

UNIVERSITY COUNCIL
ACADEMIC PROGRAMS COMMITTEE
REQUEST FOR DECISION

PRESENTED BY: Gordon Hill, Chair, Academic Programs Committee

DATE OF MEETING: April 16, 2009

SUBJECT: **Arts & Science: BSc Four-year and Honours in Psychology**

DECISION REQUESTED:

It is recommended:

That Council approve the Psychology specialization at the four-year major and honours level of concentration in the College of Arts & Science Bachelor of Science program

PURPOSE:

The College of Arts and Science Bachelor of Science is an academic program at the University of Saskatchewan. New fields of specialization at the major or honours level of concentration in academic programs must be approved by University Council.

SUMMARY

The Psychology field of specialization is already offered in the Bachelor of Arts programs. Offering this field also in the Bachelor of Science Four-year and Honours program will benefit those psychology students who are interested in graduate training in cognitive science and neuroscience. It is estimated that approximately 30 Psychology students will graduate annually from this program.

The following new course will be created for the Honours program:
PSY 473.3 BSc Honours Thesis

At its March 24 meeting, the Academic Programs Committee of Council discussed the proposal with Associate Dean Tom Steele and reviewed the college responses to a subcommittee report on this proposal. The committee agreed to recommend approval of these programs to University Council.

ATTACHMENTS: Proposal documents

Proposal for Curriculum Change

to be approved by Council or by Academic Programs Committee

1. PROPOSAL IDENTIFICATION

Title of proposal:

Degree(s): Bachelor of Science Field(s) of Specialization: Psychology

Level(s) of Concentration: 4-Year and Honours Option(s): N/A

Degree College: Arts & Science Department: Psychology

Home College: Arts & Science

Contact person(s):

Tom Steele
Associate Dean, Undergraduate Affairs
College of Arts & Science
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Ron Borowsky
Professor
Department of Psychology
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Date: January 20, 2009

Approved by the degree college and/or home college:
January 14, 2009 – Division of Social Science
January 6, 2009 – Division of Science

Proposed date of implementation: September 2009

2. Type of change

Requiring approval by Council

- X A new Degree-Level program or template for program.
A new Field of Specialization at the Major or Honours Level of Concentration or template for a major or honours program
- Conversion of an existing program from regular to special tuition program.
- A change in the requirements for admission to a program
- A change in quota for a college
- Program revisions that will use new resources
- A replacement program, including program deletion
- A program deletion (Complete the Report Form for Program Termination)

Requiring approval by Academic Programs Committee

- Addition of a higher Level of Concentration to an existing Field of Specialization.
- Addition of a new Field of Specialization at the Minor Level of Concentration.
- A change in program options
- A change in the name of a Degree-level Program or Field of Specialization.
- A change in the total number of credit units required for an approved degree program.

Proposal Document

3. RATIONALE

Objective: To provide a BSc option for Psychology majors and honours students.

Need: Some of our students would benefit from a better background in basic science (e.g., those interested in graduate training in cognitive science and neuroscience). In fact, some universities' neuroscience graduate programs expect their incoming students to have a BSc, or more math and science training than our existing BA program requires, e.g.:

University of Western Ontario

"Before admission, it is highly recommended that all students complete a course in mathematics and courses in biological and natural sciences at the university level. Courses in biological sciences at second year levels will be useful for successful completion of the required Principles of Neuroscience course."

University of Wisconsin

"Admission to the Program is based mainly on demonstrated ability and interest in science and mathematics. The minimum course prerequisites are mathematics through calculus, and a year each of chemistry, physics, and biology."

Dalhousie University

"B.Sc. with honours ... a minimum of two years above-average performance (i.e., A-average or better in honours program with thesis, or equivalent)"

Demand: A liberal estimate would be approximately 15-25% of current BA 4 year and BA Honours students (i.e., maximum 30 graduates per year). Of particular concern is the training for students who wish to pursue graduate training in neuroscience-related programs, either here or elsewhere. Such students typically require the equivalent of a B.Sc. Honours degree, and until now they have often required special advising regarding science courses that are not typical for BA Honours students. We estimate that approximately 25% of our Honours students (e.g., 6 out of 24) would pursue the B.Sc. Honours degree. The B.Sc. 4-year degree is designed to accommodate those students who did not meet the GPA requirements of a B.Sc. Honours program.

Uniqueness: These programs do not yet exist in any form at UofS, whereas all but two of the fourteen other Canadian Psychology departments in our category (Medical and Doctoral Universities) have a BSc option (Laval and Sherbrooke are the exceptions).

Expertise: Approximately one third of our faculty hold NSERC funding, and these faculty are the ones who typically teach the "natural science" courses that would constitute the majority of the Psychology BSc program. Our most recent (2004) SPR rating was "A" for our Undergraduate program (as well as for our Graduate program):

"On the basis of our review, we are giving the undergraduate program a grade of "Category A." This grade is based on several important criteria. First, the program is clearly showing evidence of academic vitality and of a deeply held commitment to

undergraduate education. The department has productive researchers with notable grant support. This is a well run program with a high level of scholarship maintained over many years. The program is well respected nationally in terms of the quality of its undergraduate education and we anticipate that this reputation will only improve as their excellent students get admitted to graduate programs at other universities. The excellence of the department is also reflected by the faculty members' commitment to curriculum development, their involvement of undergraduates in research, theory, and practice. As a result, students report high levels of satisfaction and are, themselves, impressed by the level of individual attention and commitment of their instructors. Finally, the undergraduate program operates efficiently, shows great collegiality. With these strengths, the undergraduate program undoubtedly deserves a grade of "A".

4. DESCRIPTION OF PROGRAM CHARACTERISTICS

- This program would follow the general requirements and standards of BSc programs.

- The following information is relevant information already in the Calendar under Psychology, and the underlined information would need to be added:

The department has introduced breadth requirements to enhance a student's understanding of the scope of the discipline. Some of the courses at the 200 and 300 level have been arranged into two broadly-defined areas:

Group 1- Social Science courses related to the cultural, social and environmental influences on behaviour:

- 200-level courses: PSY 213.3, 214.3, 216.3, 222.3, 223.3, 224.3, 225.3, 226.3
- 300-level A courses: PSY 315.3, 317.3, 323.3, 325.3
- 300-level B courses: PSY 316.3, 318.3, 324.3, 326.3, 328.3
- 400-level courses: PSY 418.3, 425.3, 426.3, 480.3

Group 2 – Natural Science courses related to the cognitive, neuropsychological, and biological influences on behaviour:

- 200-level courses: PSY 242.3, 243.3, 246.3, 252.3, 253.3, 255.3, 256.3
- 300-level A courses: PSY 343.3, 347.3, 353.3, 355.3
- 300-level B courses: PSY 344.3, 348.3, 356.3
- 400-level courses: PSY 444.3, 448.3, 456.3

- The above Group 2 courses are considered as Natural Science courses within Psychology. Please note that we recently deleted PSY 353.3 as we were able to encompass its content within PSY 355.3. The current Group 2 courses in the Calendar are:

PSY 242.3 — 1/2(3L)

Physiological Psychology

An introduction to the language, techniques, concepts and general subject matter of physiological psychology. Topics will include: sensory processes, motor systems,

the brain, memory and learning. This core knowledge will be useful to those wanting an exposure to the biological study of behaviour, or to those wanting a primer for more advanced study.

PSY 243.3 — 1/2(3L)

Evolutionary Psychology

The human mind and the behaviour that emerges as products of the mind, will be considered as the outcome of a large number of adaptations brought about by natural selection. The possibility of, and evidence for, a universal human nature at the level of evolved psychological mechanisms will be presented. The evolutionary significance of altruism, cooperation and conflict, morality, deceit, self-deception and illness will be examined.

PSY 246.3 — 1/2(3L)

Introduction to Human Neuropsychology

An introduction to research and theory on the topic of human brain function. Topics include research techniques and strategies, developmental neuropsychology, localization and lateralization of function, recovery of function, and deficits associated with lesions of the neocortex.

PSY 252.3 — 1/2(3L)

Perceptual Processes

A brief survey of the principles that have emerged from the empirical investigation of perception, with special reference to vision and hearing. An examination of the factors which underlie such fundamental features of behaviour as the perception of objects and of three dimensional space and the maintenance of perceptual constancy.

