

**FACULTY OF SCIENCE  
ACADEMIC COMMITTEE**

Minutes of the meeting held on 25 February 2020 at 3:00 p.m. in Arts Council Room, Arts 160.

**PRESENT:** Vice-Dean David Stephens, Associate Dean (Academic) Axel Hundemer, Director (Advising Services) Nicole Allard; Professors Amy Blum, Huy Bui, Maxime Denis, Ben Forest, Paul François, Abigail Gerhold, Greg Marczynski, Timothy Merlis, Johanna Neslehova, Ana Nyzhnyk, Gillian O'Driscoll, Jeanne Paquette, Kathy Roulet, Clark Verbrugge, Natalie Waters; Emily Dinunzio, Thea Lee, Andrew Nguyen; Josie D'Amico.

**REGRETS:** Professors Barbara Hales, Tamara Western, Julia Morales-Aguirre, Samantha Pritchard, Keerth Raveendra, Juliann Wray.

**DOCUMENTS:** AC-19-17, AC-19-20 to AC-19-31

Vice-Dean Stephens welcomed members and called the meeting to order at 3:00 p.m.

**1. Adoption of Agenda**

Prof. Forest **moved**, seconded by Prof. O'Driscoll, that the Agenda be adopted.

**The motion carried.**

**2. Minutes of 21 January 2020**

**AC-19-56**

**Prof. Gerhold moved**, seconded by Prof. Forest, that the Minutes be approved.

**The motion carried.**

**3. Business Arising from the Minutes**

There was no business arising from the Minutes.

**4. Master of Arts and Science in Complex Problem Solving - New  
- Executive Summary & Program Outline**

**AC-19-78**

**AC-19-78A**

Vice-Dean Stephens introduced a new Master of Arts and Science (Non-Thesis) degree which was originally discussed at the Academic Committee meeting of 21 January 2020, for information only. The M.A.Sc. degree program was developed jointly with the Faculties of Arts and of Science, and its focus is on Complex Problem Solving.

Associate Dean Hundemer informed members that at the last Faculty of Science meeting on 18 February 2020, the Faculty passed a motion that the Academic Committee would be the decision-making body for the M.A.Sc. program and courses. The reason for changing the sequence of the approval process is mainly due to the meeting schedules of the various committees.

**New Courses**

|          |   |                 |
|----------|---|-----------------|
| ARSC 601 | Proseminar 1: Comparative Methods<br>3 credits        | <b>AC-19-79</b> |
| ARSC 602 | Proseminar 2: Evolution of Knowledge<br>3 credits     | <b>AC-19-80</b> |
| ARSC 603 | Data and Analytics for Decision Making 1<br>3 credits | <b>AC-19-81</b> |

|          |   |                 |
|----------|---|-----------------|
| ARSC 604 | Data and Analytics for Decision Making 2<br>3 credits | <b>AC-19-82</b> |
| ARSC 605 | Project 1: Approaching Complex Topics<br>3 credits    | <b>AC-19-83</b> |
| ARSC 606 | Project 2: Research Proposal<br>3 credits             | <b>AC-19-84</b> |
| ARSC 607 | Project 3: Research Project<br>12 credits             | <b>AC-19-85</b> |
| ARSC 608 | Proseminar 3: Professional & Leadership Skills        | <b>AC-19-86</b> |

In response to a member, Vice-Dean Stephens said that it was too early in the process to identify specific instructors to deliver these courses; however, there have been discussions in the Departments of Geography, Mathematics & Statistics, and the School of Computer Science, as well as in the Faculty of Arts. Associate Dean Nilson said that other models that are being discussed would be to appoint several teaching fellows who have intersectional disciplines and would complement the existing expertise at McGill.

Replying to a member's questions, Vice-Dean Stephens responded that the program development began in Spring/Summer 2019 after the announcement of the McCall McBain initiative, although he was unaware of the relation between the program and the donation at that time. However, due to the success of the B.A. & Sc. degree, he said there was a notion in both Faculties that there should be a similar degree at the graduate level. Associate Dean Hundemer said that the McCall McBain donors were not involved in any way in the creation of the M.A.Sc. and that the program was developed strictly by McGill. Also, admission to the program is open to all students. Associate Dean Nilson said the McCall McBain donation was a catalyst for the development of the M.A.Sc. program to explore issues that lie at the intersection of Arts and Science and that benefit from contributions from both Arts and Science. Another member said that the proposed M.A.Sc. program looks very much like a graduate-level program in Arts and Science, like the existing B.A. & Sc. degree at the undergraduate level, which is very interesting and successful.

