Senate
Senate Chamber
Room E3-262 Engineering Building
WEDNESDAY, October 6, 2010
1:30 p.m.
Regrets call 474-6892

PRESENTATIONS

1. **The United Way Campaign at the University of Manitoba will make a presentation regarding the 2010 campaign.**

AGENDA

I **CANDIDATES FOR DEGREES, DIPLOMAS AND CERTIFICATES - OCTOBER 2010** Page 3

This report will be available at the Senate meeting. A copy of the list of graduands will be kept at the front table for examination by members of Senate.

II **REPORT ON MEDALS AND PRIZES TO BE AWARDED AT THE OCTOBER CONVOCATION**

This report will be available at the front table in the Senate Chamber for examination by members of Senate.

III **MATTERS TO BE CONSIDERED IN CLOSED SESSION** - none

IV **MATTERS RECOMMENDED FOR CONCURRENCE WITHOUT DEBATE** - none

V **MATTERS FORWARDED FOR INFORMATION**

1. **Report of the Senate Committee on Awards [dated August 25, 2010]** Page 4

VI **REPORT OF THE PRESIDENT** Page 13

VII **QUESTION PERIOD**

Senators are reminded that questions shall normally be submitted in writing to the University Secretary no later than 10:00 a.m. of the day preceding the meeting.

VIII **CONSIDERATION OF THE MINUTES OF THE MEETING OF SEPTEMBER 8, 2010**

IX **BUSINESS ARISING FROM THE MINUTES** - none

X **REPORTS OF THE SENATE EXECUTIVE COMMITTEE AND THE SENATE PLANNING AND PRIORITIES COMMITTEE**

1. **Report of the Senate Executive Committee** Page 27

2. **Report of the Senate**
Planning and Priorities Committee

a) **Program Proposal Budget Form** Page 28

b) The Chair will make an oral report of the Committee's activities.

XI REPORTS OF OTHER COMMITTEES OF SENATE, FACULTY AND SCHOOL COUNCILS

1. **Reports of the Senate Committee on Admissions**

a) **Blended Entry for applicants from high school and University 1** Page 30

b) **Proposal from the Asper School of Business to Establish a Blended Entry System of Admission from highschool and University 1 applicants to the Bachelor of Commerce (Honours)** Page 37

2. **Proposal for a M.Sc. and Ph.D. in Biomedical Engineering**

a) **Report of the Senate Planning & Priorities Committee** Page 40

b) **Re-submission of Program Proposal** Page 42

3. **Report of the Senate Committee on Nominations**

This report will be distributed at the meeting.

4. **Report of the Senate Committee on Rules and Procedures RE: Distribution of Faculty/School Representation on Senate** Page 87

XII ADDITIONAL BUSINESS

XIII ADJOURNMENT

Please Call Regrets to 474-6892 or meg_brolley@umanitoba.ca.

CANDIDATES FOR DEGREES, DIPLOMAS AND CERTIFICATES

1. Degrees Notwithstanding a Deficiency

A list of students to be considered for degrees notwithstanding a deficiency will be distributed at the meeting.

Deans and Directors should note that they may be asked to explain the circumstances leading to the recommendations from their respective Faculties or Schools.

At the conclusion of discussion of the report, the Speaker of the Senate Executive Committee will make the appropriate motion(s).

2. Report of the Senate Committee on Appeals

An oral report will be presented to Senate by the Chair of the Committee only if the Committee has heard an appeal which will result in the recommendation of the award of a degree notwithstanding a deficiency.

3. List of Graduands

A list of graduands will be provided to the University Secretary on the day of the meeting. The list will not be distributed to members of Senate but will be open for inspection by individual members of Senate.

The list to be provided to the University Secretary will be a compilation of the lists of the graduands of each Faculty and School.

The Speaker for the Senate Executive Committee will make the appropriate motion approving the list of graduands, subject to the right of Deans and Directors to initiate late changes with the Registrar up to October 8, 2010.

REPORT OF THE SENATE COMMITTEE ON AWARDS

Preamble

Terms of reference for the Senate Committee on Awards include the following responsibility:

> On behalf of Senate, to approve and inform Senate of all new offers and amended offers of awards that meet the published guidelines presented to Senate on November 3, 1999, and as thereafter amended by Senate. Where, in the opinion of the Committee, acceptance is recommended for new offers and amended offers which do not meet the published guidelines or which otherwise appear to be discriminatory under the policy on the *Non-Acceptance of Discriminatory Awards*, such offers shall be submitted to Senate for approval. (Senate, October 7, 2009)

Observations

At its meeting of August 24, 2010, the Senate Committee on Awards approved twelve new offers, three amended offers, and the withdrawal of five offers, as set out in Appendix A of the *Report of the Senate Committee on Awards* (dated August 24, 2010).