PSY 253.3 — 1/2(3L)

Introduction to Cognitive Psychology

An introduction to research and theory on the topic of human cognitive functioning. The course will explore how humans attend to, encode and remember their experiences, communicate using both written and spoken language, and engage in higher order processes such as reasoning, problem solving, and decision making.

PSY 255.3 — 1/2(3L)

Human Memory

An introduction to research and theory on the structures and processes involved in human memory. Topics include the evidence for distinct sensory, short-term, and long-term memory stores, the format of representation in memory, and the determinants of effective memory

performance.

PSY 256.3 — 1/2(3L)

Psychology of Language

Explores and evaluates theories and research involving the psychology of language. Broadly defined, the topics will include visual and auditory language issues regarding: encoding, representation, comprehension, production, acquisition, biological foundations, dysfunction, and cultural influences. Students will also learn about current research projects, and the preparation of research papers.

PSY 343.3 — 1(1.5L-1.5P)

Laboratory in Behavioural Neuroscience

An introduction to the techniques, theory and methods in behavioural neuroscience. The focus will be upon brain and behaviour and the techniques used to study nervous system function. The lab and seminar components will include a series of experiments to be carried out by the students.

PSY 344.3 — 2(3P)

Research in Behavioural Neuroscience

A laboratory course in behavioural neuroscience. The course will provide students with the opportunity to conceptualize, design, and implement an independent research project in the area of behavioural neuroscience. Emphasis will be placed on brain and behaviour and the techniques used to study nervous system function.

PSY 347.3 — 1(1.5L-1.5P)

Advanced Human Neuropsychology

Introduces the student to the theoretical and methodological issues in the study of the structure and function of the human neocortex. The course will involve lectures, seminars, and a lab component in which a series of experiments will be carried out by the students.

PSY 348.3 — 2(3P)

Research in Human Neuropsychology

A laboratory course concerned with the concepts, theories, and experimental investigation of the structures and functions of the human neocortex. The course will provide the students with the opportunity to conceptualize, design, and implement an independent research project to answer an empirical question related to experimental neuropsychology.

PSY 355.3 — 1(1.5L-1.5P)

Research in Advanced Cognitive Science

This lecture and laboratory course exposes students to current theory and research methods in cognitive science. Students will be expected to review, design, conduct, analyze and report a series of class experiments. Topics may include perception, attention, memory, thinking, reasoning and problem solving.

PSY 356.3 — 2(3P)

Advanced Cognitive Science III Independent Research Projects

In this laboratory course students develop independent experimental research projects in some area of cognitive science. Each student (either individually or as a member of a small group) is responsible for designing a study, testing participants, analysing the data, and writing up a research report following American Psychological Association style conventions.

- For the purpose of fulfilling the C6 Major Requirements for Type C (Natural Sciences) programs, we are proposing that our Group 2 courses (listed above) are appropriate Natural Sciences courses within Psychology, as well as the following:

i) our statistics/research methods stream (from the current Calendar):

PSY 233.3 — 1(3L-1P)

Statistical Methods in Behavioural Sciences

The role of statistics in research including: statistical concepts and models, estimation, simple tests of significance, linear regression and correlation, and introduction to analysis of variance. The laboratory component will consist of training in the utilization of statistical software.

PSY 234.3 — 2(3L-1P)

Statistical Methods in Behavioural Sciences

A continuation of the role of statistics in research covering methods of analysis of variance including cross-classification, introduction to multiple comparisons, factorials, multiple regression and covariance. The laboratory component will consist of training in the utilization of statistical software.

PSY 235.3 — 2(3L-1P)

Research Methods and Design

Introduces students to both experimental and nonexperimental research methods and designs used in psychology. The course focuses on the interplay between research questions, theory, the selection of appropriate research procedures and resulting conclusions. The laboratory component will consist of practical training and application of the concepts discussed in class.

ii) three of our 400-level “Advanced Seminars” (from the current Calendar):

PSY 444.3 — 1/2(3S)

Advanced Seminar in Evolutionary Basis of Behaviour

Using a seminar format, this course will examine the possibility that human behaviours such as mate selection, parenting, and cooperation are still influenced by our evolutionary past. The primary objective of the course is to demonstrate the value of integrating evolutionary and psychological theory when explaining individual and group behaviour.

PSY 448.3 — 1/2(3S)

Advanced Seminar in Neuroscience

Using a seminar format, this course will survey selected topics in neuroscience. The topics covered may include neuropsychopharmacology, the neural bases of: memory, language, emotion, attention, consciousness, plasticity phenomena, spatial abilities; or other topics of interest to the faculty and students.

PSY 456.3 — 1/2(3S)

Advanced Seminar in Cognitive Science

An advanced seminar focussed on theoretical and experimental analyses of human perception, cognition, and performance. A set of original research articles covering diverse areas of cognitive science (e.g., basic perception, memory, language comprehension, human reasoning) will be assigned, read, and discussed by the class.

iii) and also serving towards the C6 Major Requirements for Type C (Natural Sciences), we propose that Honours BSc students will enroll in PSY 473.6 (a new course number, but the course will serve the same function as what we currently offer as PSY 472.6 to our BA Honours students. The main difference is that the PSY 473.6 students will be Honours BSc students, and they will definitely be engaged in empirical Natural Science research.

PSY 472.6 — 1&2(1L-2P)

Honours Thesis

Students will carry out a major project under the supervision of a faculty member, and report the project in the form of an honours thesis. The project will usually involve empirical research.

PSY 473.6 — 1&2(1L-2P)

BSc Honours Thesis

Students will complete an honours thesis research project with a faculty member, on a topic that falls clearly within Group 2 (Natural Science, see Calendar under

Psychology for a complete listing of the courses and areas of Psychology that are in Group 2).

- The following is the Calendar entry for the B.Sc. programs in Psychology to be inserted just before the section entitled "St. Thomas More College"

B.Sc. Four-year Psychology

No more than 6 credit units of PSY courses can be used in requirements 1-5.

C1 Natural Science Requirement (minimum 15 credit units)

BIOL 120.3, BIOL 121.3, CHEM 112.3, CMPT 111.3, PHYS 115.3

C2 Humanities Writing Requirement (6 credit units)

6 credit units 100-level English; 100-level HIST; LIT 100.6; PHIL 120.3, 133.3

C3 Social Science Requirement (6 credit units)

PSY 110.6

C4 Mathematics/Statistics Requirement (6 credit units)

MATH 110.3 and one of MATH 112.3, MATH 116.3 or MATH 264.3

C5 General Requirement (6 credit units)

6 credit units to be selected from the areas of Humanities, Fine Arts, Social Sciences, or Languages, such that no more than 6 credit units in C2, C3, or C5 are from any one subject.

C6 Major Requirement (42 credit units)

30 credit units of Psychology Natural Science courses, including 9 credit units of Psychology Statistics/Research Methods courses and 21 credit units from the Psychology Group 2 (Natural Science) courses, plus 9 credit units of Psychology Group 1 (Social Science) courses, and 3 credit units of any Psychology course at the 200 level or higher

- Psychology Statistics/Research Methods courses (9 credit units)

PSY 233.3, 234.3, 235.3

- Psychology Group 2 (Natural Science) courses (21 credit units)

6 credit units at the 200 level from Group 2

6 credit units at the 300 level from Group 2A

3 credit units at the 300 level from Group 2B

6 credit units of Group 2 courses at the 200 level or higher

- Psychology Group 1 (Social Science) courses (9 credit units)

6 credit units at the 200 level from Group 1

3 credit units at the 300 level from Group 1A

- 3 credit units of any Psychology course at the 200 level or higher

C7 Electives Requirement

Required Science Cognate Courses:

6 senior credit units from the following list of Recommended Science Electives. Student's should consult with their faculty supervisor when selecting their C7 requirements:

BIOC/BMSC 200.3 (Molecules of Life)
BIOL/BMSC 224.3 (Animal Body Systems) (a prerequisite for several courses in cognate course list)
BIOL 317.3 (Intro Animal Physio.)
BIOL 430.3 (Neuro.Bio. of Beh.)
CHEM 250.3 (Organic Chem.)
CHEM 255.3 (Bio. Org. Chem)
HSC 350.3 (Integ. Neurosci.)

