MEETING OF THE FACULTY COUNCIL OF THE FACULTY OF SCIENCE

A regular meeting of the Faculty Council of the Faculty of Science will be held on Wednesday, March 16, 2016, at 1 p.m. in C-2045.

AGENDA

1. Regrets

2. Adoption of the Minutes of February 17, 2016

3. Business Arising from the Minutes

4. Correspondence: None

5. Reports of Standing Committees:
   A. Undergraduate Studies Committee: None
   B. Graduate Studies Committee: None
   C. Nominating Committee: None
   D. Library Committee: None

6. Reports of Chair in Teaching & Learning and Embedded DELTS Teaching Consultant

7. Faculty of Science Strategic Plan - Annual Approval, paper 7 (6 pages).

8. Reports of Delegates from Other Councils


10. Question Period

11. Adjournment

Mark Abrahams
Dean of Science
FACULTY OF SCIENCE
FACULTY COUNCIL OF SCIENCE
MINUTES OF MEETING OF FEBRUARY 17, 2016

A meeting of the Faculty Council of the Faculty of Science was held on Wednesday, February 17, 2016, at 1:00 p.m. in room C-2045.

FSC 2407

Present
Biochemistry
Berry, M. Mulligan, M.

Biology
Leroux, S.

Chemistry
Fridgen, T. Kerton, F. Kozak, C.

Computer Science
Banzhaf, W. Bungay, S. Gong, M. Zuberek, W.

Earth Sciences
Hanchar, J.

Mathematics & Statistics
Dyer, D. Loredo-Osti, J. Merkli, M. Sullivan, S.

Ocean Sciences
Fletcher, G.

Physics & Physical Oceanography
Curnoe, S. Lagowski, J. Morrow, M. Munroe, J. Plumer, M. Saika-Voivod, I. Yethiraj, A.

Psychology
Thorpe, C.

Dean of Science Office
Abrahams, M. Foss, K. Foster, A. Mackenzie, T. Rideout, J. Zedel, L.

Economics
Waples, J.
DELTS
Todd, A.

Arts
Finnis, J.

Registrar's Office
Burry, J.

School of Music
Cook, N.

Marine Institute
Westcott, J.

Undergraduate Students
Snow, Z.

FSC 2408  Regrets
None

FSC 2409  Adoption of Minutes
Moved: Minutes of the January 20, 2016, meeting be adopted
(Sullivan/Fletcher). Carried. Two abstentions.

FSC 2410  Business Arising:  None

FSC 2411  Correspondence
Shannon Sullivan, Chair, Undergraduate Studies Committee, described the five
recommendations from Senate to the timelines for readmission appeals and
retroactive drops and withdrawals. He also outlined the response being proposed
from the Undergraduate Studies Committee. Moved: The response from the
Undergraduate Studies Committee to the review and subsequent
recommendations for changes to the timelines for readmission appeals and
retroactive drops and withdrawals be adopted as outlined (Sullivan/Foster).
Carried.

FSC 2412  Reports of Standing Committees:

A. Undergraduate Studies Committee
Report presented by Shannon Sullivan, Chair, Undergraduate Studies
Committee
a. Moved: Department of Physics and Physical Oceanography, calendar
changes (Sullivan/Lagowski). Carried.
b. Moved: Department of Biochemistry, calendar changes
(Sullivan/Berry). Carried.
B. Graduate Studies Committee: None
C. Nominating Committee: None
D. Library Committee: None

FSC 2413  Reports of Chair in Teaching & Learning and Embedded DELTS Teaching Consultant
Danny Dyer, Chair, Teaching & Learning for the Faculty of Science, reported that planning has begun for a Faculty of Science retreat centered around teaching. Also, he reminded council that there is a talk being broadcast today from the Grenfell campus by Hiromi Goto. As publicized on Newslines, DELTS is working with Dr. Marie Croll, Chair in Teaching and Learning for Grenfell Campus, to extend a session being held at Grenfell Campus to faculty, staff, and students on the St. John’s campus and at the Marine Institute. On Wednesday, February 17, from 3:30-5 p.m., Grenfell Campus will be host to Hiromi Goto, an author of many books for youth and adults. Ms. Goto’s session, titled “From the Matrices: A Feminist’s Stories”, will be focused on exploring gender through art, experiences, and critical thinking. The session will be extended through video conference from 3:30-5 p.m. to the St. John’s campus in ED-2018B and to the Marine Institute in the School of Ocean Technology Boardroom. The live event will take place in the Arts & Sciences Atrium at Grenfell Campus.