Recommendations

On behalf of Senate, the Senate Committee on Awards recommends that the Board of Governors approve twelve new offers, three amended offers, and the withdrawal of five offers, as set out in Appendix A of the *Report of the Senate Committee on Awards* (dated August 24, 2010). These award decisions comply with the published guidelines of November 3, 1999, and are reported to Senate for information.

Respectfully submitted,

Dr. Philip Hultin
Chair, Senate Committee on Awards

Appendix A

MEETING OF THE SENATE COMMITTEE ON AWARDS
August 24, 2010

1. NEW OFFERS

American Academy of Craniofacial Pain Prize

The American Academy of Craniofacial Pain offers an annual prize for students in the Faculty of Dentistry at the University of Manitoba. The recipient will be offered a plaque, a one-year membership in the Academy of Craniofacial Pain, a one-year subscription to both *Cranio: The Journal of Craniomandibular Practice* and the *TMDiary, Journal of the American Academy of Craniofacial Pain*, and tuition for the American Academy of Craniofacial Pain annual symposium. The prize will be offered to the student who:

(1) has completed the third year of the Doctor of Dental Medicine;

(2) has achieved a minimum degree grade point average of 3.5;

(3) has achieved high standing in the course Temporomandibular Disorders and Orofacial Pain (DDSS 3190);

(4) has demonstrated an interest in learning about Temporomandibular (TMJ) Joint Syndrome.

The selection committee will be the Awards Committee of the Faculty of Dentistry.

Kenneth Bergwall Memorial Scholarship

In memory of Kenneth Bergwall (B.Sc.(G.E.)/81), members of the Faculty of Engineering Class of '81 have established an endowment fund of $15,000 in 2010. The fund will be used to offer a scholarship for students in the Department of Geological Sciences who have an interest in engineering geology. The available annual interest from the fund will be used to offer one scholarship to an undergraduate student who:

(1) is enrolled full-time in the Clayton H. Riddell Faculty of Environment, Earth, and Resources, in year four of the B.Sc. in Geological Sciences – Geology or Geophysics, in either the Major or Honours program;

(2) has achieved a minimum degree grade point average of 3.0;

(3) has achieved high standing in courses related to engineering geology such as geophysics, structural geology, engineering geology, and/or hydrogeology;

(4) has demonstrated an interest in, and an aptitude for, engineering geology.

Preference may be given to a student who has contributed to the academic life of his or her class, the Department, and/or the Faculty.

The selection committee shall be the Department of Geological Sciences Awards Committee.

The Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

Vaughn Betz Engineering Centenary Award

In celebration of the Faculty of Engineering's centennial anniversary in 2008, Mr. Vaughn Betz [B.Sc.(E.E.)/91] established an endowment fund at the University of Manitoba with an initial gift of $102,720, in 2010. The Manitoba Scholarship and Bursary Initiative has made a contribution to the fund. The purpose of the fund is to encourage engineering students to excel in their studies by providing scholarship support. The available annual interest from the fund will be used to offer two scholarships of equal value; one to a student in electrical engineering and one to a student in computer engineering. The scholarships will be offered to undergraduate students who:

(1) have completed at least 112 credit hours toward a Bachelor of Science in Engineering (Electrical) or a Bachelor of Science in Engineering (Computer) degree ;

(2) in the next ensuing year are enrolled full-time (minimum 24 credit hours) in the Faculty of Engineering, in either a B.Sc.E. (Electrical) or a B.Sc.E. (Computer) degree;

(3) have achieved a minimum degree grade point average of 3.75;

(4) have completed an outstanding design project in at least three of the following courses:

Digital Logic	(ECE 2220)
Microprocessing Systems	(ECE 3610)
Microprocessor Interfacing	(ECE 4240)
Digital Systems Design 1	(ECE 3760)

If in any given year there is no qualified candidate in either the B.Sc.E. (Electrical) or the B.Sc.E. (Computer), both scholarships may be offered to two students in the same program. If there is no qualified candidate in either program, the Award will not be offered in that year and the funds will be capitalized.