Open Electives – courses to complete the requirements for 120 credit unit B.Sc. Four-year program, of which at least 66 must be at the 200 or higher level. Students are advised to consider the above list of Recommended Science Electives, as well as the following:

CMPT 115.3 (Principles of Comp. Sci)
CHEM 115.3 (Chem. Processes)

B.Sc. Honours Psychology

Students must have completed at least 60 credit units before applying for admission to the B.Sc. Honours Degree Program in Psychology. Formal admission requires application for admission made on a form available at the Undergraduate Office, College of Arts and Science. Each year the department of Psychology normally admits up to 30 students into the Honours Program. These admissions are done on a competitive basis and averages below 77% (in the last 60 credit units as well as for all courses taken in Psychology) would not normally be competitive for the program. B.Sc. Honours students should have a faculty supervisor at the time that they apply to the Honours Program. Admission to the capstone thesis project course (PSY 473.6) is by permission of the Department's Undergraduate Committee and PSY 473.6 course instructors, who assess whether the student has completed sufficient coursework.

B.Sc. Honours students are required to complete the following requirements:

No more than 6 credit units of PSY courses can be used in requirements 1-5.

C1 Natural Science Requirement (minimum 15 credit units)

BIOL 120.3, BIOL 121.3, CHEM 112.3, CMPT 111.3, PHYS 115.3

C2 Humanities Writing Requirement (6 credit units)

6 credit units 100-level English; 100-level HIST; LIT 100.6; PHIL 120.3, 133.3

C3 Social Science Requirement (6 credit units)

PSY 110.6

C4 Mathematics/Statistics Requirement (6 credit units)

MATH 110.3 and one of MATH 112.3, MATH 116.3 or MATH 264.3

C5 General Requirement (6 credit units)

6 credit units to be selected from the areas of Humanities, Fine Arts, Social Sciences, or Languages, such that no more than 6 credit units in C2, C3, or C5 are from any one subject.

C6 Major Requirement (54 credit units)

42 credit units of Psychology Natural Science courses, including 9 credit units of Psychology Statistics/Research Methods courses, 27 credit units from the Psychology Group 2 (Natural Science) courses, the Honours Thesis (6 credit units) plus 9 credit units of Psychology Group 1 (Social Science) courses, and 3 credit units of any Psychology course at the 200 level or higher.

- Psychology Statistics/Research Methods courses (9 credit units)
PSY 233.3, 234.3, 235.3

- Psychology Group 2 (Natural Science) courses (27 credit units)
6 credit units at the 200 level from Group 2
6 credit units at the 300 level from Group 2A
3 credit units at the 300 level from Group 2B
6 credit units at the 400 level from Group 2
6 credit units of Group 2 courses at the 200 level or higher

- PSY 473.6 (Honours Thesis)

- Psychology Group 1 (Social Science) courses (9 credit units)
6 credit units at the 200 level from Group 1
3 credit units at the 300 level from Group 1A

- 3 credit units of any Psychology course at the 200 level or higher

C7 Electives Requirement

Required Science Cognate Courses:

BIOL 224.3/BMSC 224.3 (Animal Body Systems) (a prerequisite for several courses in cognate course list) and 3 senior credit units from the following list of Recommended Science Electives. Students should consult with their faculty supervisor when selecting their C7 requirements:

BIOC/BMSC 200.3 (Molecules of Life)
BIOL 317.3 (Intro Animal Physio.)
BIOL 430.3 (Neuro.Bio. of Beh.)

CHEM 250.3 (Organic Chem.)
CHEM 255.3 (Bio. Org. Chem)
HSC 350.3 (Integ. Neurosci.)

Open Electives – courses to complete the requirements for 120 credit unit B.Sc. Honours program, of which at least 66 must be at the 200 or higher level. Students are advised to consider the above list of Recommended Science Electives, as well as the following:

CMPT 115.3 (Principles of Comp. Sci)
CHEM 115.3 (Chem. Processes)

The Department recommends the following course sequence for B.Sc. Honours students:

Year 1

PSY 110.6, ENG 110.6, BIOL 120.3, BIOL 121.3, CHEM 112.3, PHYS 115.3, MATH 110.3, CMPT 111.3

Year 2

PSY 233.3, PSY 234.3, PSY 235.3, 6 credit units PSY Group 1 (Social Science) courses at the 200 level, 6 credit units PSY Group 2 (Natural Science) courses at the 200 level, MATH 264.3, 6 credit units to fulfill C5 General Requirement.

Year 3

6 credit units PSY Group 2 (Natural Science) courses at the 300 A level, 3 credit units PSY Group 1 (Social Science) courses at the 300 A level, 3 credit units PSY Group 2 (Natural Science) courses at the 300 B level, 6 credit units senior cognate science courses (in consultation with faculty supervisor, see Recommended Science Electives above), 6 credit units of PSY Group 1 (Social Science) courses at the 200 level, 6 credit units towards C7 Electives Requirement.

Year 4

PSY 473.6, 6 credit units PSY Group 2 (Natural Science) courses at the 400 level, 9 credit units to fulfill C7 Electives Requirement, 6 credit units PSY Group 2 (Natural Science) courses at the 200 level or higher, 3 credit units of any PSY courses at the 200 level or higher.

5. RESOURCES

The B.Sc. 4-year and Honours programs can be implemented within the existing resources provided by the department, college and library.

6. RELATIONSHIPS AND IMPACT OF IMPLEMENTATION

Impact: These BSc programs will provide better preparation for students who wish to pursue science intensive areas of Psychology (e.g., Cognitive Science, Neuroscience). With such preparation, these students will be better equipped to handle research projects that our faculty have had to avoid at the undergraduate level due to general lack of student background preparation in science and mathematics (e.g., animal surgeries, fMRI neuroimaging). Furthermore, the B.Sc. Honours program will permit our students to be eligible for consideration at top-ranked graduate neuroscience-related programs across North America.

Consultation: Over the past two years, consultation has included discussions with and guidance from (anticipated consultants in parentheses):

Psychology Department's Natural Science Faculty.

Dr. Tom Steele, Assoc. Dean Undergraduate Affairs, College of Arts & Science

Sandra Paradis, Coordinator of Academic Programs and Special Projects, College of Arts and Science

Dr. Jim Bassinger, former Assoc. Dean, Science, College of Arts & Science; currently Acting AVP Research.

Psychology Department's Undergraduate Committee

Psychology Department Faculty as a whole

Cognate Departments, BIOC, BIOL, CHEM, PHYS, MATH, CMPT, PHSI, ACB, College of Kinesiology

Academic Programs Committee, Science, College of Arts & Science

Division of Science

Division of Social Science

Russ Isinger, Registrar's Office

(Academic Programs Committee of Council)

7. BUDGET

No change to budget allocations required at this time.

College Statement

From Tom Steele, Associate Dean, College of Arts & Science

The College of Arts and Science sees enormous benefit to Psychology students by allowing them to attain a BSc degree to acquire the necessary knowledge base and credential for specific career goals or post-graduate study. This initiative is attractive and more practical for any Psychology students wishing to continue their academic careers in the neuroscience or cognitive science fields while having minimal impact on department and college resources. In particular, the development of a BSc program in Psychology brings the University of Saskatchewan into competitive alignment with our peer institutions (e.g. twelve of fourteen Canadian medical/doctoral Universities have a BSc program in psychology). The College supports this initiative as part of its role in supporting the Integrated Plan for stronger and more focused academic experience, providing new opportunities for students, and to strengthen recruitment and retention efforts.

The B.Sc. Psychology proposal was developed by Dr. Ron Borowsky and approved by the department's undergraduate committee and department as a whole. It was circulated in the November 2008 College Challenge to all Arts and Science faculty for comment and feedback. The proposal was approved by the Academic Programs and Standards for the Sciences Committee on December 10, 2008. It was later approved by the Division of Science on January 06, 2009 and the Division of Social Sciences on January 14, 2009.

Related Documentation

Include any related documentation which is relevant to this proposal, such as:

- Letters of support

The Dean's Executive in the College of Arts and Science has encouraged the Department of Psychology to develop this B.Sc. program. This proposal has not appeared in a College Plan, SRC recommendation, or accreditation recommendation. It arises from a desire for specific Psychology students to have specific skills and knowledge for further education and careers in science specific fields of Psychology and to encourage other students to do the same.

Consultation Forms

Required for all submissions:

Consultation with the Registrar form

No budget allocation needed.