Amy Todd, Embedded Teaching Consultant with the Faculty of Science and DELTS, reminded everyone that the Teaching & Learning Framework competition is now open. Anyone interested can contact her with questions. Council was also reminded that the call has been issued for the President’s Teaching Award and faculty are encouraged to submit nominees. This encouragement was reiterated by the Dean.

FSC 2414  Faculty of Science Strategic Plan – Annual Approval
The Dean suggested a change of wording, removing, “We will continue to be challenged by our infrastructure, but a revitalized provincial economy means that it is reasonable to assume that significant new construction will take place within the next 10 years”, and replacing it with, “The new Science Building is currently under construction with an expected completed date of September 2019. This building will impact not only the departments that move to the new building, but also those that will occupy new or renovated space”. This change will be made immediately. It was also suggested by a member of council that more detail be added to two of the research strengths mentioned, that of materials science and biomedical science. Dr. Mark Berry will forward a draft to the Dean regarding biomedical science and Dr. Travis Fridgen will forward a draft pertaining to materials science. Approval of the strategic plan will be tabled until the next meeting of council when these two additional changes have been made. Clarification was sought about whether “our research agenda” referred to the research of individual faculty members. The Dean confirmed that it refers to the research agenda of the Faculty of Science and that individual research agendas should be examined in departmental strategic plans.
Reports of Delegates from Other Councils: None

Report of the Dean
Presented by Mark Abrahams, Dean.

The Dean was recently contacted by DELTS to consider a joint proposal that would make it possible for students to do their entire first year with on-line courses. This would take advantage of existing Advanced Placement Courses and would require that we develop additional courses to meet our goal. The challenge will be the development of laboratory components but the benefit will be increased accessibility to MUN Science courses that may be of particular benefit to new students that must deal with the social and academic challenges of university life. This proposal is in the very early stages and has yet to be discussed by department Heads.

Representatives from Memorial are continuing to work with Dalhousie and UPEI on a joint Canada First Research Excellence Fund on Sustainable Oceans. This proposal has now been approved to go from a Letter of Intent to a Full Proposal with a due date of March 29. The selection board noted that the partnership between Dalhousie and MUN was a major strength of this proposal.

The Faculty of Science was very successful in the most recent competition for Canada Research Chairs. Two Tier 1 and two Tier 2 chairs have been allocated to the Faculty of Science.

As those that follow the news know, the Province is in a difficult financial situation and it is therefore reasonable to assume that this will have a significant impact on the university budget. The President addressed this issue yesterday afternoon and made clear that they are still working with the provincial government to determine how the university should respond. No specific information is yet available but it is reasonable to assume and plan for budget reductions.

During the Senate meeting, the President made clear that the construction of the Core Sciences Facility is fundamental to the mission of the university and that we are proceeding according to the original time frames that were established for this project. This includes major construction beginning this spring but we will now also be seeking financial support through a federal infrastructure program.

Question Period

Adjournment
The meeting adjourned at 1:28 p.m.
Strategic Plan for the Faculty of Science  
Memorial University of Newfoundland  
Fall 2011

The province of Newfoundland and Labrador and Memorial University are currently undergoing a period of rapid change. As the province’s role within the country has changed, so too has the role of Memorial University and the Faculty of Science. The purpose of this document is to anticipate and plan for research, teaching, and service in this environment and to provide guidance to the Faculty of Science for the next decade.

Anticipated Challenges for the Faculty of Science from 2011 to 2021

- Memorial University will continue to shift its focus to become a more research-intensive university.
- Tri-council (NSERC, CIHR, SSHRC) funding will continue to be a basic operating resource for many faculty members. However, competition for these sources will only increase in the future. While tri-council funding will be fundamental to the research mission of the Faculty of Science, other agencies such as The Atlantic Canada Opportunities Agency, the Atlantic Innovation Fund, Canada Foundation for Innovation, Genome Canada, Genome Atlantic and the Newfoundland and Labrador Research and Development Corporation will continue to provide the financial resources that will allow us to significantly transform research. For the Faculty of Science to thrive in the next decade, we must pre-position ourselves to take full advantage of these and other opportunities.
- Graduate student numbers will continue to increase.
- Undergraduate student numbers will remain stable or increase modestly. This student population will become more ethnically diverse. Engagement of faculty in undergraduate recruitment activities will need to be increased.
- The numbers of students registering for distance education courses will continue to increase. With this growth, we will need to reconsider the blend of on-campus and distance courses acceptable for a MUN degree, and the extent to which the Faculty of Science should be offering courses to other institutions and accepting courses from other institutions.
- The new core Science building is currently under construction with an expected completion date of September 2019. This building will impact not only departments that move to the new building but also those that will occupy new or renovated space.
- The Faculty of Science has not fully engaged its alumni. They are a critical resource for this Faculty so establishing this connection will be a major new undertaking.