The Head of the Department of Electrical and Computer Engineering will strike a committee to review candidates for the Award and will recommend the recipients to the selection committee.

The selection committee will be the Scholarships, Bursaries, and Awards Committee of the Faculty of Engineering.

The Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

Civil Engineering Class of 1964 Bursary

The Civil Engineering Class of 1964 has established an endowment fund at the University of Manitoba. The available annual income from the fund will be used to offer one or more bursaries to undergraduate students who:

(1) are enrolled full-time in the Faculty of Engineering, in the B.Sc.E. (Civil) degree;

(2) have achieved a minimum degree grade point average of 2.0;

(3) have demonstrated financial need on the standard University of Manitoba bursary application form.

The selection committee will have the discretion to determine the number and value of bursaries offered based on the available funds, with the *proviso* that the minimum value will be $400.

The selection committee will be the Scholarships, Bursaries and Awards Committee of the Faculty of Engineering.

The Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

Erskine / Vail Bursary for Education

The Erskine/Vail Bursary for Education was established by Mary Lou Vail (B.Sc.Home Ec./53, B.Ped./54) in honour of her parents, Anne and Gerald Erskine with an initial gift of $10,000. The available annual income from the fund will be used to offer one bursary to an undergraduate student who:

(1) is enrolled full-time in the Faculty of Education;

(2) has achieved a minimum degree grade point average of 2.5 (or equivalent);

(3) has demonstrated financial need on the standard University of Manitoba bursary application form.

The selection committee will be the Academic Standing Committee of the Faculty of Education.

The Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the Award.

Andrew Howden Business Scholarship

W.A. Howden (M.B.A./91) has established an endowment fund at the University of Manitoba with an initial gift of $75,000 in 2010. The purpose of the fund is to provide a renewable scholarship for graduates of Portage Collegiate Institute, Portage la Prairie, Manitoba. One scholarship, valued at one-fourth of the available annual interest from the fund, will be offered to a student who:

(1) has graduated from Portage Collegiate Institute;

(2) has achieved a minimum average of 80 percent on those courses considered for admission to the University;

(3) is enrolled full-time (minimum 24 credit hours) in University 1;

(4) has demonstrated an interest in entrepreneurship or business management and has stated an interest in pursuing post-secondary studies in the I.H. Asper School of Business.

The Scholarship, valued at one-fourth of the available annual interest from the fund, is renewable in each of the second, third, and fourth years of study provided that the recipient:

(1) is enrolled full-time (minimum 24 credit hours) in the I.H. Asper School of Business, in the B.Comm.(Hons.);

(2) has achieved a minimum sessional grade point average of 3.0.

In the event that a recipient does not qualify for continuation of the Scholarship, the University may offer that scholarship to the next qualified student, in the same year of study, either as a renewable scholarship for a student in the second, third and fourth years of study (provided that the recipient meets the renewal criteria) or as a one-time scholarship for a student in the fourth year of study.

Portage Collegiate Institute will nominate one candidate each year. The nomination will be forwarded to the University of Manitoba early each spring.

The selection committee will be named by the Director of Financial Aid and Awards (or designate).

The Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

Rose Mary and Frederick Allan Johnson Scholarship

Dr. Frederick A. Johnson (B.Sc.(Hons.)/45) has established an endowment fund at the University of Manitoba, with a bequest of $400,000, in 2010. The fund will be used to offer awards for graduates of the Bachelor of Nursing program who pursue graduate studies in health administration. The available annual income from the fund will be used to offer one or more entrance scholarships to students who:

(1) are graduates of the Bachelor of Nursing degree at the University of Manitoba;

(2) are enrolled full-time or part-time in the Faculty of Graduate Studies in the first year of one of the following: Master of Business Administration; Master of Nursing, in the Administration stream; Master of Science in Community Health Sciences; or Master of Public Health;

(3) have achieved a minimum degree grade point average of 3.5 (or equivalent) based on the last 60 credit hours;

(4) have demonstrated an interest in health administration.

Candidates will be required to submit an application that includes a current academic transcript(s), a current curriculum vitae, and a description of their career goals and how their current program of study will assist them in preparing for a career in health administration.

The selection committee will be named by the Dean of the Faculty of Graduate Studies (or designate).

The Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

Jack A. Lewis Basketball Scholarship

Friends and family of Jack A. Lewis have established an endowment fund at the University of Manitoba to offer a scholarship in his name to a member of the Manitoba Bison Men's Basketball team. The Manitoba Scholarship and Bursary Initiative has made a contribution to the fund. The donors will provide an additional contribution of $1,000 to offer the initial Scholarship in the 2010/2011 academic session. In subsequent years, the available annual interest from the fund will normally be used to offer one or two scholarships, with a minimum value of $1,000 and a maximum value equal to a recipient's full tuition and ancillary fees.* The scholarships will be offered to undergraduate or graduate students who:

(1) are Bison student athletes and members of the Bison men's basketball team;

(2) are enrolled full-time in any Faculty or School;

(3) (i) as continuing undergraduate students have achieved a minimum degree grade point average of 2.0 on a minimum of 18 credit hours in the previous year of study at the University of Manitoba or

(ii) as entering undergraduate students have achieved a minimum average of 80 percent (or equivalent) on those high school courses used for admission to the University, or upon successful completion of 18 credit hours with a minimum degree grade point average of 2.0;

(iii) as graduate students have achieved a minimum degree grade point average of 3.0 (or equivalent) based on the last 60 credit hours.

*In any given year that there is additional revenue available, additional scholarships, with a minimum value of $1,000 and a maximum value equal to a recipient's full tuition and ancillary fees, may be offered.

The selection committee will be named by the Dean of the Faculty of Kinesiology and Recreation Management and will include the Athletic Director and the Head Coach of the Manitoba Bisons Men's Basketball team.

(The terms of this award will be reviewed annually against the Canadian Interuniversity Sport (CIS) Criteria governing University Academic Scholarships with an Athletic component, currently numbered 50.10 in the CIS Operations Manual).

The Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the Award.

Pamela Margaret Mason Memorial Scholarship

In memory of Pamela Margaret Mason, family, friends, and the Department of Anthropology have established an endowment fund at the University of Manitoba, with initial gifts totalling $10,000 in 2010. In order to remember Pam and her dedication to the pursuit of graduate work in anthropology, especially in the area of gender and peace and justice, the available annual interest from the fund will be used to offer one scholarship to a graduate student who:

(1) is enrolled full-time in the Faculty of Graduate Studies, in the Master's or Doctoral program delivered by the Department of Anthropology;

(2) has achieved a minimum degree grade point average of 3.5 (or equivalent) based on the last 60 credit hours;

(3) is undertaking or has proposed to undertake thesis research in one of the following subject areas: feminism, peace and justice, or women's issues and/or gender issues;

(4) will be conducting fieldwork within one year of the application deadline or will have returned from fieldwork within six months of the application deadline.

Candidates will be required to submit an application that will consist of a description of their proposed or ongoing research (maximum 500 words), a budget listing fieldwork of related expenses, and a letter of support from his or her graduate supervisor.

In any given year that, in the judgment of the selection committee, there is no qualified candidate, the scholarship will not be awarded and the revenue will be capitalized.

The Dean of the Faculty of Graduate Studies (or designate) will ask the Head of the Department of Anthropology (or designate) to name the selection committee, which will include the Chair of the Graduate Programs Committee of the Department of Anthropology.

The Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

Tom Phillips Scholarship

In memory of Alfred Thomas Phillips, B.A/47, M.A/48, B.Ed/57, M.Ed/64, his daughter the Hon. Madam Justice Carolyn Phillips, family, and friends have established an endowment fund at the University of Manitoba. The fund will be used to offer a renewable entrance scholarship for Education students who have a particular interest in teaching Canadian history. The available annual interest from the fund will be used to offer one scholarship, with a minimum value of $700, to an undergraduate student who:

(1) is enrolled full-time in the Faculty of Education, in the first year of the Bachelor of Education degree, Senior Years Stream;

(2) has achieved a minimum admission grade point average of 3.5;

(3) has completed the admission requirements for a teachable major in History.

The scholarship is renewable in the second year of study provided that the recipient:

(1) continues to be enrolled full-time in the Bachelor of Education program, Senior Years Stream;

(2) has achieved a minimum degree grade point average of 3.5.

Only one recipient may hold the Scholarship at any one time. In the event that a recipient does not qualify for continuation of the Scholarship, the University will offer the scholarship to a new recipient who meets the selection criteria.

The selection committee will be the Academic Standing Committee of the Faculty of Education.

The Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

Shell Canada Mechanical and Manufacturing Design Competition Award

Shell Canada provides $4,000 annually to offer an award at the University of Manitoba for the top student team in the annual Department of Mechanical and Manufacturing Engineering design competition. The donor has agreed to fund the award for a period of three years, beginning in 2009 – 2010 and ending in the 2011 -2012 academic session, with the right to renew the commitment at the end of the term.