Psychology New Course

PSY 473.3 BSc Honours Thesis 1/2 (1L/2P)

Students will complete an honours thesis research project with a faculty member, on a topic that falls clearly within Group 2 (Natural Science, see Calendar under Psychology for a complete listing of the courses and areas of Psychology that are in Group 2).

Prerequisite(s): Enrolment in honours program or written permission of the department and at least one (3 cu) 300-level PSY A and one (3 cus) 300-level PSY B course.

Instructor(s): Ron Borowsky {several faculty in the Dept would be qualified to serve as instructor/coordinator}

Rationale: The Department is proposing a new BSc Honours program in Psychology, and this capstone thesis research project course will be for the students who are in the BSc Honours program. The Department currently has the parallel course for the BA Honours program (PSY 472.6).

Arts and Science – proposal for BSc in Psychology

Correspondence and consultation

Subject: Psychology BSc

From: Ron Borowsky <ron.borowsky@usask.ca>

Date: Fri, 24 Oct 2008 11:57:54 -0600

To: "Ramji Khandelwal (ramji.khandelwal)" <ramji.khandelwal@usask.ca>, "Peta Bonham-Smith (peta.bonhamsmith)" <peta.bonhamsmith@usask.ca>, "Marek Majewski (marek.majewski)" <marek.majewski@usask.ca>, "Raj Srinivasan (raj.srinivasan)" <raj.srinivasan@usask.ca>, "Chary Rangacharyulu (chary.r)" <chary.r@usask.ca>, "Carol Rodgers (carol.rodgers)" <carol.rodgers@usask.ca>

CC: "Tom Steele (tom.steele)" <tom.steele@usask.ca>, "Jim Cheesman (jim.cheesman)" <jim.cheesman@usask.ca>, "Sandra Paradis (sandra.paradis)" <sandra.paradis@usask.ca>, kas@cs.usask.ca

Dear Colleagues:

Please find attached a draft proposal for the Psychology BSc HONOURS (+ BSc 4yr). Given that we are including some required/recommended courses from your units, we would appreciate your support and consultation. As you will note, our primary interest is to offer a BSc Honours program that will serve to better prepare those of our students who wish to work with our natural science faculty (seven of our faculty hold NSERC grants) and apply to Cognitive Science and Neuroscience-related graduate programs (here or elsewhere). As such, we believe that the impact on your courses (i.e., student enrollments) will be minimal (e.g., 6 BSc Honours students per year). The BSc 4 year program is necessary as a safeguard for students whose GPA does not meet the requirements for Honours, and thus we expect the number of these students to be fairly small also. Twelve of the 14 other Canadian Psychology departments in the Medical/Doctoral category offer a BSc.

As I know that you are all very busy, I will draw your attention to the above-mentioned courses (C1 and C7 requirements):

C1 Natural Science Requirement (minimum 15 credit units)

BIOL 120.3, BIOL 121.3, CHEM 112.3, CMPT 111.3, PHYS 115.3 (or PHYS 128.3)

C7 Electives Requirement

Required Science Cognate Courses (6 credit units from the following list of Recommended Science Electives):

BIOC 200.3 (Molecules of Life)
BIOC 212.3 (BioChem Techniques)
BIOL 217.3 (Animal Physio.)
BIOL 430.3 (Neuro.Bio. of Beh.)
CHEM 115.3 (Chem. Processes)
CHEM 250.3 (Organic Chem.)
CHEM 255.3 (Bio. Org. Chem)
CMPT 115.3 (Principles of Comp. Sci)
HSC 208.6 (Human Body Sys.)
HSC 350.3 (Integ. Neurosci.)

Open Electives - courses to complete the requirements for 120 credit unit B.Sc. Honours program, of which at least 66 must be at the 200 or higher level. Students are advised to consider the above list of Recommended Science Electives.

Thanks very much for your consultation, and we appreciate your support of (and feedback about) this program.

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Ron Borowsky, PhD

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fax: 306 966 6630

<http://homepage.usask.ca/rwb471>

Psychology BSc proposal Oct 24 2008.pdf

Content-Type: application/pdf

Content-Encoding: BASE64

Subject: Fwd: Re: Psychology BSc

From: Ron Borowsky <ron.borowsky@usask.ca>

Date: Fri, 24 Oct 2008 13:11:09 -0600

To: "Sandra Paradis (sandra.paradis)" <sandra.paradis@usask.ca>

CC: "Tom Steele (tom.steele)" <tom.steele@usask.ca>, "Jim Cheesman (jim.cheesman)" <jim.cheesman@usask.ca>

----- Forwarded message from "Ramji L. Khandelwal" <ramji.khandelwal@usask.ca>

Date: Fri, 24 Oct 2008 12:40:50 -0600
From: "Ramji L. Khandelwal" <ramji.khandelwal@usask.ca>
Reply-To: "Ramji L. Khandelwal" <ramji.khandelwal@usask.ca>
Subject: Re: Psychology BSc
To: Ron Borowsky <ron.borowsky@usask.ca>

Dear Ron:

The Department of Biochemistry is in full support of your B.Sc. in Psychology program.

Ramji

Ramji L. Khandelwal, Ph.D.
Professor and Head
Department of Biochemistry
College of Medicine
University of Saskatchewan
107 Wiggins Road
Saskatoon, SK. S7N 5E5
Canada
Phone: 306-966-4368
Fax: 306-966-4390
ramji.khandelwal@usask.ca

Subject: Re: B.Sc. in Psychology

From: Ron Borowsky <ron.borowsky@usask.ca>

Date: Fri, 14 Nov 2008 11:32:57 -0600

To: Grant Cheston <gac101@cs.usask.ca>

CC: Eric <emn075@mail.usask.ca>, "Sandra Paradis (sandra.paradis)" <sandra.paradis@usask.ca>, tom.steele@usask.ca, jim.cheesman@usask.ca

Thank you Grant (and Eric), your support is much appreciated.

Regarding your question about students who start off in a BA and then wish to switch into the BSc, I think that the structure is flexible enough to accommodate this (as well as the opposite scenario). Looking at the course sequence at the end of the BSc Honours section, I think that a typical BA student will likely take 18cu of those Year 1 courses (e.g., Psy 110.6, Eng 110.6, and 6 cu of the Science courses), leaving about 12 cu of science/math for them to make up in 2nd year or later. Assuming that such students will have taken another 6 cu of SocSci and 6 cu of Humanities/Languages in their first year, they would be able to apply such credits to the C5/C7 requirements in 2nd year and later (for which the program has 6 cu of wide-open C5 room, and 15 cu of wide-open C7 room), which I think should create more than enough room for them to take the additional Science courses.

That said, I would hope that interested students who have taken the appropriate Science and Math courses in high school will seriously consider the BSc programs from the outset.

best regards,
r

Quoting Grant Cheston <gac101@cs.usask.ca>:

Ron:

I am Grant Cheston the Undergraduate Chair for Computer Science. Your proposal for a B.Sc. in Psychology has been discussed by Eric Neufeld (the Department Head) and myself. We strongly support you going forward with the proposal. You have identified a need for such a program by some of your students, and we are happy to have the students in our first-year courses.

I was a little surprised by the number of science courses for first year of a B.Sc. Honours in Psychology. For a B.Sc. program, it is natural to have so many science courses, but I would think that most of the potential Psychology students (even for a B.Sc.) would start thinking about doing a B.A. Hence, they would have many fewer science courses in first year. I hope that there is enough flexibility to allow a student to complete a B.Sc. (including an Honours) while taking most of their non-Psych science courses after first year.

Grant Cheston

--

Ron Borowsky, PhD
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<http://homepage.usask.ca/rwb471>

Subject: BSc programs in Psychology

From: Ron Borowsky <ron.borowsky@usask.ca>

Date: Thu, 27 Nov 2008 12:11:36 -0600

To: "Nick Ovsenek (nick.ovsenek)" <nick.ovsenek@usask.ca>, "Ric Devon (ric.devon)" <ric.devon@usask.ca>, "Patrick Krone (pat.krone)" <pat.krone@usask.ca>

CC: Jennifer Chlan-Fourney <jmc134@mail.usask.ca>, "Sandra Paradis (sandra.paradis)" <sandra.paradis@usask.ca>, "Tom Steele (tom.steele)" <tom.steele@usask.ca>, jim.cheesman@usask.ca

Dear representatives of the Depts of Anatomy and Cell Biology and Physiology,

I recently sent the following email to cognate departments (i.e., departments that offer courses that we are requiring/recommending in the Psychology BSc), and I must apologize for not sending this to the Departments of ACB and Physiology at that time. Specifically, I was under the impression that the HSC courses that we were recommending (HSC 208 and 350) were organized through another unit (i.e., I was told that HSC 120 is through Kin, and thus I incorrectly assumed that all HSC courses are organized by the same unit).