Vision
A research-intensive Faculty that is renowned both for the caliber of our research and the quality of our graduates.
Mission
Consistent with the mission of Memorial University, the Faculty of Science is dedicated to international excellence in research, teaching, and engagement to the benefit of people locally, nationally, and internationally.

Mandate

Research
The Faculty of Science is responsible for the provision of a broad spectrum of basic science knowledge and, as such, serves as the foundation upon which more applied disciplines are based. It is our responsibility to further knowledge within specific science disciplines as well as to create the conditions that facilitate interdisciplinary research.

Teaching
The Faculty of Science is intended to be broadly accessible to students. Emphasis is placed on creating an environment that encourages and supports the learning process while also challenging our students to achieve goals they might not have thought possible.

The Plan

Research Goals:
The Faculty of Science will enhance its stature globally as a leading research-intensive Faculty that advances knowledge and produces high calibre graduates. Research within the Faculty of Science is primarily devoted to questions of fundamental importance but also includes applied research relevant locally, nationally, and internationally. To achieve this we will:

1. Support and promote basic and applied research excellence in areas of established strength and emerging opportunity while recognizing the freedom of the faculty to pursue individual research interests based on their judgement, skill, and curiosity. The hiring of faculty will be primarily driven by our research agenda.
2. Attract and retain world-class faculty, students, postdoctoral fellows, and staff to engage in cutting edge research activity.
3. Foster an intellectual environment conducive to research excellence and to the training and mentoring of highly qualified personnel.
4. Provide the infrastructure and services essential to support the training of undergraduate and graduate students and leading-edge research.
5. Engage with partners within and outside of Memorial to promote and support interdisciplinary research, research networking, and research collaborations.
6. Promote the high caliber of our research. This can be achieved by more aggressively preparing and nominating our faculty and graduate students for national and international awards.
Current Strengths and Emerging Opportunities in Research.

The Faculty of Science currently has substantial and diverse research strength, the greatest being our faculty, staff, and students. Within academic departments, research agendas are driven by the discipline-specific departmental strategic plans. Beyond those, the Faculty of Science engages in interdisciplinary research that crosscuts individual departments and serves to synergize the research endeavor in the Faculty as a whole. The current research strengths include Marine Sciences; Natural Resources and Energy; Mathematical and Computational Sciences; Biomedical Sciences and Health; and Materials Science.

While the Faculty of Science is committed to maintaining its core areas, there are also particular areas of emerging opportunity generated by the expertise of our faculty, our research infrastructure, and our geographical position with its associated climate, resources, and ecology that distinguish us from other faculties of Science. We, therefore, provide diverse opportunities that will draw researchers and students here in preference to other universities in Canada or internationally. The areas also crosscut most of the departments and are consistent with the priority and strategic areas that federal and provincial government agencies target for funding as well as Memorial’s special obligation to the people of Newfoundland and Labrador. They also reflect areas in which we have made recent new hires. For the Faculty of Science, these strategic research areas are:

Marine Sciences

Research activities in this area include, for example: biological, chemical, physical, and geological oceanography and oceanographic modeling; ocean acoustics; ocean data visualization; ocean sensor and instrumentation development; physiology, molecular biology, and biochemistry of aquatic species; aquaculture and fisheries science; marine ecology; cognitive and behavioural ecology of marine species; conservation and climate change; glacial climate systems; harsh environments.

Natural Resources and Energy

Research activities in this area include the discovery, production and monitoring of non-renewable and renewable natural resources as well as traditional and alternative sources of energy. Some examples are: petroleum reservoir characterization and modeling; mineralogy; stratigraphy; sedimentology; exploration geophysics; tectonics; environmental impact and monitoring of resource extraction; biofuels and materials; energy sustainability, cognitive and behavioural ecology; landscape ecology and conservation; plant ecology; environmental geology; sustainable/green chemistry; alternative energy sources; geochemistry; biogeochemistry; contaminant hydrology; environmental chemistry.
Mathematical and Computational Sciences

Mathematical and computational models are pervasive in modern science. Research ranges from theoretical computer science, pure mathematics, applied mathematics, mathematical physics and statistics to the more applied areas such as: nature and bio-inspired computing, autonomous robotics, complex systems and their simulation, mathematical and computational biology and chemistry, fluid dynamics, geophysical modeling, ocean and atmosphere modeling.