Each year, one prize of $4,000 will be shared equally among members of the team of undergraduate students who complete the best design project in Engineering Design (MECH 4860).

The Head of the Department of Mechanical and Manufacturing Engineering will strike a panel to judge the top three design projects as forwarded to the panel by the Engineering Design instructor. The panel will include three faculty members who did not serve as team advisors and one representative of Shell Canada. The Head of the Department of Mechanical and Manufacturing Engineering will recommend the recipient to the selection committee.

The selection committee will be the Scholarships, Bursaries, and Awards Committee of the Faculty of Engineering.

Dr. Paul M. Soubry Bursary

In memory of Dr. Paul Soubry (LL.D./03), family and friends have established an endowment fund at the University of Manitoba, with an initial gift of $25,367 in 2010. The fund will be used to provide

bursaries for graduate students in Engineering. The available annual interest from the fund will be used to offer one bursary to a graduate student who:

(1) is enrolled full-time in the Faculty of Graduate Studies, in any Masters or Doctoral program delivered by a department in the Faculty of Engineering;

(2) has achieved a minimum degree grade point average of 3.0;

(3) has demonstrated financial need on the standard University of Manitoba bursary application form.

The selection committee will be named by the Director of Financial Aid and Awards (or designate).

The Board of Governors of the University of Manitoba has the right to modify the terms of this award if, because of changed conditions, it becomes necessary to do so. Such modification shall conform as closely as possible to the expressed intention of the donor in establishing the award.

2. AMENDMENTS

Victoria C. Hull Memorial Award

The value of the Victoria C. Hull Memorial Award, for students in the Bachelor of Environmental Design program, was changed from: $650 to: the available annual interest from the fund. A number of editorial changes were also made.

Enid Nemy Bursary

The following amendments were made to the terms of reference for the Enid Nemy Bursary:

- A statement was added to acknowledge that the Manitoba Scholarship and Bursary Initiative made a contribution to the endowment fund for the bursary, in 2004.
- The award value was amended from: the available annual interest to: the available interest (including any accumulated revenue).
- In any given year that there is no suitable candidate for the bursary, the selection committee has been given the discretion to hold the available funds and to use those funds to offer either a second award or a larger award in the following year.
- Criterion (2) was revised to clarify that the degree grade point average is to be used to assess candidates' academic standing.
- In addition to a statement outlining their journalism career goals and an explanation of how their degree relates to these goals, candidates for the bursary will now be required to provide one or more examples of writing submitted for publication to a print or online publication (including, but not limited to *The Manitoban*) or any personal blog created for a journalistic purpose.
- A number of editorial changes were made.

Faculty of Dentistry / School of Dental Hygiene Bursaries

A number of revisions were made to the terms of reference for the Faculty of Dentistry / School of Dental Hygiene Bursaries:

- The number and value of Faculty of Dentistry Bursaries were amended from: 12 bursaries with a value of $2,000 each to: a variable number of bursaries with values of $2,000 and $1,000. The

selection committee will have the discretion to determine the number and value of bursaries offered each year based on the funds available.

- Applicants for the Faculty of Dentistry Bursaries will now be required to submit, together with the University of Manitoba Bursary application, a one page letter detailing any special circumstances that they feel the selection committee ought to consider with their bursary application.
- Full-time enrolment, for the purpose of the Faculty of Dentistry Bursaries, will now be defined as a minimum 60 percent course load.
- The selection committee for both Bursaries was changed from: named by the Executive Director of Enrolment Services to: the Faculty of Dentistry Scholarship Committee.

3. WITHDRAWALS

AstraZeneca Canada Inc. Scholarship

The AstraZeneca Canada Inc. Scholarship, an annually funded award for students in the Department of Chemistry, was withdrawn at the request of the donor.

Edwin Cohen Scholarship in Finance

The Edwin Cohen Scholarship in Finance, an annually funded award for undergraduate students in the I.H. Asper School of Business, was withdrawn at the request of the donor.

Eli Lilly Book Award

The annually funded Eli Lilly Book Award, for students in the Faculty of Pharmacy, was withdrawn at the donor's request.

Evidence-Based Nursing Practice Chair Award

The Evidence-Based Nursing Practice Chair Award, an annually funded scholarship for students in the Master of Nursing (Oncology Focus), was withdrawn at the request of the Faculty of Nursing.