I have already received some questions and supportive feedback from Dr. Chlan-Fourney in ACB (thanks again, Jennifer), but I wanted to make sure that we don't miss any consultation with those responsible for HSC 208 and 350 (Depts of ACB and Physiology, as I understand it).

The attached version of the programs is identical to the version that is currently on the College of Arts & Science challenge system.

best regards, and sorry to not have sent this to your Dept earlier!

r

Dear Colleagues:

Please find attached a draft proposal for the Psychology BSc HONOURS (+ BSc 4yr). Given that we are including some required/recommended courses from your units, we would appreciate your support and consultation. As you will note, our primary interest is to offer a BSc Honours program that will serve to better prepare those of our students who wish to work with our natural science faculty (seven of our faculty hold NSERC grants) and apply to Cognitive Science and Neuroscience-related graduate programs (here or elsewhere). As such, we believe that the impact on your courses (i.e., student enrollments) will be minimal (e.g., 6 BSc Honours students per year). The BSc 4 year program is necessary as a safeguard for students whose GPA does not meet the requirements for Honours, and thus we expect the number of these students to be fairly small also. Twelve of the 14 other Canadian Psychology departments in the Medical/Doctoral category offer a BSc.

As I know that you are all very busy, I will draw your attention to the above-mentioned courses (C1 and C7 requirements):

C1 Natural Science Requirement (minimum 15 credit units)

BIOL 120.3, BIOL 121.3, CHEM 112.3, CMPT 111.3, PHYS 115.3 (or PHYS 128.3)

C7 Electives Requirement

Required Science Cognate Courses (6 credit units from the following list of Recommended Science Electives):

BIOC 200.3 (Molecules of Life)
BIOC 212.3 (BioChem Techniques)
BIOL 217.3 (Animal Physio.)
BIOL 430.3 (Neuro.Bio. of Beh.)
CHEM 115.3 (Chem. Processes)
CHEM 250.3 (Organic Chem.)
CHEM 255.3 (Bio. Org. Chem)
CMPT 115.3 (Principles of Comp. Sci)

HSC 208.6 (Human Body Sys.)
HSC 350.3 (Integ. Neurosci.)

Open Electives - courses to complete the requirements for 120 credit unit B.Sc. Honours program, of which at least 66 must be at the 200 or higher level. Students are advised to consider the above list of Recommended Science Electives.

Thanks very much for your consultation, and we appreciate your support of (and feedback about) this program.

r

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Ron Borowsky, PhD
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Psychology BSc proposal Nov 27 2008.pdf

Content-Type: application/pdf

Content-Encoding: BASE64

Subject: Fwd: RE: BSc programs in Psychology

From: Ron Borowsky <ron.borowsky@usask.ca>

Date: Fri, 28 Nov 2008 13:25:24 -0600

To: "Sandra Paradis (sandra.paradis)" <sandra.paradis@usask.ca>, "Tom Steele (tom.steele)" <tom.steele@usask.ca>, "Jim Cheesman (jim.cheesman)" <jim.cheesman@usask.ca>

fyi...some comments from from Physiology/Assoc Dean Biomedical Sciences...

----- Forwarded message from "Ovsenek, Nicholas" <nio651@campus.usask.ca> -----
Date: Fri, 28 Nov 2008 11:49:14 -0600
From: "Ovsenek, Nicholas" <nio651@campus.usask.ca>
Reply-To: "Ovsenek, Nicholas" <nio651@campus.usask.ca>
Subject: RE: BSc programs in Psychology
To: Ron Borowsky <ron.borowsky@usask.ca>

Hello Ron:

I thought you might not know that I am currently serving as Acting Head of Physiology. I forwarded this to the faculty in Physiology and have received very positive feedback so far. The department ought to meet soon to discuss the proposed BSc degree, and I would fully anticipate the group will recognize the associated opportunities for both departments.

You might also be aware that there has been considerable discussion in ACB, and I have been active in supporting the Psychology BSc, pointing out the possibilities for joint honours etc with that group.

At some point I would be interested in talking to you about the BA/BSC Health Studies program (that we strongly support), as well as the impact of potential governance/administrative reconfiguration of Arts and Science. From our perspective in the Biomedical Sciences, we are satisfied with recent developments in the College, and we are concerned about any impacts on program flexibility. This would be particularly an issue for your department.

All the best,

Nick

Dr. Nick Ovsenek, PhD
Associate Dean, Biomedical Sciences
College of Medicine
University of Saskatchewan
B103 Health Science Building
107 Wiggins Rd.
Saskatoon, SK S7N 5E5
306-966-1460

Subject: Fwd: Re: Program Challenge

From: Ron Borowsky <ron.borowsky@usask.ca>

Date: Mon, 01 Dec 2008 17:23:04 -0600

To: "Sandra Paradis (sandra.paradis)" <sandra.paradis@usask.ca>

Hi Sandi, I'm not sure if I forwarded this one to you yet...
r

----- Forwarded message from Jennifer Chlan-Fourney <jmcl134@mail.usask.ca> -----
Date: Tue, 25 Nov 2008 15:21:16 -0600 (CST)
From: Jennifer Chlan-Fourney <jmcl134@mail.usask.ca>
Reply-To: Jennifer Chlan-Fourney <jmcl134@mail.usask.ca>
Subject: Re: Program Challenge
To: Ron Borowsky <ron.borowsky@usask.ca>

Hi Ron - Here's the e-mail I sent to ACB. If you need something more formal from me please let me know. -Jen

Hi Everyone,

As Pat had mentioned, the Department of Psychology is proposing to create a more science based stream in their undergraduate program in which students would graduate with a BSc degree, giving Psychology students the option of pursuing either a more "Arts" based (BA) a "Science" based (BSc) degree. From what I can tell from Psychology's proposal, I don't see any conflict with neuroscience-related undergraduate courses currently being taught in ACB. In addition, the courses being required by Psychology for the Science type program have been available in the Department of Psychology for years, some of these courses being offered as far back as almost 20 years ago.

Personally, I think this BA/BSc division in Psychology is long overdue. My own undergraduate degree is a BA (Hons) from the U of S department of Psychology, which does not reflect that (1) my first year of university involved taking Physics, Chemistry, and Biology and (2) I took a number of upper year courses from the Departments of Biochemistry, Physiology, and Pharmacology, along with my upper year psychology courses (all of which were neuroscience based). I can understand that undergraduate neuroscience students in psychology would like to have their degree designation actually reflect their undergraduate training. The reality is that most undergrads with an interest in neuroscience will seek out the neuroscience courses they want to take regardless of which department is offering them. -Jen

Ron Borowsky wrote:

Hi Jennifer, nice to hear from you. Thanks for your supportive comments (if there is a way for those to be emailed as "official" feedback from ACB, that would be much appreciated). Please see below for my responses:

Quoting Jennifer Chlan-Fourney <jmcl134@mail.usask.ca>:

Hi Ron,

Hope all is with you. Pat Krone (acting department head for ACB while Ric Devon is away) sent us a e-mail with respect to the Department of Psychology's proposal to have a BA and BSc program for psychology. My personal opinion is that your proposal for B and C type programs is

absolutely fantastic, and I think long overdue. My BA honors in Psychology from the U of S is basically a combination of the 200-400 level neuroscience courses you offer, plus any other undergraduate neuroscience class in the College of Medicine I could find to take.

From taking a quick look at your proposal, as far as I can tell, all the courses required for the C type program have already been available in the department of psychology, some of them being offered as far back as almost 20 years (am I correct on this observation)? Also, I have a couple of questions:

We were advised by the Assoc Dean UG affairs to give BSc students science credit for their honours thesis by using a separate course number for them.

Thus the only "new" course relative to what we currently offer is 473.6 (BSc Honours Thesis).

1) Is the 200 level Abnormal Psychology class still on your books? I ask because it's the only undergraduate course on campus that I know of of its nature and I wonder if students in program type C would be able to take it (it was a great asset to my neuroscience background).

