cite the original source. Memorial’s definition in the Calendar does not make this explicit, and many students who have not yet encountered APA’s definition are under the impression the rephrasing something is one way of preventing plagiarism; what they often fail to understand is that not only is rephrasing necessary, but citing the source is still required.

We think that stopping collecting data in Week 10 is not appropriate for three reasons.

First, it leaves relatively little for students to do in the final few weeks. The report the students are asked to write is an APA-style paper, and they will have turned in most of the sections for feedback prior to Week 11. The only sections that will not be complete are the results and discussion sections, but even there, the analyses will already have been planned out, and outline of the results section is due in Week 10 and an outline of the discussion section is due in Week 11. Similarly, they will have been working on their presentation at the time of writing the report.

Second, in some areas of psychology, research relies on volunteer participants. At MUN (and elsewhere), there is a high “no show” rate which slows down the rate at which data can be collected. If no one shows up to be tested, no data can be collected, and therefore the student can use the time for other purposes (either on this course or on other courses). The goal of the course is to provide a meaningful research experience; one way to help is to maximize the likelihood of statistically significant results by taking into account that there will be a lot of “no shows.” There’s nothing quite like a significant result to generate interest and enthusiasm and nothing quite like a non-significant result to quash that interest and enthusiasm. The primary reason for continuing to collect data throughout the semester is to maximize the chance that the student will have a meaningful experience.

Third, keep in mind that the syllabus explicitly states that this course will not require a time commitment greater than other 3-credit hour courses.

Therefore, we do not think that limiting what can happen during the last few weeks is a good suggestion: It can leave the student with relatively little to do in the final weeks (when compared to other 3-credit hour courses) and can minimize the chance of having sufficient power to obtain a significant result.

From: Martin Mulligan [mailto:mulligan@mun.ca]
Sent: Tuesday, November 18, 2014 11:02 AM
To: Dr. Charles Malessby
Cc: Biochemistry Head
Subject: Proposed Psychology Calendar Changes

Hello Chuck,

The Dept of Biochemistry Undergraduate Studies Committee met yesterday to review the proposed changes to Psychology programs. We support the proposed changes. We also wish to request an amendment to the secondary changes in the Biochemistry/Behavioural Neuroscience Joint Honours program. That request and a few comments follow...

The committee strongly endorsed the approach to developing writing and research skills in the proposed new courses. However, we are concerned that the proportion of the grade awarded by peers in the new 29xx is too high for a 2000 level course. Our committee suggests that a maximum of 5% be awarded through peer-review in the course.

The committee supports the introduction of 3820 and 3830.
We support the introduction of the two directed studies courses but have a few comments relating to the supporting documentation.

First, we found the sample course outline somewhat confusing. It appeared to start as a general course outline but then it transitioned into what seemed to be the outline for a specific project in a particular laboratory. Second, we suggest that you include more details on the APA definition of plagiarism so that it will be clear to readers just how it differs from the University definition. Any specific differences between the two should be noted explicitly so that students are clear on the course expectations. Lastly, the sample course schedule indicates that volunteers would be tested during weeks 3-13. We think this should be changed to weeks 3-10 so that students have the data collected from all testing when preparing their presentation in week 12 and research report for week 13.

The committee supports the proposed changes to existing courses. Those should have no impact on our programs.

Finally, we wish to recommend a change to the Biochemistry and Psychology (Behavioural Neuroscience) Joint Honours.

In clause 5.1.6 item 2 of the current regulations there is:

Note: Only one of 4105 and 4220 may be chosen

We wish to request that this note be deleted as a secondary change to this program.

The note was pertinent when both of those courses were taught by the Faculty of Medicine. We amended most of our programs last year to remove this restriction as 4105 is now taught by the department of biochemistry. It would be consistent and timely to make this change to the Biochemistry and Psychology (Behavioural Neuroscience) Joint Honours program.

regards
martin

(Chair, Biochemistry Undergraduate Studies Committee)

Dr. Martin E. Mulligan  muligan@mun.ca
Department of Biochemistry  P: (709) 864-7978
Memorial University of Newfoundland  F: (709) 864-2422
St. John's, Newfoundland, CANADA A1B 3X9

3
Charles Malsbury

From: Michael Morrow <mmorrow@mun.ca>
Sent: Monday, November 10, 2014 2:57 PM
To: malsbury@play.psych.mun.ca; deansci@mun.ca; Brad deYoung
Subject: Consultation - Proposed changes to Psychology and Behavioural Neuroscience Degree

Chuck

Thank you for the opportunity to comment. The Physics Undergraduate Studies Committee has considered the proposed changes contained in the three documents entitled "Psychology, proposal for new courses", Psychology, proposal to change existing courses", and "Psychology, proposal to change existing programs". No concerns were raised.

Best wishes

Michael Morrow

-------------------------------------------------------------
Department of Physics and Physical Oceanography Memorial University of Newfoundland
St. John's, Newfoundland Phone: (709) 864 4361
Canada, A1B 3X7 FAX: (709) 864 8739
-------------------------------------------------------------

1
The Department of Mathematics and Statistics has no objection to this proposal.

H. Johnson

On 11/10/2014 10:16 AM, Chris Radford wrote:

---- Original Message ----

Subject: Fwd: FW: Request for approval of changes to Psychology & Behavioural Neuroscience degree programs
Date: Mon, 10 Nov 2014 09:24:17 -0330
From: Leonce Morrissey <leonce@mun.ca>
To: Chris Radford <cradford@mun.ca>

---- Forwarded Message ----

Subject: FW: Request for approval of changes to Psychology & Behavioural Neuroscience degree programs
Date: Mon, 10 Nov 2014 12:50:34 +0000
From: Dean of Science <deansc@mun.ca>
To: Squire, Christine <csquire@mun.ca>, Biochemistry Head <biohead@mun.ca>, Brad de Young <bdeyoung@mun.ca>, Chris Radford, Math & Stats <math-head@mun.ca>, David Innes, Biology <dinnes@mun.ca>, Fletcher, Garth <fletcher@mun.ca>, Gerard Martin <Psychology.Head@mun.ca>, John Hancher, Earth Sciences <jhancher@mun.ca>, Peter Pickup, Chemistry <chemhead@mun.ca>, Wolfgang Banzhafl, Computer Science <banzhaf@mun.ca>, Collins, Rosalind (Chemistry) <collinsr@mun.ca>, Coombs, Donna Geraldine <dcoombs@mun.ca>, Edwards, Regina (Computer Science) <redwards@mun.ca>, Guzzwell, Diane (Earth Sciences) <dguzzwell@mun.ca>, Kenny, Shirley <shirleyk@mun.ca>, Lewis, Betty Ann <elewis@mun.ca>, Morrissey, Leonce (Math & Stats) <leonce@mun.ca>, Psychology <psychsecretary@mun.ca>, Sparkes, Winnie <wsparkes@mun.ca>
CC: Surprenant, Almee <asurpren@mun.ca>, oscar@mun.ca <oscar@mun.ca>, Charles Malsbury <malsbury@play.psych.mun.ca>

Please see email below and attached. Comments should be sent to Chuck Malsbury at malsbury@play.psych.mun.ca with a copy to this office.

Thanks,
Mary

1
Derek,

Thank you for your prompt reply. We will revise our proposals to address the points you mention below.

Chuck Malsbury

From: Dawn King [mailto:Dawn.King@ml.mun.ca] On Behalf Of MIUG Consultations
Sent: Monday, November 10, 2014 4:15 PM
To: Charles Malsbury
Subject: RE: Request for approval of changes to Psychology & Behavioural Neuroscience degree programs

Dr. Malsbury,

Thank you for the opportunity to review the proposal for new courses, changes to existing courses and the proposal to change the existing Psychology and Behavioural Neuroscience Degree Programs.

A couple of things to note:

- In the proposal for new courses, the maximum allowable number of characters for the abbreviated course title is 30 characters.
- In the proposal to change existing courses, the courses Psychology 2010, 2011, 2012 are currently Group C Electives in the Bachelor of Technology – Health Science Technology Option (p 281 Table 4 of the 2014/2015 calendar). A secondary change will need to be included in your proposal stating that the affected courses in this particular table will require a change in course numbers. The change to the descriptions will have no impact on the value of these courses as program electives.

All the best,

Derek

Derek Howse
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0586
FAX: 709-778-0394
Derek.Priority@nl.mun.ca
Hello Dr. Malsbury,

I have reviewed the Calendar Changes as per your request and confirm that there would be no impact on the Faculty of Education.

Best regards,

Beverly Fraize
Academic Program Administrator
Undergraduate Programs
Faculty of Education, Room ED 2020
Education Building
Memorial University of Newfoundland
St. John’s, NL A1B 3X8
Phone: 709-864-3485
Fax: 709-864-2001
Admission Enquiries: edadmiss@mun.ca
General Enquiries: muneduc@mun.ca

From: Hicks, Sue
Sent: November-12-14 9:48 AM
To: Fraize, Beverly
Cc: Galway, Gerald J.
Subject: FW: consultation request: changes to Psychology & Behavioural Neuroscience degree programs

Bev,

For review and response. Thanks.