Associate Dean Nilson, in response to a member, said that additional tutorial sessions for students with diverse backgrounds will be made available, and that part of the background would be accommodated at the admissions stage. Also, incoming students with a mixed Arts/Science background would be targeted first.

Associate Dean Hundemer **moved**, seconded by Director Allard, that the above eight courses be adopted.

**The motion carried.**

### **Master of Arts and Science in Complex Problem Solving**

**AC-19-78**

There was a lengthy discussion about the M.A.Sc., and the following issues were raised: (i) the lack of prerequisites for the Complementary courses, (ii) that many Arts courses are not offered every year and this may be challenging in a 12-month program, (iii) whether students were consulted in choosing the courses, (iv) what is the goal of the program, (v) who will be on the admissions committee, (vi) that there were more Arts courses than Science courses, (vii) that climate change was mentioned in the program rationale but there are no courses in climate change in the proposal, (viii) that not all Science students would be suitable candidates for the M.A.Sc. because the program seems to be aimed at students with an Arts background only, (ix) that some science background will be needed to be able to solve problems in multidimensional thinking, (x) that a quantitative statistics course and an AI-learning course should be included in the

program, and (xi) that relevant existing 400-level courses could be renumbered to the 500-level as possible prerequisites for the Complementary courses.

In reply to the above issues, Vice-Dean Stephens and Associate Dean Nilson provided the following responses: that many of the Complementary courses had broad prerequisites and/or are open with permission of the instructor; the Complementary courses are not an exhaustive list, and going forward, the courses would be replaced with more specialized courses, and also, students may choose another course not currently on the list, in consultation with their advisor; that the interdisciplinary component of the M.A.Sc. will be acquired from the eight new ARSC courses (above); that although not all the Arts Complementary courses may be offered every year, there is an extensive list of courses that students may choose from; that a market research study is under way to ensure that there is a demand for this program; that students and faculty will be consulted at a later stage of development of the program; that the goal of the program is to be an interdisciplinary program but that the M.A.Sc. is not representative of all areas of Arts or Science; that the admissions committee will consist of the program director as well as representatives from both Faculties; and that a multidimensional approach to addressing complex problem-solving will be reflected in the Complementary courses.

Vice-Dean Stephens said that the next phase of approval will coincide with the upcoming CGPS meeting in March 2020. The purpose of the consultation process will be to define an admissions process, to strike a program committee with broad representation from students and faculty members, and to develop the memorandums of understanding with the relevant departments delivering the courses. The market research process will continue until recruitment day, and it will take a couple of years for the program to obtain final approval from the MEES, allowing plenty of time to conduct consultations.

Vice-Dean Stephens asked members if they wished to amend the motion to include other Complementary courses in the M.A.Sc. The answer was in the negative.

Associate Dean Hundemer **moved**, seconded by Director Allard, that the program structure of the M.A.Sc. in Complex Problem Solving be adopted.

**The motion carried.**

Vice-Dean Stephens emphasized that the approval of the M.A.Sc. program at the current meeting was just the beginning stage of the approval process, and that it will be ongoing for at least 18 months. The success of the program is dependent on the contributions of the members of the Academic Committee. There has been extensive discussion about the role of the Complementary courses, and ongoing discussion is very important in order to ensure that the program is effective. Vice-Dean Stephens thanked the Academic Committee for their valuable feedback, and he welcomed members' comments and suggestions in subsequent discussions of the M.A.Sc. program.

**5. Faculty of Science  
New Course**

FSCI 342

Experiential Learning - Language  
0 credit

**AC-19-57**

Associate Dean Hundemer said that FSCI 342 was created for students on the McCall McBain International Fellowship, but it will also be open to future approved experiential language learning exercises. Students are required to take language courses abroad for a semester, live with a host family, and/or volunteer with a local organization. This is an official McGill activity, and this type of course should be reflected on the transcript. Director Allard added that FSCI 342 was designed after another Faculty approved a zero-credit course for internships, FSCI 200, Industrial Practicum. The reasons for creating a

zero-credit course instead of granting students a Leave of Absence (LOA), is that a LOA does not reflect the type of activity, which would be unfair to students, and that students would be required to reapply to resume their studies at McGill.

Associate Dean Hundemer **moved**, seconded by Prof. Paquette, that the course be adopted.

**The motion carried.**

**New Course**

FSCI 451

Research in Barbados  
6 credits

**AC-19-58**

Associate Dean Hundemer said that FSCI 451 is a new required research course for the Barbados Field Study Semester (to be discussed below) at the Bellairs Research Institute in Barbados.