Yes, and they certainly would be able to take it, as the PSY BSc C6 major requirement indicates 9 cu of Psychology Group 1 (Soc Sci) courses (of which Abnormal is part of) and also 3 cu of any Psychology course at the 200 level or higher...so there is plenty of flexibility for PSY BSc students to take such courses.

2) Does this mean that I can retroactively change my Psychology BA Honors to a BSc? (ha ha ha, just kidding.....)

Unfortunately, I don't think so (you're not alone though...there are quite a few of us who took a science path through a BA here...out of curiosity, did it take an extra year or term for you? I know it did for some others...)

best regards
r

-Jen

Jennifer Chlan-Fourney, Ph.D.
Cameco MS Neuroscience Research Center
Department of Anatomy and Cell Biology
University of Saskatchewan, Saskatoon,
Saskatchewan Canada
306-651-2968

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Subject: Re: New Program - BSC in Psychology

From: Ron Borowsky <ron.borowsky@usask.ca>

Date: Fri, 05 Dec 2008 14:36:52 -0600

To: tracy.marchant@usask.ca

CC: "Sandra Paradis (sandra.paradis)" <sandra.paradis@usask.ca>, "Peta Bonham-Smith (peta.bonhams)" <peta.bonhams@usask.ca>

Hi Tracy,

Thank you very much for this feedback. I think your suggestions sound fine... I have forwarded them to our UG Chair and committee for formal consideration.

best regards,

r

Quoting tracy.marchant@usask.ca:

Good morning Ron:

The Department of Biology Undergrad Affairs Committee has reviewed the proposal for the new BSc program in Psychology.

Many thanks for sending this to us for comment in late October and I apologize for the lateness of our comments. I missed the fact that this was going to be submitted to the November College Challenge and have since been swamped with our own curriculum work.

Significant changes have been made (or will be implemented in the fall of 2009) to senior BIOL, BIOG and HSC courses listed under the C7 Elective requirements in both of the proposed BSc in PYS programs. Our suggestions for substitute courses in the proposed C7 lists are shown below my signature line.

We are also making a suggestion to include BIOL 224 as a firm requirement in the C7 electives within the Honours program (see our rationale below).

I think these comments can be fairly easily dealt as this proposal moves on to the higher authorities for approval. It might also be that someone else has brought these to your attention. Please feel free to contact me if anything below is not clear.

Cheers,

Tracy Marchant
Chair, Department of Biology UAC

C7 Electives Requirement

Required Science Cognate Courses (6 credit units from the following list of Recommended Science Electives):

BIOG 200.3 (Molecules of Life): to be replaced by BMSC 200.3 in 2009-10

BIOG 212.3 (BioChem Techniques): is being deleted for 2009 and will be replaced by a very different techniques course. Does the new BMSC technique course still meet the requirements of the proposed BSc PSY programs? Our thoughts are that

the senior BIOL courses listed below contain hands-on lab exercises in neurophysiology that would be more relevant to the BSc PSY programs and provide more appropriate hands-on experience. See also comments below regarding the BIOL/BMSC 224 course.

BIOL 217.3 (Animal Physio.) - replaced by BIOL 317. This would be a highly relevant elective course for the BSc PSY students. Prerequisite is BIOL 224.

BIOL 430.3 (Neuro.Bio. of Beh.)- would be a highly relevant elective course for BSc PSY students. Prerequisite is BIOL 317.

CHEM 115.3 (Chem. Processes)
CHEM 250.3 (Organic Chem.)
CHEM 255.3 (Bio. Org. Chem)
CMPT 115.3 (Principles of Comp. Sci)

HSC 208.6 (Human Body Sys) - is being deleted in 2009-10 and replaced by BIOL 224. Is being taught jointly by faculty in Biology and Physiology and the plan is to double list this course as BMSC 224. I think Physiology is also developing another 3 cu course at the 200 level that will have BIOL/BMSC 224 as the prerequisite but Physiology should be contacted for exact information on this possible new course.

Our thoughts in Biology are that you might consider actually requiring the BIOL/BMSC 224 under the C7 electives at least within in the new Honours program. This course includes a substantial introduction to basic neurophysiology and has practical hand-on lab exercises (on action potentials, sensory processing, etc) in neurophysiology. I have attached a couple of course outlines for your information (one submitted for approval in 2006 and one as the course was actually taught last acadrmic year). Contact me if you want more details about BIOL 224.

BIOL 224 is also the prereq for most of the other senior BIOL and HSC courses in the C7 list. So students would have to complete BIOL 224 anyways before registering for any of those courses.

If you do choose to require BIOL 224 under the C7 electives for the Honours program, we should probably monitor the impact of this on student progress through the new PSY program. We anticipate that we will eventually be teaching 500 students in this course once the new BMSC platform comes into effect, and there could be significant enrollment pressure on the course. However, it is hard to predict this with any certainty right now and requiring BIOL 224 under C7 for the BSc PSY Honours does make sense to us right now.

HSC 350.3 (Integ. Neurosci.) - this would be a highly relevant elective in the BSc PSY program. Watch out for changes in the course label, prerequisites, etc as the new BMSC platform is implemented.

--
Ron Borowsky, PhD
Professor (Cognitive Neuroscience),
Dept. of Psychology
University of Saskatchewan

Date: Dec 5, 2008
From: Ron Borowsky, Psychology Dept.
To: Sandra Paradis and Division of Science Academic Programs Committee
Subject: BSc Psychology – response to questions from the committee

1) Provide course outlines for each course you are wanted to be switched from Social Science to Natural Science - these courses and their content must be approved as Natural Science courses.

- These have been given to Sandra Paradis to circulate to the committee. Given that there is some variability in instructors and specific content (e.g., specific weekly topics, readings, and the extent to which this information is included in a course outline often varies from year to year), there are two versions of course outlines included for some of the courses. Please keep in mind that our department offers courses that are typical of any of the other Canadian Psychology departments in the Medical/Doctoral institution category (12/14 of which offer a BSc option, 2 of which offer only a BSc option: UofT and UBC). Also, please note that NSERC supports approximately 1/3 of our faculty, primarily through GSC12 (Life Sciences: Psychology: Brain, Behaviour and Cognitive Science; some of our faculty hold/held NSERC grants from other committees as well: such GSC1011 – Life Sciences: Integrative Animal Biology (Kalynchuk) and GSC21 – Interdisciplinary (Sarty)). The following table from the NSERC website describes the areas covered by the primary NSERC GSC for Life Sciences: Psychology: Brain, Behaviour and Cognitive Science (GSC12):

Research Themes Currently Covered by GSC 12 (Within each theme, applications may specify behavioural, neural, quantitative and developmental approaches.)	
Sensation and Perception (e.g., Visual, Auditory, Other Senses, Multi-Sensory Integration)	Learning and Plasticity (e.g., Conditioning, Neural Development and Neurogenesis, Cellular Mechanisms and Systems, Perceptual Learning)
Motor Control (e.g., Perception/Action, Kinematics, Fine Motor and Gross Motor)	Language (e.g., Word Recognition, Reading, Psycholinguistics, Speech)
Regulatory Processes (e.g., Thirst, Hunger, Sleep and Rhythms, Thermoregulation)	Memory and Cognition (e.g., Attention, Working Memory, Executive function, Episodic and Semantic Memory, Judgement and Decision Making)
Motivation and Emotion (e.g., Sex, Maternal Behaviour, Addiction, Reward)	Animal Behaviour and Cognition (e.g., Comparative, Evolution, Ethology)

- In order to give the committee a sense of the areas of expertise of our particular NSERC-funded faculty, the following table from the NSERC website lists our NSERC Discovery grant-holders as of 2007-08, and the titles of their projects. There is an additional faculty member who just joined our department this past year, Dr. John Howland, who was awarded an NSERC Discovery grant in the 2008 competition entitled: Acute stress effects on cognition and synaptic plasticity.