Sue

Susan Hicks
Assistant to the Dean
Faculty of Education
Memorial University of Newfoundland
G.A. Hickman Building
St. John’s, NL A1B 3X8
December 2, 2014

TO: All Members, Faculty Council of Science

FROM: Joan Burry, Secretary
Committee on Undergraduate Studies, Faculty of Science

SUBJECT: Calendar Changes and New Course Proposals

At a meeting held on November 28, 2014, the Undergraduate Studies Committee of the Faculty of Science agreed that the following Calendar changes and new course proposals be forwarded to Faculty Council for approval:

1. Department of Chemistry: Calendar changes to first year Chemistry courses, including deletion of one course, rearrangement of course content and prerequisite changes to others.

2. Department of Mathematics and Statistics:
   (i) Calendar change to regulations governing supplementary examinations
   (ii) Addition of a laboratory component to Foundation Mathematics courses

3. Department of Psychology
   (i) New course proposals: Psychology 2930, 3820, 3830, 3510, 3511
   (iii) Changes to existing Psychology and Behavioural Neuroscience programs.

Joan Burry

Associate Registrar and
Secretary: Committee
on Undergraduate Studies,
Faculty of Science
Proposal

Calendar Changes to Existing Programs

Executive Summary

The Psychology Department has recently undergone an Academic Program Review. This process led
the department to evaluate our course offerings. As a result we are proposing changes to our
Psychology and Behavioural Neuroscience (BHNR) degree programs. These include revisions of
three existing courses, the creation of five new courses and the elimination of two courses. Additional
information about these changes is included in two other documents, "proposal to change existing
courses" and "proposal for new courses".

Resource Implications: Instructional Costs

No new costs will be incurred for either instructors or infrastructure. We have carefully considered the
resource implications of these changes and are confident they can be made without increasing the
demand for faculty resources or administrative and academic support. The new courses will be taught
by current faculty as part of their regular teaching load. The issue of faculty resources is addressed in
more detail in the sections that follow.

Consultations

Appropriate academic units have been consulted. See email attached.

Library Holdings and/or Other Resources Required

The library has been contacted. See email attached.

The costs, if any, associated with these changes can be met from within the existing budget allocation
or authorized new funding for the Department of Psychology.

Signature of Unit Head (if appropriate):

Date:

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

Date:
Proposal to Change Existing Programs

SUMMARY PAGE FOR SENATE

Approval Form

Program Title: Psychology and Behavioural Neuroscience Degree Programs

Calendar Changes

9.11.3 Requirements for a Major in Psychology
Students completing this program cannot receive credit for Psychology 2920. Students who intend to pursue graduate studies should take courses leading to the Honours degree.

1. Students may Major in Psychology as part of either a B.A. or a B.Sc. program. All Majors are required to complete a minimum of 42 credit hours of Psychology as listed below:
   a. Psychology 1000, 1001, 2520, 2570, 2930, 2910, 2911
   b. Twelve credit hours in Psychology chosen from the following: 3050, 3100, 3250, 3350, 3450, 3620, 3650, 3750, 3800 or 3994.
   c. Twelve credit hours of 4000-level courses in Psychology, of which at least one must be a research experience course and one must be a selected topics course.

2. Psychology Majors following the B.Sc. program are also required to complete the following:
   a. Mathematics 1000 (or equivalent).
   b. Biology 1001 and 1002
   c. Either Chemistry 1010 and 1011 (or 1050 and 1051); OR Physics 1020 (or 1050) and 1021 (or 1051)

   Note: First year students should think carefully about whether Chemistry or Physics best suits their future program needs. Students should examine the prerequisites for upper-level science courses and attempt to take them in their first year.

   d. Six credit hours of laboratory courses at the 2000 level or above in one of Biology, Chemistry, or Physics.

   Note: Biology/Psychology 4701 and Biology 3053 cannot be used to satisfy the requirement of 6 laboratory credit hours at the 2000 level or above in either Biology, Chemistry, or Physics.

3. Psychology Majors following the B.A. program are also required to complete Mathematics 1000 or two of 1090, 1050, 1051 (or equivalent), and are encouraged to complete at least 6 credit hours in Biology.

9.11.4 Requirements for Honours in Psychology
Students completing this program cannot receive credit for Psychology 2920.

1. Honours students in Psychology are required to complete the 60 credit hours of Psychology as listed below:
   a. Psychology 1000, 1001, 2520, 2570, 2930, 2910, 2911, 3900, 4910, 499A/B
   b. Eighteen credit hours chosen from the alternatives listed in Clause 1. b. of the requirements for a Major in Psychology
   c. Twelve credit hours of 4000-level courses in Psychology, of which at least one must be a research experience course and one must be a selected topics course.
Proposal to Change Existing Programs

2. Honours students must also complete the requirements listed in either Clause 2. or Clause 3., as applicable, of the requirements for a Major in Psychology.

3. Honours students will be required to submit in their graduating year, an undergraduate thesis (Psychology 499A/B) which demonstrates their competence in Experimental Psychology.

9.11.5 Requirements for a Major in Behavioural Neuroscience (B.Sc. Only)

Students completing this program cannot receive credit for Psychology 2920.

A program is offered in the Psychology Department to provide an education in Behavioural Neuroscience. Students planning to enroll in the program are advised to consult with the Head of the Department at the earliest opportunity because certain course choices may restrict later options.

Students who intend to pursue graduate studies should take courses leading to the Honours degree.

The program for a Major in Behavioural Neuroscience shall include:

1.

   a. Psychology 1000, 1001, 2520, 2570, 2930, 2910, 2911, 3250, 3800, 3894, 3820
   b. Six Three credit hours in Psychology chosen from the following: 3050, 3100, 3259, 3350, 3450, 3620, 3650, 3750.
   c. Six credit hours of 4000-level courses in Psychology, of which one must be a research experience course.
   d. One selected topics course and one research experience course of which one must be chosen from the following list of six: 4250, 4251, 4850, 4851 (selected topics), 4270, 4870 (research experience).

2.

   a. Mathematics 1000 (or equivalent) and 1001
   b. Chemistry 1010 and 1011 (or 1050 and 1051), and 2440 (or 2400/2401)
   c. Physics 1020 (or 1050) and 1021 (or 1051).
   d. Biology 1001 and 1002
   e. English 1080 and one of 1101, 1102, 1103, or 1110, or equivalent

3. Eighteen credit hours from the following courses chosen from at least two different sciences:

   a. Biochemistry: Any 2000-, 3000-, or 4000-level course except 2000, 2005, the former 2010, the former 2011, 3202, 3402, or 4502
   b. Biology: 2060, 2210, 2250, 2900, 3050, 3160, 3202, 3295, 3401, 3500, 3530, 3540, 3750, 4200, 4241, 4245, 4250, 4402, the former 4450, 4601, 4605, 4701, the former 4900 (see note below)
   c. Chemistry: 2100, 2210, 2301 (or 2300) or any 3000 or 4000 level course
   d. Computer Science: Any 2000, 3000, or 4000 level course except 2650 and 2801
   e. Mathematics: 2000, 2050, 2051, 3000, 3001 or any 3000 or 4000 level pure or applied mathematics course
   f. Physics: Any 2000, 3000, or 4000 level course except 2151, 3150, 3151

   Notes:
   1. Credit may not be obtained for both Biology 3750 and Psychology 3750 or for both Biology 4701 and Psychology 4701.
   2. The courses listed under Clause 3 may have prerequisites. It is the student’s responsibility to ensure that all prerequisites have been met, or that waivers have been obtained, before registering for these courses.
Proposal to Change Existing Programs

9.11.6 Requirements for Honours in Behavioural Neuroscience (B.Sc. Only)

Students completing this program cannot receive credit for Psychology 2920.

1. Honours students in Behavioural Neuroscience are required to complete the following Psychology courses: 1000, 1001, 2520, 2670, 2930, 2910, 2911, 3250, 3800, 3804, 3820, 3900, 499A/B, two one further courses in Psychology chosen from the following: 3050, 3100, 3260, 3350, 3450, 3620, 3650, 3750; two 4000-level courses in Psychology of which one must be a research experience course, one selected topics course and one research experience course of which one must be chosen from the following list of six: 4250, 4251, 4850, 4851 (selected topics), 4270, 4870 (research experience).

2. Honours students in Behavioural Neuroscience must also complete the requirements listed in Clauses 2. and 3. of the requirements for a Major in Behavioural Neuroscience.

3. In accordance with Academic Standing, clause 1 of the Regulations for the Honours Degree of Bachelor of Science, Honours candidates must obtain a grade of "B" or better, OR an average of 75% or higher in all the required courses listed in Clauses 1. and 3. of the requirements for a major in Behavioural Neuroscience and Clause 1 of the requirements for honours in Behavioural Neuroscience, except those at the 1000.

Secondary Calendar Changes

Section 9.11.9 Suggested Course Sequences. Suggested course sequences for our Co-operative programs must be revised to delete PSYC 2570 and replace it with PSYC 2930, and to delete PSYC 3801 and replace it with PSYC 3820 as follows.