Biomedical Sciences and Health
Research activities in this area include: antimicrobial properties, aetiology of disease, biological molecule structure and function, drug discovery, genetics and developmental processes, learning and memory, medically important natural products, mental health, metabolic pathways and associated disorders, neuroscience, nutrition and health, and target identification in disease states.

Materials Science
Advances in materials science continue to fuel growth in technology. Such innovation is particularly relevant for emerging environmental, energy (oil and gas), mining (mineral extraction and refining) and information technologies. Materials science is inherently interdisciplinary: current research strengths in materials science span several departments in the Faculty of Science, including Chemistry, Earth Sciences, and Physics and Physical Oceanography. Research strengths include (in Chemistry) biomedical materials, environmental sensors, energy production and storage, catalysis, polymers from renewable materials, molecular electronics and optics, porous materials, (in Physics and Physical Oceanography) magnetic and electronic materials, nanomaterials, optical and electrically-responsive materials, and (in Earth Sciences) in situ trace element, stable isotope, and radiogenic isotopic composition of natural and synthetic materials, synthesis and characterization of ceramic materials using a wide compliment of analytical methods. The faculty plans to expand upon areas of new materials synthesis and characterization methodology as well as their materials characterization infrastructure.

Teaching Goals:

The Faculty of Science is dedicated to providing our undergraduate and graduate students with the best possible educational experience, acknowledging the needs and interests of our province.

1. All decisions involving the education of our students will be designed to uphold the value of a Memorial University Science degree.
2. Students will be provided with the highest quality of instruction. To ensure this, faculty members will receive constructive feedback and be provided with the opportunity and the means to improve and enhance their teaching and to develop innovations in teaching. Graduate students will have opportunities for developing their teaching skills.
3. We will maintain an infrastructure appropriate for contemporary learning. Undergraduate laboratory equipment will have technology consistent with that used in the modern research environment.

4. Undergraduate students will be involved in the research environment. Our undergraduates will be given the opportunity to participate in research, and such experience should be credited on their transcripts. Undergraduate students will be encouraged to present their research findings at regional and national scholarly conferences.

5. We will incorporate technological advancements into our curricula whenever it is appropriate to do so. In particular, an increase in the scope of distance course offerings here and elsewhere will create challenges and opportunities.

6. Teaching excellence will be recognized and rewarded by actively nominating faculty for local and national teaching awards.

*Current Strengths and Emerging Opportunities in Teaching*

The Faculty of Science has a strong reputation of excellence in teaching that is a consequence of the skill and dedication of our faculty and staff. Our instruction ranges from the traditional lecture format, to learning opportunities that place greater emphasis on experiential learning (e.g., field schools and courses and clinical training), to award winning distance education courses. While the Faculty of Science includes a diverse range of disciplines, we are committed to providing students with both the opportunity to learn and the opportunity to apply their knowledge. Co-op programs are a relatively small component of our programs within the Faculty of Science, and they provide a learning opportunity that should grow in the future. Likewise, there are also opportunities for expanding the range of options for our students through partnerships with other faculties (e.g., life science and engineering science).

Priorities for most of our undergraduate and graduate programs are provided by our departmental strategic plans. The Faculty of Science is home to our interdisciplinary graduate programs (Aquaculture, Cognitive and Behavioural Ecology, Scientific Computing, Environmental Science, and Theoretical Physics). As our graduate programs reflect our research expertise, we expect growth in our graduate programs to be fueled by growth in our research programs.

*Engagement:*

As one of the largest academic units at Memorial University, we tend to be modest about our achievements. However, such modesty means that most outside the Faculty of Science do not know who we are, what we do, and how we contribute to both the university and the province. We, therefore, do not get the recognition we deserve in terms of the excellence of our teaching programs and the accomplishments of our students, faculty and staff.

1. We will better engage with the community to make clear our contribution to society and our contribution to the success of the province.

2. We will make a strong connection with our alumni so that they remain engaged with the Faculty of Science after they graduate.
3. The Faculty of Science at Memorial will establish a national profile that distinguishes it from science at other universities in Canada. This will be informed by our research and teaching goals.

4. We will be proactive in our use of technology in order to have a presence in a variety of different media.

5. Our faculty are encouraged to be more engaged with the media, and they will be assisted with media training.

6. Students will be encouraged to participate in national and international competitions to both inform ourselves and others of the strengths of our programs.

(Revised April 2015)