FACULTY OF SCIENCE
FACULTY COUNCIL OF SCIENCE
MINUTES OF MEETING OF DECEMBER 17, 2014

A meeting of the Faculty Council of the Faculty of Science was held on Wednesday, December 17, 2014, at 1:00 p.m. in room C-2004.

FSC 2300
Present
Biochemistry
Booth, V. Cheema, S. Mulligan, M.

Biology
Innes, D.

Chemistry
Bottaro, C. Fridgen, T. Pickup, P.

Computer Science
Banzhaf, W.

Earth Sciences
Hanchar, J.

Mathematics & Statistics
Haynes, R. Mantyka, S. Sullivan, S.

Ocean Sciences
Fletcher, G.

Physics & Physical Oceanography
Morrow, M.

Psychology
Malsbury, C. Thorpe, C.

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

DELTs
Todd, A.
Education
Penney, S.

Registrar’s Office
Burry, J.

FSC 2301  Regrets:  None

FSC 2302  Adoption of Minutes
Moved: Minutes of the November 19, 2014, meeting be adopted as amended. (Sullivan/Pickup). Carried.

FSC 2303  Business Arising:  None

FSC 2304  Correspondence:  None

FSC 2305  Reports of Standing Committees:
Report presented by Shannon Sullivan, Chair, Undergraduate Studies Committee. It was noted that the deadline for submitting calendar changes to the Registrar’s Office was yesterday, December 16, 2014, but that permission had been granted to submit changes from the Faculty of Science Faculty Council today, December 17, 2014. Departments are reminded to submit their electronic copies as soon as possible. Also noted was the fact that the Faculty of Arts is changing their requirement for students to complete two English courses. Members of the Faculty of Science Undergraduate Studies Committee have been asked to seek feedback from their departments about changing this requirement in the Faculty of Science as well. Faculty members are asked to participate in the consultation.

A.  Undergraduate Studies Committee:
   a.  Moved: Department of Chemistry, revisions to Computation Chemistry major and honours major programs (Sullivan/Pickup). Carried.
   b.  Moved: Department of Computer Science, calendar change, COMP 1600, Basic Computing and Information Technology (Sullivan/Banzhaf). Carried.
   c.  Moved: Department of Biochemistry, calendar changes to first-year Physics requirements in existing Biochemistry programs (Sullivan/Mulligan). Carried.
e. **Moved:** Department of Mathematics and Statistics, calendar changes, MATH 3132, Numerical Analysis I, and MATH 3161, Ordinary Differential Equations II (Sullivan/Haynes). **Carried.**

f. **Moved:** Department of Biology, new course, BIOL 3820, Foundations of Biology (Sullivan/Innes). **Carried.**

g. **Moved:** Department of Earth Science, new course, EASC 4405, Field Course on the Geology of Newfoundland (Sullivan/Hanchar). **Carried.**

h. **Moved:** Department of Earth Science, new course, EASC 4620, Contaminant Hydrogeology (Sullivan/Hanchar). **Carried.** (Note: page 13 of this proposal was inserted in error; this page should have been included in paper A.1. below (as page 5 of 11).

i. **Moved:** Department of Earth Sciences, calendar changes, EASC 4610, Hydrogeology (Sullivan/Hanchar). **Carried.**

j. **Moved:** Department of Earth Sciences, calendar changes, general and honours B.Sc. degrees (Sullivan/Hanchar). Page 5 of this proposal (calendar change outlining 9.5.5 and 9.5.6) inserted in paper A.1 above (as page 13 of 19) in error. **Carried.**

k. **Moved:** Department of Earth Sciences, calendar changes, course numbering (Sullivan/Hanchar). **Carried.**

l. **Moved:** Department of Chemistry, calendar changes, first year courses (Sullivan/Pickup). **Carried.**

m. **Moved:** Department of Mathematics and Statistics, calendar changes, degree regulations (Sullivan/Haynes). **Carried.**

n. **Moved:** Department of Mathematics and Statistics, calendar changes, MATH 102F, 102N, 103F, 104F (Sullivan/Mantyka). **Carried.**

o. **Moved:** Department of Mathematics and Statistics, calendar changes, MATH 2000, Calculus III (Sullivan/Haynes). **Carried.**

p. **Moved:** Department of Psychology, new courses, PSYC 2930 (Sullivan/Malsbury). Request was received from the Faculty of Arts to amend the calendar description. **Carried.** PSYC 3820 (Sullivan/Martin). **Carried.** PSYC 3830 (Sullivan/Martin). **Carried.** PSYC 3510 and PSYC 3511 (Sullivan/Martin). **Carried.** Amended papers attached.

q. **Moved:** Department of Psychology, calendar changes, existing courses (Sullivan/Martin). **Carried.**

r. **Moved:** Department of Psychology, calendar changes, Psychology and Behavioural Neuroscience degree programs (Sullivan/Martin). **Carried.** Request was received from the Faculty of Arts to amend the calendar description. Amended papers attached.