Co-operative BA and Honours BA in Psychology:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
</tr>
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<tbody>
<tr>
<td>Fall</td>
<td>Elective or Arts requirement</td>
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<tr>
<td>Semester 3</td>
<td>Elective or Arts requirement</td>
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</tr>
<tr>
<td></td>
<td>Psychology 2570 2930 (or 2520)</td>
</tr>
<tr>
<td></td>
<td>Psychology 2911</td>
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Co-operative BSc and Honours BSc in Psychology:

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<tr>
<td>Fall</td>
<td>Biology, Chemistry, or Physics Lab Course</td>
</tr>
<tr>
<td>Semester 3</td>
<td>Elective or Science requirement</td>
</tr>
<tr>
<td></td>
<td>Elective or Science requirement</td>
</tr>
<tr>
<td></td>
<td>Psychology 2910</td>
</tr>
<tr>
<td></td>
<td>Psychology 2520 (or 2670 2930)</td>
</tr>
<tr>
<td>Winter</td>
<td>Biology, Chemistry, or Physics Lab Course</td>
</tr>
</tbody>
</table>
Proposal to Change Existing Programs

- **Semester 4**
  - Elective or Science requirement
  - Elective or Science requirement
  - Psychology 2911
  - Psychology 2570 2930 (or 2520)

**Cooperative BSc In Behavioural Neuroscience:**

<table>
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<th>Courses</th>
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<tr>
<td>Fall, Semester 3</td>
<td>- BHNR Requirement 1****&lt;br&gt;  - Biology 1002 or Physics 1021 (1051)**<strong>&lt;br&gt;  - Chemistry 2440</strong>*&lt;br&gt;  - Physics 1020 (1050)****&lt;br&gt;  - Psychology 2520 (or 2570 2930)&lt;br&gt;  - Psychology 2910</td>
</tr>
<tr>
<td>Winter, Semester 4</td>
<td>- BHNR Requirement 2&lt;br&gt;  - Biology 1002 or Physics 1021 (1051)****&lt;br&gt;  - Mathematics 1001 or Science requirement&lt;br&gt;  - Psychology 2570 2930 (or 2520)&lt;br&gt;  - Psychology 2911</td>
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<tr>
<td>Spring, Work Term 1</td>
<td>- Psychology 199W</td>
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<td>Fall, Semester 5</td>
<td>- 3000-Level Core&lt;br&gt;  - BHNR Requirement 3&lt;br&gt;  - Elective or Science requirement&lt;br&gt;  - Psychology 3250&lt;br&gt;  - Elective or Science requirement Psychology 3750&lt;br&gt;  - Psychology 3800</td>
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<td>Winter, Semester 6</td>
<td>- 3000-Level Core&lt;br&gt;  - BHNR Requirement 4&lt;br&gt;  - Elective or Science requirement&lt;br&gt;  - Elective or Science requirement&lt;br&gt;  - Psychology 380+ 3820</td>
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<td>- Psychology 299W</td>
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<td>Fall, Semester 7</td>
<td>- BHNR Requirement 5&lt;br&gt;  - Elective or Science requirement&lt;br&gt;  - Elective or Science requirement&lt;br&gt;  - Research Experience</td>
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<td>- Psychology 399W</td>
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<td>Fall, Semester 8</td>
<td>- 4000-Level Psychology&lt;br&gt;  - BHNR Requirement 6&lt;br&gt;  - Elective or Science requirement</td>
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## Proposal to Change Existing Programs

- Elective or Science requirement
- Elective or Science requirement
- Selected Topics

### Co-operative Honours BSc in Behavioural Neuroscience:

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<th>Semester 3 (Fall)</th>
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| BHNR Requirement 1****
| Biology 1002 or Physics 1021 (1051)****
| Chemistry 2440***
| Psychology 2520 (or 2570 2930)
| Psychology 2910 |

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<th>Semester 4 (Winter)</th>
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| BHNR Requirement 2
| Biology 1002 or Physics 1021 (1051)****
| Mathematics 1001 or Science requirement
| Psychology 2570 2930 (or 2520)
| Psychology 2911 |

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<th>Semester 5 (Fall)</th>
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| 3000-Level Core
| BHNR Requirement 3
| Elective or Science requirement
| Psychology 3250
| Psychology 3800
| Psychology 3900 |

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| 3000-Level Core
| BHNR Requirement 4
| Elective or Science requirement
| Elective or Science requirement
| Psychology 3750
| Psychology 3894 3820 |

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<table>
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<th>Semester 7 (Fall)</th>
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| BHNR Requirement 5
| Elective or Science requirement 3000-Level Core
| Elective or Science requirement
| Psychology 499A
| Research Experience |

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<th>Work Term 3 (Winter)</th>
<th>Requirement Details</th>
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<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Spring (Optional)</th>
<th>Requirement Details</th>
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</thead>
<tbody>
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<table>
<thead>
<tr>
<th>Semester 8 (Fall)</th>
<th>Requirement Details</th>
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</table>
| 4000-Level Psychology
| BHNR Requirement 6
| Elective or Science requirement |
Proposal to Change Existing Programs

- Elective or Science requirement
- Psychology 499B
- Selected Topics

Joint programs with Biochemistry and Biology must be revised as follows.

5.1.6 Biochemistry and Psychology (Behavioural Neuroscience) Joint Honours

**Note:** Students completing this program cannot receive credit for Psychology 2920.

The following courses (or equivalent) are required to complete the 120 credit hours in courses required for the degree:

1. Chemistry 1050 and 1051 (or equivalent), Biology 1001 and 1002, Mathematics 1000 and 1001, Physics 1050 (or 1020) and 1051, English 1080 and 1110.

2. Biochemistry 2100, 2101, 3105, 3106, 3107, 3108, Medicine 310A/B, either 4210 or 4211, 9 credit hours chosen from Biochemistry 4002, 4101, 4102, 4103, 4104, 4105, 4200, 4201, 4220, 4230-4249. **Note:** Only one of 4105 and 4220 may be chosen.

3. Psychology 1000, 1001, 2520, 2570, 2930, 2910, 2911, 3800, 3801-3820, 3900, two further courses in Psychology chosen from the following: 3050, 3100, 3250, 3350, 3450, 3620, 3650, 3750; two 4000-level courses in Psychology of which one must be a research experience course, one selected topics course and one research experience course of which one must be chosen from the following list of six: 4250, 4251, 4850, 4851 (selected topics), 4270, 4870 (research experience).

4. Either Biochemistry 499A/B or Psychology 499A/B.

5. Chemistry 2300 or 2301, 2400, 2401.

**Notes:**

1. In accordance with Clause 6. a. of the Regulations for the Honours Degree of Bachelor of Science, Honours candidates must obtain a grade of "B" or better, or an average of 75% or higher in all the required courses listed in Clauses 2., 3. and 4. above, except those at the 1000 level.

2. Students in first year intending to follow this program should note the regulations for admission to Major programs in Psychology and that the deadline for submission of a completed application form to the Psychology Department is June 1 for the Fall semester and October 1 for the Winter semester.

5.1.7 Biochemistry (Nutrition) and Psychology (Behavioural Neuroscience) Joint Honours

**Note:** Students completing this program cannot receive credit for Psychology 2920.

The following courses (or equivalent) are required:

1. Chemistry 1010 and 1011 (or 1050, 1051), Biology 1001 and 1002, Mathematics 1000, Physics 1020 or 1050, and 1021 (or 1051), English 1080 and 1110.

2. Biochemistry 2100, 2101, 2600, 3106, 3203, 4002, 4300, 4301, 4502, Medicine 310A/B; one course chosen from: Biochemistry 3105, 3107, 3108, 3202, 3402, 3600, 4101, 4103, 4104, 4105, 4200, 4201, 4210, 4211, 4220, 4230-4249, Biology 3050.

3. Psychology 1000, 1001, 2520, 2570 2930, 2910, 2911, 3800, 3801-3820, 3900; two further courses in Psychology chosen from the following: 3050, 3100, 3250, 3350, 3450, 3620, 3650, 3750; two 4000-level courses in Psychology of which one must be a research experience course, one selected topics course and one research experience course of which one must be chosen from the following list of six: 4250, 4251, 4850, 4851 (selected topics), 4270, 4870 (research experience).
Proposal to Change Existing Programs

4. Either Biochemistry 499A/B or Psychology 499A/B.
5. Chemistry 2400, 2401 or Chemistry 2440.
6. Other courses to complete at least the prescribed minimum of 120 credit hours in courses for the Joint Honours Degree.

Notes:
1. In accordance with Clause 6.a. of the Regulations for the Honours Degree of Bachelor of Science, Honours candidates must obtain a grade of "B" or better, or an average of 75% or higher in all the required courses listed in Clauses 2., 3., and 4. above, except those at the 1000 level.
2. Students in first year intending to follow this program should note the regulations as outlined for admission to Major programs in Psychology and that the deadline for submission of a completed application form to the Psychology Department is June 1 for the Fall semester and October 1 for the Winter semester.