Associate Dean Hundemer **moved**, seconded by Prof. Forest, that the course be adopted.

**The motion carried.**

**Program Revisions:**

Barbados Field Study Semester

**AC-19-59**

Associate Dean Hundemer described the revisions to the Barbados Field Study Semester (BFSS). The Faculty of Science will now be responsible for the administration of the BFSS, and as a consequence, the courses have been changed.

Associate Dean Hundemer **moved**, seconded by Prof. Neslehova, that the changes be approved.

**The motion carried.**

6.

**Chemistry**

BIOT 505

Selected Topics in Biotechnology  
Change in teaching unit  
3 credits

**AC-19-60**

Prof. Blum said that the Department of Chemistry will be taking over the teaching responsibilities of BIOT 505 from the Department of Biology because there is no instructor available to teach the course; hence the proposed change in teaching unit.

Vice-Dean Stephens thanked the Department of Chemistry for taking over BIOT 505, and thanked the Department of Biology for having previously taught the course.

Prof. Blum **moved**, seconded by Prof. Gerhold, that the changes be approved.

**The motion carried.**

7.

**Biology/Psychology**

**New Course**

BIOL 506

Neurobiology of Learning and Memory  
3 credits

**AC-19-61**

Prof. Gerhold explained that BIOL 514 and PSYC 514 were double-prefix courses and were identical in content, title, etc. After reviewing the course material, it was decided that there was sufficient material to warrant two separate courses - one focusing on the biology of learning and memory, and another course focusing on the psychology of memory. Following from this, a new course is being created, BIOL 506, PSYC 514 is being revised (below) accordingly, and BIOL 514 is being retired. The instructor of BIOL 506 emphasized the importance of having two courses to do justice in this area, and that there was wide interest in the topic. The expected enrolment is 16 because the course workload is heavy, including presentations and project proposals, and because it is also necessary to allow for discussion and student participation.

Prof. Gerhold **moved**, seconded by Prof. O'Driscoll, that the course be adopted.

**The motion carried.**

***Course retirement***

|          |  |                 |
|----------|--|-----------------|
| BIOL 514 | Neurobiology of Learning and Memory<br>3 credits | <b>AC-19-63</b> |
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The course retirement of BIOL 514 is due to the new BIOL 506 course, and the revised PSYC 514.

Prof. Gerhold **moved**, seconded by Prof. O'Driscoll, that the course retirement be approved.

**The motion carried.**

|          |  |                 |
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| PSYC 514 | Neurobiology of Memory<br>Changes: title, description, restrictions<br>3 credits | <b>AC-19-62</b> |
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Prof. O'Driscoll said that the title has been updated to reflect the revised course content of PSYC 514. The description has been restructured due to BIOL 506 (new course approved above), and a previously retired course was removed from the restrictions.

Prof. Gerhold **moved**, seconded by Prof. O'Driscoll, that the changes be approved.

**The motion carried.**

**8. Psychology  
New Course**

|          |   |                 |
|----------|---|-----------------|
| PSYC 319 | Computational Modelling of Cognition<br>3 credits | <b>AC-19-64</b> |
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Prof. O'Driscoll described the course content of PSYC 319, and said that the course will be taught by a new instructor. A consultation was requested from the School of Computer Science, but she had not heard back yet.

Prof. O'Driscoll **moved**, seconded by Prof. Forest, that the course be adopted.

**The motion carried.**

**9. Computer Science  
New Course**

|          |   |                 |
|----------|---|-----------------|
| COMP 451 | Fundamentals of Machine Learning<br>3 credits | <b>AC-19-65</b> |
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Prof. Verbrugge **moved**, seconded by Prof. Forest, that the course be adopted.

**The motion carried.**

|          |  |                 |
|----------|--|-----------------|
| COMP 551 | Applied Machine Learning<br>Changes in restrictions<br>4 credits | <b>AC-19-67</b> |
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Prof. Verbrugge explained that the current course COMP 551 is heavily populated and is taken by Computer Science undergraduates and graduate students, as well as by students in different majors. The intent is to introduce a new course, COMP 451, for undergraduate students only, with a focus more on theories rather than applications. The instructor of the above course elaborated on the content of the courses.

Prof. Verbrugge **moved**, seconded by Prof. Forest, that COMP 451 be adopted and that the changes to COMP 551 be approved.