B. **Graduate Studies Committee:**
Report presented by Christina Bottaro, Member, Graduate Studies Committee and Len Zedel, Associate Dean (Graduate and Research).
a. **Moved:** Department of Chemistry, calendar changes, graduate programs (Bottaro/Pickup). **Carried.**

b. SafetyNet Centre for Occupational Health and Safety Research, graduate program proposal, Master in Occupational Health and Safety. Included for information only. Discussed by Faculty Council and received a positive response.

C. **Nominating Committee:** None

D. **Library Committee:** None

**FSC 2306 Reports of Delegates from Other Councils**
Amy Todd, DELTS representative, informed Council of the preparations for the Teaching and Learning Chair positions and urged departments to submit proposals. The deadline for proposals is mid February. Also, Doreen Whelan and Albert Johnson will be offering sessions in the new year to assist departments with preparing submissions.

Faculty are reminded to activate their D2L shells for the winter semester especially in light of the problems with power outages experienced last winter.

**FSC 2307 Proposed Modification to Science Strategic Plan**
The proposed modification to the strategic plan has not yet been approved by Department Heads so the motion will be tabled until the new year. Faculty Council was reminded that the strategic plan will be reviewed yearly and members should consider modifications they would like discussed.

**FSC 2308 Report of the Dean**
Presented by Mark Abrahams, Dean

The Dean would like to congratulate Devin Grant from the Department of Mathematics and Statistics for being awarded the Rhodes Scholarship this year. It is a remarkable accomplishment and worth noting that students from the Department of Mathematics and Statistics have been remarkably successful in this competition.

Work on the Core Sciences Facility is progressing well, and the project met its milestone of completing the 30% Design and Development Phase with associated cost projections provided to the government. Work is progressing towards the 60% phase to be completed by mid-January which will facilitate tendering of the first contracts this Spring with construction to begin around May. To this end, a Project Management Firm has now been selected that will oversee construction.

The Dean reminded everyone that proposals are being sought through the Teaching and Learning Framework. Proposals may be submitted for teaching chairs, but funding for other teaching initiatives can be sought through this fund.
The government announced a new program called the Canada First Research Excellence Fund. Each institution is allowed to submit only one application so there is a group of faculty that are developing MUN’s proposal. Timelines are very tight, with the Letter of Intent due early in February and the full proposal due March 2.

**FSC 2309 Question Period**
The Dean was asked to comment on why a particular project was decided on for the CFREF submission. The university has to show in its proposal how we are a world leader in the chosen area; and in order to do this, senior leadership is leveraging the substantial investments received by the university in the area of cold ocean research. The Dean confirmed that, consistent with the methods used by other universities, expressions of interest were not sought from the university community.

In light of the government’s announcement of budgetary shortfall, it was asked whether there would be any ramifications for the new core sciences building. The Dean confirmed that government has given permission for the project to begin and that there are several key government representatives on the project steering committee.

**FSC 2310 Adjournment**
The meeting adjourned at 1:45 p.m.
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 BHN major.

PSYC 3820, Research Techniques in Behavioural Neuroscience: required for BHN major.

PSYC 3830, Behavioural Endocrinology: elective for PSYC and BHN major.

PSYC 3510/3511, Directed Study: elective for PSYC and BHN 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, QEII 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 Bibliography for Psychology 2930

This sample of recent research and review papers from a variety of sub disciplines in Psychology will be used as examples of writing styles for discussion. Students will not be required to learn the content of the papers per se. The course content comes from the assigned textbook and lectures.


Proposal for New Courses


Proposal for New Courses


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>Topic</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Lecture topic</td>
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<tr>
<td></td>
<td>Introduction to the Study of Behavioural Endocrinology</td>
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<td></td>
<td>The Endocrine System</td>
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<tr>
<td>Week 2</td>
<td>Chapter 3</td>
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<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>
<td></td>
<td>Sex Differences: Animal Models and Humans</td>
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<td>Week 4</td>
<td>Chapter 5/6</td>
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<td></td>
<td>Reproductive Behaviour</td>
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<td>Week 5</td>
<td>Chapter 6 (cont’d)</td>
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<td></td>
<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></td>
<td>Hormones &amp; Social Behaviour</td>
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<td></td>
<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>
<td>Chapter 11</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></td>
<td>MIDTERM TEST #2- 20% (Ch 7-11)</td>
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<tr>
<td>Week 11</td>
<td>Chapter 12</td>
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<td></td>
<td>Learning and Memory</td>
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<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>
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<td></td>
<td>Recent Developments in Behavioural Endocrinology</td>
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</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: 864-8159
Email: ineath@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-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
UL: May not be used towards the Faculty of Arts CRW requirement or the former R/W requirement.

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.

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 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.
Proposal for New Courses

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

Secondary Calendar Changes

See section in the document, "proposal to revise existing programs" that integrates the 5 new courses into our degree requirements.
Proposal for New Courses

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 BHNMR 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 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 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 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 BHNRe 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.

   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.
Proposal for New Courses

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.