5.1.9 Biology and Psychology Joint Honours
Note: Students completing this program cannot receive credit for Psychology 2920.
The following forty courses (or equivalent) are required:
1. Biology 1001, 1002, 2060, 2250, 2600, 2900; one of 3401, 3402, 4245, 4404; four Biology electives at the 2000, 3000 or 4000 level not including Biology 499A or 499B.
2. Psychology 1000, 1001, 2520, 2570, 2930, 2910, 2911, 3250, 3800 or 3894; 3900, 4910; one of the following: 3050, 3100, 3350, 3450, 3620, 3650; one further 4000 level Psychology research experience course.
3. Biology or Psychology 3750, 4701, 499A/B.
4. English 1080 and 1110; Mathematics 1000; Chemistry 1010 and 1011 (or 1050 and 1051), and 2440; Physics 1020 (or 1050) and 1021 (or 1051); Biochemistry 2101 and 3106.
5. Other courses, if necessary, to complete at least 120 credit hours of courses.

5.1.10 Biology and Psychology (Behavioural Neuroscience) Joint Honours
Note: Students completing this program cannot receive credit for Psychology 2920.
The following forty courses (or equivalent) are required:
1. Biology 1001, 1002, 2060, 2250, 2600, 2900; one of 3401, 3402, 4245, 4404; five Biology electives at the 2000, 3000 or 4000 level not including Biology 499A or 499B.
2. Psychology 1000, 1001, 2520, 2570, 2930, 2910, 2911, 3800, 3894, 3820, 3900; two further courses in Psychology chosen from the following: 3050, 3100, 3250, 3350, 3450, 3620, 3650, 3750; two 4000-level courses in Psychology of which one must be a research experience course one selected topics course and one research experience course of which one must be chosen from the following list of six: 4250, 4251, 4850, 4851 (selected topics), 4270, 4870 (research experience).
3. Biology or Psychology 499A/B.
5. English 1080 and 1110; Mathematics 1000 and 1001; Physics 1020 (or 1050) and 1021 (or 1051); Chemistry 1010 and 1011 (or 1050 and 1051), and 2440 (or 2400 and 2401);
6. Other courses, if necessary, to complete at least 120 credit hours of courses.

Note: In accordance with Clause 6.a. of the Regulations for the Honours Degree of Bachelor of Science, Honours candidates must obtain a grade of "B" or better, OR average of 75% or higher in all
Proposal to Change Existing Programs

the required courses listed in Clauses 1, 2, 3, and 4 above, except those at the 1000 level.

Rationale

The Psychology Department has recently undergone an Academic Program Review. This process led the department to evaluate our course offerings. As a result we are proposing changes to our Psychology and Behavioural Neuroscience (BHNR) degree programs. A more detailed rationale for the introduction of 5 new courses and the elimination of 2 existing courses follows below.

In addition, a minor change is included in section 9.11.3 Requirements for a Major in Psychology. In the note at the end of that section we have added Biology 3053 (Microbiology for Nurses) as a course that cannot be used to satisfy the requirement for six credit hours of laboratory courses at the 2000 level or above in one of Biology, Chemistry, or Physics. This will make our entry consistent with that of Biology which has judged that Biology 3053 is not acceptable as one of the required courses for the Minor, Major or Honours programs in Biology, nor is it acceptable for any of the joint programs between Biology and other disciplines.

Finally, we are requesting a secondary Calendar change in section 5.1.6.2 which describes the requirements for the Biochemistry and Psychology (Behavioural Neuroscience) Joint Honours degree program. Currently that section includes the following: **Note: Only one of 4105 and 4220 may be chosen.** As part of this consultation process Biochemistry has requested that this note be deleted. BIOC 4105 (Immunology) and BIOC 4220 (Introduction to General and Autonomic Pharmacology) have no overlap in content. Biochemistry comments that the note was pertinent when both of those courses were taught by the Faculty of Medicine. However BIOC 4105 (Immunology) is now taught by the department of Biochemistry. Biochemistry revised most of their programs last year to remove this restriction.
Proposal to Change Existing Programs

Consultations Sought From

<table>
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<tr>
<th>Faculty of Science, Department of:</th>
<th>Comments Received</th>
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<tbody>
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<td>Biochemistry</td>
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<td>Ocean Sciences</td>
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<td>Physics and Physical Oceanography</td>
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Other Academic Units

| Faculty of Arts                           | no                |
| Grenfell VP Office                        | no                |
| Marine Institute                          | yes               |
| Faculty of Education                      | yes               |
| School of Human Kinetics and Recreation   | yes               |
| School of Nursing                         | no                |
| School of Social Work                     | no                |

Library Report Received                     | yes               |

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

Name Dr. Mark Abrahams
Dean, Faculty of Science

FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Chair:
Secretary:
Date:
Proposal to Change Existing Programs

Proposed Calendar Description of New Course

2930 Research and Writing in Psychology is an introduction to the fundamentals of preparing psychology reports, emphasizing organization, correct use of terminology, adherence to appropriate discipline style, concise and accurate description, preparation of abstracts, and integration of numerical data. Topics for reports will be selected each semester by the instructor.

PR: Admission to a Major in Psychology or Behavioural Neuroscience

Rationale

This course will become a required course for the Psychology and Behavioural Neuroscience degree programs.

It is expected that instructors will tailor the course to their own area of expertise and will include demonstrations and/or labs that serve as the basis of written reports. It is intended that the course be designed to meet the criteria for a "critical reading and writing" course as defined by the Faculty of Arts. Currently all B.A. students are required to complete a research/writing course. Arts is in the process of changing this to a "critical reading and writing" course. It would be advantageous to our Psychology B.A. students if they could use this course to meet that requirement.

The rationale for proposing this course is that students are not being given a sufficient number of meaningful writing assignments sufficiently early in their undergraduate career. In this context, the term "meaningful writing assignment" means that the student receives detailed feedback on their assignments such that feedback may be incorporated into subsequent assignments in the course. This may take the form of multiple writing assignments throughout the semester or a draft and a final version of an assignment. This contrasts with writing a paper that is turned in at the end of the course and which many students will never see again.

The Psychology Department is also proposing to eliminate PSYC 2570, Understanding Individual Differences. PSYC 2570 is currently required for the Psychology and Behavioural Neuroscience degree programs. Thus, deleting PSYC 2570 while adding PSYC 2930, makes this recommendation neutral with respect to faculty teaching resources.

The rationale is the following: During the last curriculum revision, PSYC 2520 and PSYC 2570 were required so that all students had exposure to neuroscience (2520) as well as (for want of a better term) exposure to a focus on individuals (2570). It is likely that whereas students still need to be forced to take a neuroscience course (2520), it is less likely that students are avoiding all courses with content similar to that of 2570. Moreover, 2570 has not been a popular course historically. Therefore, the second year would be re-organized as follows:

1. Instruction on research methods and statistics (2910/2911), to lay the foundation for the 3000-level courses
2. Instruction on writing and communicating in psychology (2930), again to lay the foundation for upper-level courses.
3. Instruction on neuroscience as it relates to other areas (2520), on the assumption that many majors might not ordinarily choose to take a 3000-level neuroscience course
Proposal to Change Existing Programs

4. No instruction on individual differences, on the assumption that many majors will take upper-level courses in related areas.

Proposed Calendar Description

PSYC 3820 Research Techniques in Behavioural Neuroscience allows students to increase their understanding of how knowledge is generated in these fields. Students will visit various laboratories on campus that are engaged in research relevant to neuroscience and behaviour. In addition to observations and hands on tutorials, readings, discussions, and writing assignments will strengthen students' understanding of the techniques used to answer specific research questions in neuroscience and behaviour.

PR: PSYC 2520, 2930 and 2911, Biology 1001 and 1002, and admission to a Major in Psychology or Behavioural Neuroscience

Rationale

The Psychology Department recently completed an Academic Program Review. In the section of its report dealing with the Behavioural Neuroscience degree program, the Review Panel made several recommendations. These include the following.

First, it noted a lack of neuroscience-specific course offerings as a weakness of the program and encouraged the development of new courses to remedy this. It also recommended that the BHNR degree program be restructured to be more interdisciplinary. Finally, it recommended increasing connections with neuroscientists in the Faculty of Medicine. In accepting this advice, we propose this new course, which will be interdisciplinary and invite participation of those doing research in any area relevant to neuroscience and behaviour. For example, this will include neuroscientists in Psychology as well as in the Division of Biomedical Sciences in Medicine. It will also include those doing animal behaviour research in Psychology and Biology as well as geneticists with an interest in behaviour in Biology and the Faculty of Medicine. The organization of the course will be the responsibility of the Psychology Department, and will be assigned to one, or possibly two, faculty members in Psychology. It is expected that faculty from other academic units will participate in the course from year to year.

Our students receive some exposure to neuroscience research techniques in Psychology 4870, Research Experience in Neuroscience. However, that experience is limited and comes late in a student's program. Offering this interdisciplinary course in the 3rd year will expose students to a variety of research techniques earlier in their program. It will also allow them to become acquainted with faculty outside of Psychology who have different approaches and employ different methods related to neuroscience and behaviour. One advantage of this is that students who intend to complete an honours degree will have a better idea of the research opportunities available to them.