**The motion carried.**

**New Course**

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| COMP 579 | Reinforcement Learning<br>4 credits | <b>AC-19-66</b> |
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Prof. Verbrugge said that COMP 579 has been offered as a topics course for several years, and has been successful. The School of Computer Science would now like to make it an official course.

Prof. Verbrugge **moved**, seconded by Prof. François, that the course be adopted.

**The motion carried.**

Following a cyclical review, Prof. Verbrugge explained that the Thesis and Non-Thesis M.Sc. in Computer Science are course-credit-heavy, and not aligned with other Computer Science programs in Canada, as well as some of the M.Sc. programs in the Faculty. The changes involve the removal of courses that are no longer relevant, and the replacements of two one-credit new courses, COMP 602 and COMP 603. Also, the Complementary courses, including the breadth requirements, have been reduced.

**New Course**

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| COMP 602 | Computer Science Seminar 1<br>1 credit | <b>AC-19-70</b> |
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**New Course**

|          |  |                 |
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| COMP 603 | Computer Science Seminar 2<br>1 credit | <b>AC-19-71</b> |
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Prof. Verbrugge **moved**, seconded by Prof. Neslehova, that the courses be adopted.

**The motion carried.**

**Program Revisions**

|  |                 |
|--|-----------------|
| - M.Sc. in Computer Science (Thesis)     | <b>AC-19-68</b> |
| - M.Sc. in Computer Science (Non-Thesis) | <b>AC-19-69</b> |

It was agreed that the courses for the breadth requirements should be listed in both of the above programs.

Prof. Verbrugge **moved**, seconded by Prof. Neslehova, that the changes be approved with the above recommendations.

**The motion carried.**

10. **Geography**  
***New Course***

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|----------|---|-----------------|
| GEOG 333 | Introduction to Programming for the Spatial Sciences<br>3 credits | <b>AC-19-72</b> |
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Prof. Forest described the content and focus of the new course, GEOG 333. The course has been taught as a topics course by a new instructor in the Department of Geography.

A member pointed out that GEOG 201 is listed as a prerequisite for GEOG 333, but it should also be listed as a corequisite.

Prof. Forest **moved**, seconded by Prof. Verbrugge, that the course be adopted with the above addition.

**The motion carried.**

***New Course***

|          |   |                 |
|----------|---|-----------------|
| GEOG 401 | Socio-Environmental Systems: Theory and Simulation<br>3 credits | <b>AC-19-73</b> |
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***New Course***

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| GEOG 601 | Advanced Environmental Systems Modeling<br>3 credits | <b>AC-19-74</b> |
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Prof. Forest introduced two new courses, GEOG 401 and GEOG 601. These courses will replace a high-enrolment course, GEOG 501 (to be retired – see below), and will be split into two new courses: GEOG 401 has been designed for undergraduate students, and GEOG 601 will be offered to graduate students only.

Prof. Forest **moved**, seconded by Prof. François, that the above courses be adopted.

**The motion carried.**

***Course Retirement***

|          |  |                 |
|----------|--|-----------------|
| GEOG 501 | Modelling Environmental Systems<br>3 credits | <b>AC-19-75</b> |
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Prof. Forest **moved**, seconded by Prof. Gerhold, that the course retirement be approved.

**The motion carried.**

***Program Revisions***

|   |                 |
|---|-----------------|
| - B.A.; Minor Concentration in GIS & Remote Sensing | <b>AC-19-76</b> |
|---|-----------------|

Prof. Forest said that the main changes are: including a description of the program; COMP 202 will be a Complementary course; the new course, GEOG 333, will be included as an option between COMP 202 or GEOG 333; and the remainder of the changes are housekeeping in nature.

Prof. Forest **moved**, seconded by Prof. Clark, that the changes be approved.

**The motion carried.**

- B.Sc.; Minor in GIS & Remote Sensing (Revised Program Title) **AC-19-77**

Prof. Forest explained that the purpose of the title change is to capture both Geographic Information Systems and Geographic Information Science, and to keep it consistent with the B.A. Minor Concentration in GIS & Remote Sensing. For the same reason above, COMP 202 and GEOG 333 have been added as Complementary courses.

Prof. Forest **moved**, seconded by Ms. Roulet, that the changes be approved.

**The motion carried.**

11. **Other Business**

There was a short discussion regarding the Barbados Field Study Semester approved above, in particular some of the Geography courses. The Chair of the Department will be consulted and the results will be reported back to the Academic Committee at its next meeting.

There being no further business, Prof. Forest **moved**, seconded by Ms. Roulet, that the meeting be adjourned at 4:40 p.m.

**The motion carried.**