<table>
<thead>
<tr>
<th>Consultations Sought From</th>
<th>Comments Received</th>
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</thead>
<tbody>
<tr>
<td>Faculty of Science, Department of:</td>
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<tr>
<td>Biochemistry</td>
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<td>Other Academic Units</td>
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<td>Marine Institute</td>
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<tr>
<td>Faculty of Education</td>
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<tr>
<td>School of Human Kinetics and Recreation</td>
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</table>
Proposal for New Courses

School of Nursing
School of Social Work

Library Report Received

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
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 (BHNQ) 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, 3804, 3820
   b. Six Three credit hours in Psychology chosen from the following: 3050, 3100, 3250, 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, 2570, 2930, 2910, 2911, 3250, 3800, 3804, 3820, 3900, 499A/B, two one 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).

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>
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<th>Fall Semester 3</th>
<th>Winter Semester 4</th>
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<td></td>
<td>Elective or Arts requirement</td>
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<td>Psychology 2520 (or 2570 2930)</td>
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Co-operative BSc and Honours BSc in Psychology:

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<tr>
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<td>Psychology 2520 (or 2570 2930)</td>
<td>Psychology 2520 (or 2570 2930)</td>
</tr>
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</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:

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<td><strong>Semester 3</strong></td>
<td>• BHNRI Requirement 1****</td>
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<td></td>
<td>• Biology 1002 or Physics 1021 (1051)****</td>
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<td>• Chemistry 2440***</td>
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<td>• Psychology 2520 (or 2570 2930)</td>
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<td>• Psychology 2910</td>
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<td><strong>Winter</strong></td>
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<td><strong>Semester 4</strong></td>
<td>• BHNRI Requirement 2</td>
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<td>• Biology 1002 or Physics 1021 (1051)****</td>
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<td></td>
<td>• Mathematics 1001 or Science requirement</td>
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<td>• Psychology 2570 2930 (or 2520)</td>
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<td>• Psychology 2910</td>
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<td><strong>Work Term 1</strong></td>
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<td><strong>Fall</strong></td>
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<td>• Psychology 3800</td>
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<td><strong>Winter</strong></td>
<td>• 3000-Level Core</td>
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<td><strong>Semester 6</strong></td>
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<td>• Psychology 3804 3820</td>
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<td><strong>Spring</strong></td>
<td>• Psychology 299W</td>
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<td><strong>Work Term 2</strong></td>
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<td><strong>Fall</strong></td>
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<td><strong>Semester 7</strong></td>
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<td>• Elective or Science requirement</td>
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<tr>
<td></td>
<td>• Research Experience</td>
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<td><strong>Winter</strong></td>
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<td><strong>Work Term 3</strong></td>
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<td><strong>Fall</strong></td>
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<td><strong>Semester 8</strong></td>
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Co-operative Honours BSc in Behavioural Neuroscience:

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<th>Semester</th>
<th>Courses Offered</th>
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| Fall       | BHNW Requirement 1**  
| Semester 3 | Biology 1002 or Physics 1021 (1051)****  
|            | Chemistry 2440***  
|            | Psychology 2520 (or 2570 2930)  
|            | Psychology 2910                                                                 |
| Winter     | BHNW Requirement 2  
| Semester 4 | Biology 1002 or Physics 1021 (1051)****  
|            | Mathematics 1001 or Science requirement  
|            | Psychology 2570 2930 (or 2520)  
|            | Psychology 2911                                                                 |
| Spring     | Psychology 199W                                                                |
| Work Term 1| 3000-Level Core  
|            | BHNW Requirement 3  
|            | Elective or Science requirement  
|            | Psychology 3250  
|            | Psychology 3800  
|            | Psychology 3900                                                                |
| Fall       | 3000-Level Core  
| Semester 5 | BHNW Requirement 4  
|            | Elective or Science requirement  
|            | Psychology 3750  
|            | Psychology 3804 3820                                                           |
| Winter     | BHNW Requirement 5  
| Semester 6 | Elective or Science requirement 3000-Level Core  
|            | Elective or Science requirement  
|            | Psychology 499A  
|            | Research Experience                                                            |
| Spring     | Psychology 299W                                                                |
| Work Term 2| 3000-Level Psychology  
| Fall       | BHNW Requirement 6  
| Semester 7 | Elective or Science requirement  
|            | Psychology 499A  
|            | Research Experience                                                            |
| Winter     | Psychology 399W                                                                |
| Work Term 3| 4000-Level Psychology  
|            | BHNW Requirement 6  
|            | Elective or Science requirement  
| Spring (Optional) | Psychology 499A  
| Fall       | 4000-Level Psychology  
| Semester 8 | BHNW 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, 3901, 3920, 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, 3891, 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 3804; 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, 3804, 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 (BHN) 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

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<td>Faculty of Science, Department of:</td>
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<tr>
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## Signature:

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

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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
UL: May not be used towards the Faculty of Arts CRW requirement or the former R/W requirement.

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.

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
4. No instruction on individual differences, on the assumption that many majors will take upper-level courses in related areas.
Proposal to Change Existing Programs

Proposed Calendar Description of New Course

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 BHNRE 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 of New Course

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 BHNRC students from completing their programs.

Proposed Calendar Description of New Courses

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.