Proposed Calendar Description

PSYC 3830 Behavioural Endocrinology explores the behavioural effects of hormones and the question of how hormones act on the brain to influence behaviour. Topics include: basic concepts in neuroendocrinology, reproductive behaviour (sexual and parental), sexual differentiation of the brain and behaviour, aggressive behaviour, and the neuroendocrinology of stress, including the effects of stress on the brain and behaviour.

PR: PSYC 2520, 2930 and 2911, Biology 1001 and 1002, and admission to a Major in Psychology or Behavioural Neuroscience
Proposal to Change Existing Programs

Rationale

The effects of hormones on behaviour are many and can be powerful. Some of these are covered in PSYC 3533, Sexual Behaviour, and PSYC 3750, Animal Behaviour I. However, coverage in those courses is very limited and primarily describes behavioural effects of hormones without addressing mechanisms in any depth. In contrast, the new course will focus on mechanisms, i.e. how hormones act on the brain to change behaviour. Thus it includes basic concepts of molecular and cellular endocrinology as they apply to the brain, e.g. the nature of hormone receptors, where such receptors are found in the brain, and how hormone-sensitive neurons and circuits mediate the effects of hormones on behaviour. As such, it is designed to increase our course offerings for students in our Behavioural Neuroscience degree program. We note that there will be some content overlap with Biology 4550, Principles of Endocrinology. However, we don't feel a credit restriction is necessary. If faculty resources permit we plan to offer this course once each year. Carolyn Walsh has agreed to teach it. However, since it is an elective, its occasional absence won't prevent BHNMR students from completing their programs.

Proposed Calendar Description

3510 Directed Study provides an opportunity to work with an individual faculty member on a research project. The student will submit a formal written report of the research conducted. Permission of the instructor is required.

PR: PSYC 2911 and 2930 and admission to a Major in Psychology or Behavioural Neuroscience

3511 Directed Study provides an opportunity to work with an individual faculty member on a research project. The student will submit a formal written report of the research conducted. Permission of the instructor is required.

PR: PSYC 2911 and 2930 and admission to a Major in Psychology or Behavioural Neuroscience

Rationale

The Directed Study courses are electives designed to offer our majors additional research opportunities. They can be thought of as a scaled-down version of the honours thesis (PSYC 499A/B). The student works on a research project, supervised by the instructor, and writes a report. There are two Directed Study courses so that a given student can have two such opportunities. These courses do not replace any existing courses or requirements for the major; rather, they are optional courses that a student can take if they so wish.

These courses would likely work differently for different faculty. For example, one faculty member may have 3 or 4 students, each testing subjects for an experiment. A different faculty member may be able to supervise only 1 student, and that student may be doing collection of data from archival sources. The faculty member benefits by getting more data collected and by having additional HQP to list on Tri-Council grant applications. The students benefit by getting exposure to lab work prior to the honours thesis, and by working with an additional faculty member who will know them well when the students request letters of recommendation.
Kenny, Gail

From: MathStat Graduate Officer <mathgrad@mun.ca>
Sent: November-26-14 12:03 AM
To: Kenny, Gail
Subject: Fwd: Submission of Calendar changes - 2015-2016
Attachments: Memo_ACS related calendar changes.docx

Hello Gail,

the attached changes to the Chemistry programme have been approved with nine votes in favour (Brent, Minglun, Karem, Ian, Sukhinder, Ratana, Todd, Kapil and myself), none against.

This request can now be put to the consideration of the Faculty Council.

Salud,
-j

--------- Forwarded Message ---------
Subject: Fwd: FW: Submission of Calendar changes - 2015-2016
Date: Mon, 24 Nov 2014 15:06:39 -0330
From: JC Loredo-Osti <jcloredoosti@mun.ca>
To: Kapil Tahlan <ktahlan@mun.ca>, Ian Fleming <ifleming@mun.ca>, Christina Bottaro <cbottaro@mun.ca>, JC Loredo-Osti <jcloredoosti@mun.ca>, Todd Andrews <tandrews@mun.ca>, Gail Kenny <gkenny@mun.ca>, Sukhinder Kaur Cheema <skaur@mun.ca>, Len Zedel <zedel@mun.ca>, Brent Snook <bsnook@play.psych.mun.ca>, Ratana Chuenpagdee <ratanac@mun.ca>, Minglun Gong <gong@mun.ca>, Karem Azmy <kazmy@mun.ca>

Hello All,

Chemistry is requesting a small change in the regulations governing the MSC and PhD programmes. Please, review and let me know your opinion at your earliest convenience.

Regards,
-j

--------- Forwarded Message ---------
Subject: FW: Submission of Calendar changes - 2015-2016
Date: Mon, 24 Nov 2014 13:43:51 -0330
From: Christina Bottaro <cbottaro@mun.ca>
To: 'JC Loredo-Osti' <jcloredoosti@mun.ca>
CC: 'Gail Kenny' <gkenny@mun.ca>
MEMORANDUM

To: Dr. Faye Murrin, Dean of Graduate Studies
From: Dr. Christina Bottaro, Deputy Head (Graduate and Research) Department of Chemistry
Date: November 20, 2014
Subject: Change to Calendar entry regarding program of study graduate programs in Chemistry

We are requesting a small change to the regulations governing the Calendar entry regarding program of study regulations stated in the calendar entry for graduate programs in Chemistry. This will be a clarification of the current requirements for new students to (normally) write American Chemical Society (ACS) placement test(s) and is to ensure the formal regulations are in line with current practices. The current regulations indicate that all students will be required to write ACS placement tests, whereas we now only infrequently use them to determine the program of study in instances where there are questions about a student’s familiarity with a particular branch of chemistry. There are no real or implied consequences associated with performance on ACS tests.
The pertinent clauses are as follows (and can be found at
http://www.mun.ca/regoff/calendar/sectionNo=GRAD-0243#GRAD-6056;
http://www.mun.ca/regoff/calendar/sectionNo=GRAD-0351#GRAD-4295):

Current Entry — PhD
31. Regulations governing the Degree of Doctor of Philosophy
31.5 Chemistry
31.5.1 Program of Study
31.5.1.1 Candidates are normally required to write American Chemical Society (ACS) placement test(s) in
the first two weeks of the initial semester of registration in order to determine an appropriate course program

Proposed revision:
31.5.1.1 Upon recommendation of their supervisor, candidates will Candidates are normally required to write American Chemical Society (ACS) placement test(s) in the first two weeks of their initial semester of registration in order to determine an appropriate course program.

Current Entry — MSc
25 Regulations Governing the Degree of Master of Science
25.8 Chemistry
25.8.1 Program of Study

25.8.1.1.d. Candidates are normally required to write American Chemical Society (ACS) placement test(s) in
the first two weeks of the initial semester of registration in order to determine an appropriate course program.

Proposed revision:
25.8.1.1.d. Upon recommendation of their supervisor, candidates will Candidates are normally required
to write American Chemical Society (ACS) placement test(s) in the first two weeks of their initial
semester of registration in order to determine an appropriate course program.
Hello Gail,

the Faculty of Science is involved through Psychology, because the programme of study of OHS includes the following courses:

Psychology
Psychology 6000: Advanced Statistics in Psychology
Psychology 6001: Research Design
Psychology 6402: Group Processes
Psychology 6403: Advanced Methods in Applied Social Psychological Research

The Department of Psychology has already reviewed and endorsed the programme. Members of this committee who have expressed an opinion agree that the Faculty of Science should support the programme.

Two members of the committee have expressed concerns with the section regarding the admission eligibility. As written now, to them it seems to suggest that an undergraduate degree is not necessary. When the programme was proposed, the option of a undergraduate qualifying year for applicants who did not meet the minimum requirements was not in effect. Maybe, now the section of criteria for admission can be reviewed according to the section 4.12 of the SGS calendar.

With this consideration, the committee recommends to support the programme.

-j
GRADUATE PROGRAM PROPOSAL

MASTER

in

OCCUPATIONAL HEALTH AND SAFETY

Submitted to:
Dr. Noreen Gofman
Dean of Graduate Studies
Memorial University of Newfoundland

Submitted by:

SafetyNet Centre for Occupational Health and Safety Research
Dr. Stephen Bornstein
Dr. Barbara Neis

Revised Version
October, 2013
PROPOSAL

The SafetyNet Centre for Occupational Health and Safety Research (SafetyNet) is proposing the creation of an interdisciplinary master’s degree in Occupational Health and Safety (OHS). The program will be the first in Atlantic Canada and only the fourth in the country as a whole. It will build on multi-disciplinary and multi-faculty expertise that has been developing at Memorial over the past decade and will respond to clear demand both within the province and elsewhere from both potential students and potential employers of graduates. Being an interdisciplinary program, it would be governed by the School of Graduate Studies by a management committee led and supported by SafetyNet.

Provided that all approvals have been received, we hope to take in our first group of students in September, 2014.