Name, First name	Title of project
Borowsky, Ron	Basic language processes: behaviour and function
Campbell, Jamie	Processes of mathematical cognition
Elias, Lorin	Laterality in temporal processing and spatial attention
Kalynchuk, Lisa	Long-term kindling as an animal model to study the neural mechanisms of fear-mediated behaviour
Kelly, Debbie	Orientation by humans and Clark`s nutcrackers
Sarty, Gordon	Brains, ovaries and binary stars: a cross-fertilization of indirect imaging methods
Thompson, Valerie	Logic, beliefs, and individual differences in deductive reasoning
Grant and Scholarship: 7 on a total number of 7	

- You will note that some of the course outlines indicate other instructors such as our graduate students (e.g., Cummine, Esopenko, Prowse-Turner, Metcalfe, Lane), term appointments (e.g., Kondzielewski, Geczy), former/current administrators (e.g., Wishart and Cheesman, both of whom held several years of NSERC funding earlier in their careers), and other faculty from our department (e.g., Lawson, O'Connell).

2) Has the program considered how switching these courses from Type B to Type C will affect other Science programs and students? How will it affect your BA program requirements having these courses now be natural Sciences courses?

- I consulted with Sandi Paradis and Tom Steele about this question, as there appears to be quite a bit of variability as to how other disciplines bridging between natural science and social science (i.e., having both a BA and a BSc) deal with it. Here are some points to consider as a response to this question:

- We are not aware of any Psychology course requirements/recommendation by other programs beyond the intro level PSY 110.6 course (which will remain as a Type B course), other than the College of Nursing, which has recommended our statistics course PSY 233.3 to their students in the past. Given that our statistics courses are considered equivalent to other stats courses on campus (see Statistics Course Regulations in the Calendar), these courses (PSY 233.3 and 234.4) are already viewed as natural science

courses from this perspective. As for the Social Science Distribution requirements for Science programs (C3), they only require 6 cu of Social Science, and given that we are not proposing a change in status of PSY 110.6 from Type B, this would not seem to pose a problem.

- The Psychology BA will not be affected because it has always required students to take some courses in the natural science realms of psychology. The only substantive change is in splitting the honours thesis course, so now there is a clear distinction that will occur in the honours thesis between BA and BSc students. Our BA program was designed to intentionally force the breadth of both Group 1 (Social Science) and Group 2 (Natural Science) Psychology courses, and these students benefit from learning about both sides of the fence in our discipline. As part of our BSc proposal, we are clarifying this distinction between Psychology courses in Group 1 (to also read “Social Science”) and Group 2 (to also read “Natural Science”), and applying the distinction to our 400-level courses in the same way that they have already been applied to our 200-level and 300-level courses in the existing Psychology Program statement in the Calendar. You will also note that the BSc proposal streams the students through a natural science path in Psychology:

- a BSc Honours student would take 42 cu in Psychology Natural Science courses: 15 cu at the 200-level counting the statistics/research methods courses, 9 cu at the 300-level, 12 cu at the 400-level, and 6 cu at the 200-level or higher; the remaining 6 cu of natural science courses (to meet the C6 requirement of 48 cu) are selected from Required Science Cognate courses listed under C7.

- a BSc 4 year students would take 30 cu in Psychology Natural Science courses: 15 cu at the 200-level counting the statistics/research methods courses, 9 cu at the 300-level, 6 cu at the 200-level or higher; the remaining 6 cu of natural science courses (to meet the C6 requirement of 36 cu) are selected from Required Science Cognate courses listed under C7.

* Note: two of the ten courses listed as options for the Required Science Cognate courses under C7 in our BSc program proposals are not senior courses: CHEM 115.3 and CMPT 115.3. As such, the statement that precedes this list of courses should be modified to read:

“Required Science Cognate Courses (6 *senior* credit units (*i.e.*, 200-level or *higher*) from the following list of Recommended Science Electives):”

Comparison to other units with both BA and BSc degrees:

- In comparison to Geography, which is also a Social Science department with both BA Honours and a BSc Honours, we see at least a comparable amount of distinctiveness in our Honours BSc relative to the Honours BA. In Geography, there is a minimum of 15 cu of distinctiveness (out of some 42 cu available as Type C in physical Geography) in the Geography Honours BSc relative to their Honours BA. Relative to our Honours BA,

our proposed Honours BSc requires 3 cu more of Natural Sciences 300-level lab coursework, 6 cu of 400-level seminars must be from the Natural Sciences side, and the Honours Thesis work will also be based in the Natural Science side (PSY 473.6). This adds up to 15 cu of distinctiveness for the Honours BSc relative to the Honours BA. Given that the proposal also indicates an additional 6 cu of senior Psychology courses from the Natural Sciences side, plus an additional 3 cu of senior Psychology courses (which could be from the Natural Sciences side) it could be argued that the amount of distinctiveness between the programs is actually 21-24 cu, but as mentioned earlier, the BA Honours in Psychology requires the students to take a substantial amount of natural science Psychology coursework (and they are free to choose additional Psychology courses from the Natural Science side), and thus the extent of distinctiveness must be considered in that context (i.e., from 15 cu and up to 21-24 cu distinctiveness). Our BSc 4 year degree proposal stipulates 9-15 cu of distinctiveness from the BA 4 year degree, depending on whether a BA student chooses to do their independent 3rd year lab project in the Social Science or Natural Science side, and whether a BSc student chooses to take the additional 3 cu of Psychology courses from the Natural or Social Science side.

- In comparison to Archeology, which is another Social Science department with both BA Honours and BSc Honours degrees, it is difficult to discern how distinct their degree programs are from each other, as they do not indicate specific course streams. Their B6 (major) requirements in the BA Honours and their C6 (major) requirements in the BSc Honours list courses that can be taken for either degree.

- In comparison to LUEST, which is another unit with both BA and BSc degrees, I have been informed that the BA and BSc programs are identical apart from the distribution requirements.

- The College's degree requirements do not appear to necessitate a formal definition of courses for Requirement 6 (Major) into a particular Type (B or C). When a department chooses to do so (e.g., Geography indicates that their Physical Geography courses qualify as Type C), such a formal definition does not appear to restrict what can be counted toward the major (i.e., only 15 cu of Type C Physical Geography courses are required in the BSc Honours in Geography). Indeed, such a formal definition (or permitting such a definition to affect selection of courses in the major) would be problematic for other departments that bridge social and natural sciences.

3) The proposal does not indicate any consultations with Anatomy & Cell Biology - ACB offers Neuroscience courses - how do the PSY courses differ from the ACB courses and still be considered Natural Science?

- Our proposal lists two HSC courses in the Required Cognate course list (HSC 208.6: Human Body Systems and HSC 350.3: Integrated Neuroscience), and I had mistakenly assumed that all HSC courses were coordinated through Kinesiology (which is the case for HSC 120). I have since sent the proposal to the Departments that actually coordinate these courses (ACB and Physiology), and we have already received some positive

feedback from Assoc. Dean Nick Ovsenek (acting Head of Physiology) and Dr. Jennifer Chlan-Fourney (ACB) (see consultation emails that I have forwarded to Sandi Paradis).

- Our PSY courses in neuroscience (e.g., PSY 242, 246, 252, 343, 344, 347, 348, 448, and sometimes 456 depending on who is teaching it) would differ from the HSC courses primarily through an additional focus on psychological behaviours (e.g., memory, language, object identification, spatial attention, and epilepsy). For example, neural synaptic function plays an important role in the instantiation of new memories (which was first explained in a comprehensive theory by Donald Hebb, a psychologist from McGill). Another example would be the description of ventral and dorsal visual processing streams as they relate to object identification, spatial localization, and semantic knowledge (an area that also involves psychologists, including Mel Goodale, a psychologist from UWO). Another example would be the work on animal kindling models of epileptic seizures (Michael Corcoran, a psychologist on faculty in the department of ACB, has trained several students in this area though our department of Psychology). There are several other examples of how we approach neuroscience from a psychological perspective, which I would be happy to expand on if the committee wishes.

We appreciate all of the time and consideration given to this proposal by you (Sandi), Associate Dean Tom Steele, and the Division of Science Academic Programs Committee. I would be happy to attend a future meeting of the Committee if there are any additional questions that you would like me to address in person.

Sincerely,

Ron Borowsky, PhD
Professor (Cognitive Neuroscience)
Department of Psychology, College of Arts and Science
Associate Member, Div. of Neurosurgery, College of Medicine

Arts and Science – proposal for BSc in Psychology

Review by Academic Programs Committee of Council

Review of proposal for a B.Sc. (Psychology)

Including responses from the College of Arts & Science

This is a proposal to distinguish two streams within the program of studies in Psychology. We followed the worksheet “APC Criteria for evaluation of program proposals”.