BACKGROUND

In recent years, our province’s policy makers, regulators and economic stakeholders have developed a growing concern about the safety and the health of workers. Organized business and labour have begun to focus more attention on the prevention of workplace accidents. Under the aegis of the NL Employers’ Association and the Provincial Federation of Labour, a new high school course in occupational health and safety (OHS) was introduced and sector safety committees have been created in several key industries. The provincial workers’ compensation board, the Workplace Health, Safety and Compensation Commission has increased its internal research and data warehousing capacity, developed an innovative accident prevention program (PRIME), a panel on occupational disease, a registry of former asbestos workers, and a budget for funding research. The University has significantly enhanced its capacity in OHS, establishing SafetyNet as a permanent Type 2 research centre in 2007 and creating a Department of Health and Safety in 2008, with steadily expanding staff, expertise and activities. Activity and capacity in OHS at Memorial have also been increasing. Aside from the emergence and consolidation of SafetyNet, one can point to new courses in HKR and in Sociology, intensified research at the Marine Institute, a mandatory course that includes materials on OHS as part of the new undergraduate curriculum in the Faculty of Engineering, a new diploma program in Safety and Risk Engineering in the Faculty of Engineering, a new faculty position in Community Health and Humanities and two new positions in the Faculty of Business Administration.
What has not yet emerged, however, is any coordinated new OHS educational programming at the graduate level. What we need, and what we now have the capacity to provide, is a graduate training program in OHS that will complement current opportunities available at the post-diploma level at the College of the North Atlantic (CNA) through its Safety Engineering Technology Post-Diploma Program. That program is designed to train safety officers and loss prevention specialists for workplaces and administrative agencies and its courses and co-op term focus on what it calls 'the technical and management aspects of Occupational Health and Safety.' Our master’s degree program will provide students, including those who have completed the technical training at CNA with the analytic frameworks and current knowledge that can serve as a basis for future advanced academic study or for higher-level professional careers in regulatory agencies, industry, government and stakeholder organizations.

**ACADEMIC CONSULTATIONS**

Aside from several rounds of consultations with various SafetyNet stakeholders outside the University, we have discussed our proposed program with all the key organizations at Memorial University, who have all been strongly supportive. The following deans have consulted with their faculty councils and have provided written expressions of approval and support that have been appended to this proposal:

- Arts
- Business Administration (with reservations about the costing model underlying the program budget)
- Engineering and Applied Science
- Human Kinetics and Recreation
- Medicine
- Nursing
- Science

**PROGRAM JUSTIFICATION**

The goal of the proposed program is to provide the province, and Atlantic Canada more broadly, with a badly needed supply of university-educated and master’s-trained recruits for doctoral studies in OHS as well as for the health and safety branches of government departments, regulatory agencies such as compensation commissions, industrial and commercial firms, and formal organizations of industry and labour. Although master’s-level programs similar to what we are proposing are currently available at McGill, Toronto, and UBC, such out-of-province programs are not readily accessible to
students from this province particularly for practitioners who must balance their educational needs with work and other responsibilities. In addition, these schools are not likely to offer courses tailored to, or focused on, the Atlantic Canadian context and its particular OHS challenges, challenges that will only continue to grow as our economy expands and becomes increasingly diverse and complex through the expansion of our petroleum and mining sectors, the development of new industrial activities and the initiation of more and more large construction projects.

The proposed program is consistent with the University’s strategic plan, which emphasizes that Memorial should focus on quality in all its services and be more responsive to the changing needs of students and the economy. To the extent that the program will be the only one of its kind in Atlantic Canada, it can also fulfill the expectation in the strategic plan that Memorial should capitalize on its eastern Canadian location. Finally, by offering an interdisciplinary program of study, the proposed degree program will fit with the intention of the strategic plan to foster better communication and cooperation across disciplines and between the University’s academic and administrative units. The proposed master’s program also fits well within Memorial’s Strategic Research Plan which specifically highlights ‘healthy and safe workplaces’ within its 10th Strategic Research Theme of Wellbeing, Health and Biomedical Discovery and calls for an interdisciplinary approach (Goal 2.2) and for engagement with community partners (Goal 3) both of which are key features of our program. Similarly, a master’s program that seeks to respond to the expressed needs of the province’s employers, workers and industries not only fits that goal but blends perfectly with the commitments and methods recently enunciated in MUN’s Public Engagement Framework. We hope to maximize the usefulness of the new program for our community stakeholders by facilitating part-time enrollment, by scheduling many of our required courses in the evenings and, once the program has run for an initial year or two, to develop a strong distance education capacity.

**Demand**

We have found evidence of a strong demand at various levels for our proposed program. Strategic planning sessions with SafetyNet’s community and academic stakeholders in 2005-6 revealed a powerful consensus on the need to develop advanced education in OHS at Memorial to complement what was available through CNA. In 2008, we followed up by holding a set of focus groups on higher education issues with key stakeholders, including the Workplace Health Safety and Compensation Commission (WHSCC), the Occupational Health and Safety Branch of the Department of Government Services, the Forestry, Construction and Fisheries Sectoral Safety Councils, Eastern Health and the College of the North Atlantic. The idea of graduate courses and a master’s-level program in OHS received very strong endorsement at
every one of these meetings. Repeated discussions with leaders of business groups, unions, and government agencies have confirmed the need for graduate-trained personnel to fill OHS positions of various sorts in the province. In addition, as rumours have leaked out about a possible master’s program, we have received numerous calls from students finishing up the CNA program or seeking to enter it, as well as from employees and managers of various provincial agencies eager to enroll or have members of their staff enroll in order to upgrade their skills and their job classifications.

**RESOURCES**

**Participating Faculty**

In terms of the supply of expertise at Memorial to make the proposed program workable, faculty members actively involved in research and teaching in various dimensions of OHS are currently employed in Human Kinetics and Recreation, Community Health and Humanities, Nursing, Political Science, Sociology, Business Administration, Psychology, and Engineering. The following is a preliminary list of academic staff members who have agreed to participate in the new program by advising thesis and non-thesis students and, in some cases, by accepting its students into their existing courses and, in some cases, by developing and offering new courses either as part of their standard load or for additional compensation:

- Dr. Alan Hall (Sociology)
- Dr. Kara Arnold (Business Administration)
- Dr. David Behm (Human Kinetics and Recreation)
- Dr. Stephen Bornstein (Arts-Political Science, Medicine)
- Dr. Kate Dupré (Business Administration)
- Dr. George Fox (Medicine)
- Dr. Susan Hart (Business Administration)
- Dr. Lesley Anne James (Engineering)
- Dr. Faisal Khan (Engineering)
- Dr. Scott MacKinnon (Human Kinetics and Recreation)
- Dr. Shree Mulay (Medicine)
- Ms. Tina Giles Murphy (Office of Health and Safety)
- Dr. Barbara Neis (Arts-Sociology)
- Dr. Nicole Power (Arts-Sociology)
- Dr. Atanu Sarkar (Medicine)
- Dr. Sandra Small (Nursing)
- Dr. Shirley Solberg (Nursing)
In addition, the University's Department of Health and Safety has recently hired a certified occupational hygienist, Ms. Tina Giles Murphy, who will soon complete a doctoral degree in OHS in the Division of Community Health and Humanities in the Faculty of Medicine at Memorial University and is eager to teach in the proposed program. The School of Nursing has expressed a strong interest in adding capacity in Occupational Health and Safety to its faculty complement, while the Faculty of Medicine is seeking external funding to support the creation of a new tenure-track position in Occupational Medicine.

Occupational hygiene is an important component of a comprehensive graduate-level program in OHS. With the recent appointment of Dr. Atanu Sarkar in Community Health and the employment of Tina Giles Murphy by the Department of Health and Safety, we are now able to include a course in the basics of occupational hygiene in the proposed program. This course will be able to take advantage of the laboratory that is part of SafetyNet's suite of offices in the Bruneau Centre and that has been equipped for administrative and training purposes by our partner, the Department of Health and Safety. Further development of the laboratory is being pursued through discussions with the Division of Occupational Health and Safety of Service Newfoundland and Labrador and through forthcoming applications to external granting agencies.

**Library, Human, and Physical Resources**

We have received the approval of the Health Sciences Library for our proposed program. The Health Sciences Library has a good stock of basic texts and key journals in OHS and, in any case, much of the most recent literature is now available online at no charge to Memorial professors and students. We have received the required letter of support from the Health Sciences Library indicating that the Library has sufficient resources to meet the needs of our proposed program.

The workloads of some faculty members may increase slightly as a result of additional graduate theses and research reports to supervise. Although some of the administrative work required by the new program can be performed by current SafetyNet Co-directors and administrative staff, the program will require the creation of one new part-time administrative position. Given the genuinely interdisciplinary character of the program's design, we expect that the additional demand for places in graduate courses and for supervisions will be broadly distributed across the relevant academic units rather than being concentrated in any one of them.

SafetyNet will be able to provide office space for the program director and the administrative staff person in our suite of offices in the Bruneau Centre.
PROPOSED ACADEMIC PROGRAM

The program we have designed is explicitly and deliberately interdisciplinary in its approach. Students will be given the opportunity to examine and compare the analytic frameworks and the accumulated knowledge pertaining to OHS in a number of disciplines — medicine, sociology, ergonomics, policy studies, business, psychology, economics, history, and law. The core course offerings will cover a wide range of OHS issues seen from a broadly interdisciplinary perspective, with a focus on the history and social science of OHS, workplace organization and its impacts, the epidemiology, treatment and prevention of occupational injuries and diseases, ergonomics, and occupational hygiene. The new core courses that will be developed will, as appropriate, be housed for administrative purposes in an appropriate academic unit; but they will all be interdisciplinary in approach and content.

The program has been designed with the objective of helping each student develop a range of skills and knowledge, as follows:

- a broad understanding, through the seminar and the core courses as well as a carefully distributed set of elective course, of how work affects health at the level of individual workers, workplaces, industries and population groups and of the benefits of taking a multidisciplinary approach to studying these questions
- an understanding, through the seminar and the core courses, of epidemiology its application to occupational issues, occupational hygiene and ergonomics and a capacity to read and critically appraise studies in these fields

the capacity to design and produce a research paper or thesis on a selected issue in occupational health and safety from an interdisciplinary perspective. The program consists of two options:

- **Option 1**: 18 credits of coursework consisting of the Master's Seminar, 3 credits from the list of Methods Courses, 9 credits from the list of Elective A courses and 3 credits from list of Elective B courses, or 12 credits of Elective A courses) plus a supervised thesis; this option will normally be completed by students enrolled on a full-time basis in 6 semesters.

- **Option 2**: 24 credits of coursework consisting of the Master's seminar, one course from the list of Methods Courses, 12 credits from the list of Elective A Courses and 6 credits from the list of Elective B Courses or 15 credits of Elective A Courses plus 3 credits of Elective B Courses) plus a supervised research paper; this option will normally be completed by students enrolled on a
full-time basis in 3 semesters who would be eligible to choose Master's payment plan C.

In both options, the Management Committee will work with each student's supervisory team to design a personalized program of coursework that fits the student's educational and professional background as well as his/her career plans. Students who wish to take courses for which they do not have the academic prerequisites may be required, on the advice of the Management Committee and in consultation with the course instructors, to take additional courses.

In each of these options, advanced standing will be granted to students who have completed the post-diploma Safety Engineering Program at the College of the North Atlantic (CNA). The CNA program provides students with a post-diploma diploma, is in high demand with long wait times for entry into the program. The limitation of this program is that it is very practical in its orientation and does not provide students with any training in research skills. The administrators of the CNA program are very supportive of our initiative. (See Appendix 2 for a letter of support.) While the CNA program ably services industry's technical needs, the master's program we are proposing will address industry's OHS policy and program needs. We would expect that a number of students from this program and from similar post-graduate diploma programs across the country will be interested in entering our program. In Option 1, students from this program or from any other approved equivalent program elsewhere) will be required to take only 12 credits of coursework in Option 1 (the Master's Seminar, 3 credits from the list of Methods Courses and 6 credits from the list of Elective A Courses) and 18 credits in Option 2, (the Master's Seminar, 3 credits from the list of Methods Courses, 6 credits from the list of Elective A Courses and 3 credits from the list of Elective B Courses).
PROPOSAL

Master in Occupational Health & Safety

REQUIRED COURSES

OHS 6000 Research Seminar in OHS (new)*
OHS 6001 Supervised Research Paper (new)*

Research Methods

One of the following graduate-level courses or another such course with the approval of
the Management Committee:

Psych 6400: Theory and Methods in Social Psychology
Psych 6403: Advance Methods in Applied Social Psychological Research
Soc 6040: Methods in Sociological Research
Sociology 6401: Advanced Qualitative Methods
Bus 9103: Research in Management
Nursing 6010: Research Methods in Nursing I
Nursing 6100: Research Methods in Nursing II
Medicine 6280: Community Health Research Methods
Medicine 6294: Advanced Qualitative Methods
HKR 6000: Quantitative Methods in Physical Education
HKR 6001: Qualitative Research Methods in Physical Education

ELECTIVE A COURSES

Soc 6090: Social Science of OHS Occupational Hygiene
HKR 6340: Occupational Biomechanics
OHS 6003 Occupational Diseases and Injuries (a new course covering the aetiology,
epidemiology, surveillance, prevention, and treatment of the principal categories of
occupational disease with a particular emphasis on those diseases that are especially
prevalent in NL and Atlantic Canada)
OHS 6004 Regulatory Approaches and Compensation Systems (a new course
covering the historical development, current structures, funding, coverage and
governance of regulatory regimes and compensation policies in NL with comparisons
to other Canadian jurisdictions as well as to other developed countries)

* All new courses will be fully interdisciplinary in approach and content.
ELECTIVE B COURSES

Anthropology
  Anthropology 6071: Health and Illness – Cultural Contexts and Constructions

Business
  Business 8104: Organizational Behaviour and Structure
  Business 8107: Managing Ethics and Responsibility
  Business 8204: Human Resource Management (prerequisite is B8104)
  Business 8210: Labour Relations
  Business 9020: International Human Resource Management
  Business 9324: Gender, Work and Organizations
  Business 9329: Labour Law (prerequisite is B8210)
  Business 9930: Occupational Health, Safety and Employee Wellness (no prerequisite for students who have completed the core courses of the Master’s Degree in OHS)

Engineering
  Engineering 9115: Safety and Risk Engineering
  Engineering 9121: Advanced Safety, Risk, and Reliability Engineering

History
  History 6075: Advanced Studies in Labour and Working-Class History

Human Kinetics and Recreation
  Human Kinetics and Recreation 6350: Human Error in Complex Work Systems
  Human Kinetics and Recreation 6360: Knowledge Translation in Ergonomics and OHS

Medicine
  Medicine 6102: Critical Theory in Health and Society
  Medicine 6280: Community Health Research Methods
  Medicine 6270: Epidemiology I
  Medicine 6275: Epidemiology II
  Medicine 6282: Canadian Health Care System
  Medicine 6290: Determinants of Health – Healthy Public Policy
  Medicine 6620: Introduction to Community Health
  Medicine 6721: Disease and Injury Prevention
  Medicine 6722: Environmental Health

Psychology
  Psychology 6000: Advanced Statistics in Psychology
  Psychology 6001: Research Design
  Psychology 6402: Group Processes
  Psychology 6403: Advanced Methods in Applied Social Psychological Research

Sociology
  Sociology 6360: Sociology of Work

A student may also, with the permission of the Management Committee and of the course instructor, take an advanced methods course (such as Medicine 6294) for which
he or she has already taken the prerequisite basic graduate course (such as Medicine 6280).

**ADMISSION CRITERIA**

As with other graduate programs in the University, we will normally require applicants to have completed a first degree from a recognized university in a discipline deemed by the Management Committee to be relevant to occupational health and safety with at least a B average (see Draft Departmental Regulations, attached). Exceptions may be made for outstanding applicants with appropriate occupational and/or educational backgrounds. Admission will be limited to the best applicants based on prior academic performance, work experience, and letters of recommendation.

**ADMINISTRATION**

Given its highly inter- and multi-disciplinary nature, this program would, we think, be best housed under the auspices of the School of Graduate Studies as is the case, for example, with the Interdisciplinary PhD. Program. It could be overseen by a Management Committee whose members would be appointed by the Dean of Graduate Studies after consultation with SafetyNet and the appropriate faculties and schools and which could be chaired either by a professor with appropriate expertise chosen by the Dean or by the Director of the SafetyNet Centre (currently Dr. Stephen Bornstein). The chair of the committee will be designated as the program's Director and will receive a stipend and a one-course teaching remission.
**BUDGETARY ISSUES**

We have estimated the incremental annual cost of the program based on two scenarios: an intake of 10 students, which is what we expect in our first few years, and an intake of 20 students, which we deem to be the maximum number that the program could handle in subsequent years. Assuming an enrollment of 10 students, about half doing Option 1 and half doing Option 2, we estimate that the incremental costs of the program with a standard tuition revenue would be approximately $7500 per student. In order to make the program cost-neutral for SafetyNet and for the University, we hope to receive authorization to charge a modest, but sufficient, non-refundable special fee to be charged in each semester during which the student is registered in the program.