1. Program Justification:

The rationale and objectives of the program to provide a B.Sc. option for Psychology majors and honours students are clearly stated. One of the stated goals is to prepare better the students potentially interested in graduate studies in cognitive science and neuroscience, with a stronger background in the basic sciences and mathematics than currently provided within the B.A. program.

The program is appropriate for a University at a B.Sc. level. The program is not unique in that most other Medical and Doctoral universities in Canada offer a B.Sc. option in Psychology. To what extent the program will be unique in content or approach (relative to existing B.Sc. programs in Canada) is not clear, as no comparison was made between the proposed program and existing programs at other institutions. There is apparent demand for the program, with an estimate that approximately 30 students will take this option yearly. These students will likely be from the existing B.A. program and there is no indication whether the B.Sc. option is likely (or not) to attract new students to the University. This may depend on the uniqueness (or not) of the proposed program relative to others.

Overall, the program is justified and relevant to the mission and objectives of the University.

Questions:

a. *How does the proposed program compare with B.Sc. (Psychology) in other institutions? Is the program content unique in some way that differentiates the proposed program from others?*

- One feature of our program that we are particularly proud of is that, relative to other Psychology programs, we have dedicated a significant portion of our teaching resources to “hands-on” 300-level research courses. Our BSc students are required to take 4 of these courses, which are limited to about 25 students per section so as to allow for optimal direct instruction and interaction between the students and the professor. This is the case for both our BSc Honours and BA Honours programs (the BA 4 year requires 3 of these courses). As an example, in PSY 355, our students read and present primary research articles, design experiments to test hypotheses that stem from the research literature, program computers to present stimuli (e.g., words, pictures) and collect

behavioural responses (response time and accuracy), analyse the data (using SPSS), and prepare reports in a journal manuscript submission format. As a result of such intensive research training, we believe our Honours students are very well prepared for graduate school (several have gone on to graduate school, many of whom have also gone on to become faculty). This feature of our program is what is referred to in our SPR by: "The excellence of the department is also reflected by the faculty members' commitment to curriculum development, their involvement of undergraduates in research, theory, and practice". We have worked hard as a department to offer excellent undergraduate training as well as excellent graduate training, whereas some other Psychology departments have made compromises in their undergraduate programming (i.e., by not providing these types of "hands on" experiences, and offering only large sized classes at the undergraduate level that prohibit this kind of instruction and interaction). Having a recognized BSc Honours program will help us ensure that our students who wish to apply to the ever-growing list of neuroscience-related graduate programs are not excluded because the graduate program requires a general BSc background.

b. The program objective is to "open doors" for students wishing to enter graduate studies in cognitive science and neuroscience with a stronger preparation in basic sciences and mathematics. Is the program set up in a way as not to close doors to other potential employment opportunities for students in Psychology?

- In designing the BSc program, one of our goals was to maintain both breadth and depth in Psychology, as we have also done with our BA programs. The field of Psychology is immense, and we felt it was important to maintain some degree of breadth in the program so that students do not leave with only an in-depth education in one or two sub-disciplines. As such, our BSc students should have the same opportunities for advancement/employment as our BA students, plus additional opportunities that require a general BSc background.

c. There was one question raised in the correspondence concerning the need of students in high school to take appropriate science and math courses in order

to access this program. Is there a plan by the Department for promotion of this program at this level?

- We promote our programs through Experience US, and we would certainly describe the differences in requirements between our BSc and BA programs there. We would also hope that the College/University recruitment and promotion efforts would include our BSc among the other BSc programs that require the same typical selection of 100-level science courses.

2. Nature of the Program

The proposed program consists of a redistribution of existing psychology courses into two streams, the social sciences stream and the natural sciences stream. There is only one new course proposed, which is the Honours Research Project course. It is the same course as the one currently offered in the B.A. program but student choices of research projects will be limited to those relevant to the natural sciences stream. There is ample choice of courses at the 200, 300 and 400 level. The quality of the course offering is not in question with the SPR "A" rating given to the current program of studies in Psychology. The distinctive aspect of the proposal is the inclusion of basic science courses (Chemistry, physics, math) in the first year relative to a B.A. program. The proposed course of study is in line with the B.Sc. curriculum structure. The program retains significant exposure to the social sciences stream. It requires 75cu for meeting requirements C1-C7, leaving 15cu or 45cu of open electives for students completing a three or four year degree, respectively.

Thus, the program appears to meet the needs of a subset of students with greater interest in the natural science aspects of Psychology and present with sufficient flexibility for students to choose courses according to their own interests within and outside the major discipline.

Questions:

a. The program is intended for students requiring more math and science training than what is presently required in the B.A. program. Are the requirements in mathematics sufficient given the stated aim of the proposal? A review of the proposed math courses suggests it might leave the students without exposure to integral calculus, for instances. While students can get integral calculus within the parameters of the program by taking both Math110.3 and Math116.3, this sequence is not required. If students are only going to get 3cu of calculus, would Math125.3 (Mathematics for life sciences) not be more appropriate than Math110.3 as a requirement?

- Just to clarify, there is no 3 year degree proposed for the BSc in Psychology as suggested in the paragraph above this question. Regarding the Math requirements, we proposed what we thought were the

most typical options so that students wishing to switch into the Psychology BSc from another discipline (or vice versa), could do so. We also wanted some degree of flexibility here so that a student who was planning to go in a direction that involves multivariate statistical analyses (as is the case in many sub-disciplines in Psychology) could get additional exposure to linear algebra (and particularly matrix algebra) by taking Math 264.

b. In the same vein, beyond the minimal natural sciences requirements for any B.Sc. degree, the only non-PSY science courses required are 2-3 cu courses chosen from a list of 7. Will these modifications from the current B.A. Psychology program sufficiently increase the science background, as stated in the rationale?

- We think that the basic BSc background is key here. I would also note that there is room for an additional 9 cu of C7 electives in the recommended course sequence for BSc Honours (beyond those referred to in the question), so the student has the flexibility to choose additional science courses as well.

c. It was surprising to see no course listing either as requirements or electives in genetics or genomics, given the current research trends in the Neurosciences. Will the students from this program be adequately prepared to seek graduate opportunities in neurosciences laboratories making use of neuro-imaging and "omics" technologies?

- Regarding neuroimaging, we are mainly referring to a particular type of neuroimaging that is becoming popular in Cognitive Neuroscience within Psychology, broadly referred to as functional imaging. In functional imaging, the focus is on the mapping of brain regions that are active (i.e., functioning) during a particular cognitive task. The most common method of functional imaging in this area is functional Magnetic Resonance Imaging (fMRI), which tracks the Blood Oxygenation Level Dependent (BOLD) function.

In the case of students wishing to take courses in genetics or genomics (or if advised to do so by their faculty advisor), there is sufficient flexibility in the C7 requirements to permit them to do so.

Clearly, there is a breadth to "Neuroscience" whereby no single disciplinary program can cover all the possible bases. It would be exciting to develop an interdisciplinary Neuroscience BSc program that would capture more of the breadth in this rapidly expanding science. We look forward to being involved in such development in the future.

d. Given the objective of the program to prepare students for graduate studies in cognitive sciences and neurosciences (essentially life sciences programs), has there been consideration of adopting the common two year platform developed for the biomedical sciences? It is recognized the number of second year courses offering in Psychology may be prohibitive in that regard.

- We have not yet considered this possibility, and we appreciate the information about how the number of our second year offerings might be prohibitive. We would be happy to explore this option as we continue to develop and improve our BSc programs.

3. Relationships

The program consists dominantly of a redistribution of existing Psychology courses into a distinct natural science stream. There is no issue of transition from one program to another. There has been consultation with other units, with supporting documentation. All units that were consulted are supportive of the proposal. There are possibilities of interactions dominantly with units in biomedical sciences and research groups in neurosciences. The program as proposed is clearly within the domain of expertise of the sponsoring unit, particularly as regard to the cognitive neuroscience field.

4. Resources

There is no requirement for additional resources as all courses are currently offered and the Faculty already in place to deliver this program.

5. Overall

The program is appropriate for the University of Saskatchewan. It provides an additional option for students in Psychology that will be recognized on the transcript. There is no additional cost.

M. Bickis

M. Desautels

Including Responses from the College of Arts & Science