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<tr>
<th>ITEM</th>
<th>CLASS OF 10 STUDENTS</th>
<th>CLASS OF 20 STUDENTS</th>
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<tr>
<td>Teaching of new Core Courses (2 sessional backfills @ $5,000)</td>
<td>$10,000</td>
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</tr>
<tr>
<td>Reimbursement to academic units for supervision of thesis students</td>
<td>4 @ $2,500 ** = $10,000</td>
<td>8 @ $2,500 = $20,000</td>
</tr>
<tr>
<td>Reimbursement to academic units for supervision of students doing major paper</td>
<td>6 @ $1,250** = $7500</td>
<td>6 @ 1,250 = $15,000</td>
</tr>
<tr>
<td>Stipend for Director</td>
<td>$1,800</td>
<td>$1800</td>
</tr>
<tr>
<td>Teaching Remission for Director</td>
<td>$5,000</td>
<td>$5,000</td>
</tr>
<tr>
<td>Administrative Staff</td>
<td>$10,660</td>
<td>$10,660</td>
</tr>
<tr>
<td>Contingency Fund</td>
<td>$5,000</td>
<td>$5,000</td>
</tr>
<tr>
<td>Administrative costs - SGS</td>
<td>$10,000</td>
<td>$15,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$59,960</strong></td>
<td><strong>$82,460</strong></td>
</tr>
</tbody>
</table>

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1 Based on the standard rate of $5,000 per course for buyouts in all academic units, according to the Provost’s policy on course buyouts.

2 Reimbursement rates will vary depending on the course equivalency policies of the supervisor’s academic unit or department. In order to provide a worst-case scenario for planning purposes, we have used what we understand to be the highest rates currently paid at MUN.

3 Administrative Assistant 1 at 0.2 FTE. Starting scale is $8,874 including 20% benefits and top of scale is $12,447 including benefits. We have used the mean of these two amounts.

4 The Contingency Fund would cover the following possible additional costs:
   * the fixed costs of the program in any semester for which the enrollment was less than 10 students; and
   * the teaching of extra sections of any elective course in which the addition of students from the Master’s Program in Occupational Health and Safety required adding a section.
FACILITIES

SafetyNet's offices are located on the third floor of the centrally located Bruneau Centre. This space of about 2700 sq. ft. can accommodate the administrative officer, provide laboratory space for teaching purposes and work space for visiting faculty and some graduate students, and host the smaller classes and meetings of the Management Committee in its boardroom.
REGULATIONS GOVERNING THE DEGREE OF
MASTER OF OCCUPATIONAL HEALTH AND SAFETY

The Master of Occupational Health and Safety is an interdisciplinary program providing advanced-level study of multiple aspects of occupational health and safety (OHS). The course offerings will cover a wide range of OHS issues seen from a broadly interdisciplinary perspective, with a focus on the history and social science of OHS, workplace organization, epidemiology, treatment and prevention of occupational injuries and diseases, ergonomics, and occupational hygiene.

The following regulations must be read in conjunction with the General Regulations of the School of Graduate Studies of Memorial University of Newfoundland.

X.1 Administration

1. The program shall be administered by a Director, who shall be recommended by the Dean of Graduate Studies. In making this recommendation, the Dean shall consult with the Director or the Co-Directors of SafetyNet and all relevant academic units.

2. The Director shall be responsible to the Internal Management Committee of the Master of OHS for the purposes of administering the academic elements of the program. The Management Committee shall consist of four members appointed by the Dean of Graduate Studies in consultation with the Director and with all appropriate academic units. The Director will also be a member of the committee and shall chair its meetings.

X.2 Qualifications for Admission

1. Admission is limited and competitive.

2. To be considered for admission to the program, an applicant shall meet the requirements set out in the School of Graduate Studies General Regulation, Qualification for Admission.

3. In exceptional cases, applicants who have not completed an undergraduate degree, but who meet all other requirements, may be considered for admission. Preference will be given to those who have a minimum of 10 years of full-time professional experience in the field of occupational health and safety and who have successfully completed substantial university coursework including at least two courses at an advanced undergraduate level from an institution recognized by Senate.

X.3 Program of Study

The Master of Occupational Health and Safety is offered through either full-time or part-time study. The program is available in two formats. OPTION 1 involves the completion of 18 credit-hours of coursework and a thesis on a topic that will be determined based on the academic focus of the student and in consultation with the student's supervisory committee. OPTION 1 requires 24 credit-hours of coursework and a supervised research paper on a topic that will be determined based on the academic focus of the student and in consultation with the student's research committee. Students holding a post-diploma diploma in occupational health and safety from a recognized institution may receive advanced standing for up to 6 credit hours (excluding the Required Courses).

Candidates registered on a full-time basis will normally complete OPTION 1 in six academic semesters and OPTION 2 in three academic semesters. Candidates registered on a part-time basis will normally complete Option 1 in seven academic semesters and Option 2 in ten academic semesters.

OPTION 1
PROPOSAL

Master in Occupational Health & Safety

1. This program of study will normally consist of 18 credit hours of coursework and the completion of a thesis.
2. Students are to take the Research Seminar and a 3-credit methods course, 9 credit-hours from the list of Elective A Courses, and 3 credit-hours of courses from the list of Elective B Courses. Other elective courses may be approved and added from time to time by the Dean. An additional methods course may be substituted for an Elective Course.
3. Each student's program of study must be approved by the Management Committee and the Dean of Graduate Studies.

OPTION 2

1. This program of study will normally consist of 24 credit-hours of coursework and the completion of a research paper.
2. Students are to take 6 credit-hours from the list of Required Courses, 12 credits from the list of Elective A Courses, and 6 credit-hours from Elective B. Other elective courses may be approved and added from time to time by the Dean. An additional Elective A Course may be substituted for one of the Elective B Courses.
3. Each student's program of study must be approved by the Management Committee and the Dean of Graduate Studies.

X.3 Advanced Standing

1. Graduates of the College of the North Atlantic’s Safety Engineering Program, or of a similar approved program elsewhere, may receive advanced standing for the equivalent of 5 credits of core and/or elective courses to be apportioned at the discretion of the Dean upon the recommendation of the Management Committee.
X.4 Courses

A selection of the following graduate courses will be offered to meet the requirements of candidates as far as the resources of the program will allow:

Required Courses

OHS 6000 Research Seminar in OHS (in development)
OHS 6001 Supervised Research Paper (in development)

Research Methods (one of the following graduate-level courses or another such course with the approval of the Dean upon recommendation of the Management Committee):
  Psych 6400 Theory and Methods in Social Psychology
  Psych 6403 Advance Methods in Applied Social Psychological Research
  Soc 6040 Methods in Sociological Research
  Edu 6100 Research Designs and Methods in Education
  Bus 9103 Research in Management
  Nursing 6010 Research Methods in Nursing I
  Nursing 6100 Research Methods in Nursing II
  Medicine 6280 Community Health Research Methods
  Medicine 6294 Advanced Qualitative Methods
  HKR 6000 Quantitative Methods in Physical Education
  HKR 6001 Qualitative Research Methods in Physical Education

A student may also, with the permission of the Management Committee and of the course instructor, take an advanced methods course (such as Medicine 6294) for which he or she has already taken the prerequisite basic graduate course (such as Medicine 6280).

Elective A Courses

Soc 6090 Social Science of OHS Occupational Hygiene
HKR 6340 Occupational Biomechanics
OHS 6003 Occupational Diseases and Injuries (new course)
OHS 6004 Regulatory Approaches and Compensation Systems (new course)

Elective B Courses

Anthropology 6071 Health and Illness – Cultural Contexts and Constructions
Business 8104 Organizational Behaviour and Structure
Business 8107 Managing Ethics and Responsibility
Business 8204 Human Resource Management (prerequisite is B8104)
Business 8210 Labour Relations
Business 9020 International Human Resource Management
Business 9324 Gender, Work and Organizations
Business 9329 Labour Law (prerequisite is B8210)
Business 9930 Occupational Health, Safety and Employee Wellness (no prerequisite for students who have completed the core courses of the Master’s Degree in OHS)

Engineering 9115: Safety and Risk Engineering
Engineering 9121 Advanced Safety, Risk, and Reliability Engineering
History 6075 Advanced Studies in Labour and Working-Class History
Human Kinetics and Recreation 6350 Human Error in Complex Work Systems
Human Kinetics and Recreation 6360 Knowledge Translation in Ergonomics and OHS
Medicine 6102 Critical Theory in Health and Society
Medicine 6280 Community Health Research Methods
Medicine 6270 Epidemiology I
Medicine 6275 Epidemiology II
Medicine 6282 Canadian Health Care System
Medicine 6290 Determinants of Health – Healthy Public Policy
Medicine 6620 Introduction to Community Health
PROPOSAL

Master in Occupational Health & Safety

Medicine 6721 Disease and Injury Prevention
Medicine 6722 Environmental Health
Psychology 6000 Advanced Statistics in Psychology
Psychology 6001 Research Design
Psychology 6402 Group Processes
Psychology 6403 Advanced Methods in Applied Social Psychological Research
Sociology 6360 Sociology of Work
Proposed Modification to Science Strategic Plan

On page 3 of the FS Strategic Plan, insert the following new paragraph after the paragraph entitled "Natural Resources and Energy" and before the paragraph entitled "Teaching Goals:" :

"Mathematical and Computational Sciences

In addition to basic enabling research interdisciplinary research activities include, for example: nature- and bio-inspired computing; autonomous robotics; complex systems and their simulation; bioinformatics and computational biology; combinatorial optimization; graph and design theory; numerical analysis and scientific computing; applied dynamical systems and mathematical biology; mathematical relativity and black holes; radiation belts; fluid dynamics; biostatistical measurement error; and statistical genetics."