Therapista Paediatric Award

The Therapista Paediatric Award, an annually funded bursary for students in the School of Medical Rehabilitation, Physical Therapy program, was withdrawn at the request of the donor.

PRESIDENT'S REPORT: October 6, 2010

GENERAL

Building on the University of Manitoba's increasing focus on arctic issues, I took advantage of a series of opportunities in recent months to further develop relationships with organizations undertaking arctic research and seeking to advance northern issues. At the invitation of program director Martin Bergmann, I traveled to Resolute to view first-hand the research being undertaken under the auspices of the Polar Continental Shelf Program and consider potential partnerships between the program and the University. In addition, I hosted a number of members of Manitoba's government and business communities on a trip to Churchill designed to increase their awareness of the work being done by the University of Manitoba, including the research on arctic sea ice being led by Dr. David Barber. Finally, I ended the summer by participating in the University of the Arctic (UArctic) Rectors' Forum in Alaska, and successfully bid for the University of Manitoba to host the Rector's Forum scheduled for late in 2011.

Along with John Kearsey, Vice-President (External) and John Alho, Associate Vice-President (External), I travelled recently to Hong Kong as part of the Premier's mission to China and Hong Kong. The mission included several opportunities to strengthen ties with University of Manitoba alumni and friends, including a large number of graduates at a reunion held for our Hong Kong alumni, a luncheon with members of the Canada-Hong Kong Chamber of Commerce, and a meeting with the Li Ka Shing Foundation, focused on further developing our already strong partnership with the Foundation.

Members of the Council on Post-Secondary Education met with the President, Vice-Presidents and the Chair of the Board of Governors to review the University's estimates of operating and capital requirements for 2011/2012. Assuming status quo operations, a base grant increase of 7.34% or $21.15 million is required to sustain the 2010/11 programming levels. In addition to the requested base grant increase, an increase of $6 million will be requested to support the priorities incorporated in the University's strategic planning framework.

Building on last year's enrolment increase, student numbers have increased again this fall. Enrolment is up again for the 2010 Fall Term, as first-day numbers suggest an increase of 1.0 per cent over 2009 from 27,262 students last fall to 27,540 this year. This includes increases in undergraduate enrolment of 1.4% and international student enrolment of 5.8%, partially offset by a slight reduction in graduate student enrolment of 1.7%.

ACADEMIC MATTERS

Staff Distinctions

- Terry Cook, History; Leslie Roos, Community Health Sciences; and George Toles, Arts, were elected to the Royal Society of Canada (RSC), the country's most esteemed association of scholars and scientists.

- Fouad Daayf, Plant Science, was elected Vice-President of the Canadian Phytopathological Society.

- Raymond Currie, Dean Emeritus, Arts, and Executive Director of the Canadian Research Data Centre Network, received the 2010 Lise Manchester Award "for his leadership role and vision in bringing the network to a high level of excellence in the promotion and use of a broad range of micro data for research work that has influenced the formation of social and health policies in Canada."

- Ronald Stewart, Environment and Geography, recently became a Fellow of the Canadian Meteorological and Oceanographic Society (CMOS). " The Society exists for the advancement of meteorology and oceanography in Canada".

- Kenneth Standing and Werner Ens, Physics and Astronomy, are the first University of Manitoba professors to win the Encana Principal Award, the highest honour granted by the Ernest C. Manning Awards Foundation. The award recognizes Canadians who have demonstrated recent innovative talent in developing and successfully marketing a new concept, process or procedure. The research team received the award for advancing the field of time-of-flight mass spectrometry. Mass spectrometry is used to identify compounds and their chemical composition. Standing/Ens introduced significant improvements which allows for a clearer picture of a compound's composition. Over the years, advances, including those of Standing and Ens, have enabled the analysis of larger biological molecules like proteins. Studying proteins is of tremendous importance to understanding biological processes and in designing more effective clinical diagnostic tools and pharmaceuticals. In 2003, members of the Standing/Ens research team helped identify and characterize key proteins of the SARS virus using mass spectrometry techniques. The research group has participated in projects that involve cancer treatments, tissue transplant rejection and disease resistance in wheat. Recently, they became involved in developing improved methods of biofuel production. Drs. Werner and Ens accepted the $100,000 award at a gala dinner in Ottawa in September. This award is a first for faculty members at the University of Manitoba and only the second time it has been awarded to a Manitoba team: University of Manitoba alumnus Frank Gunston won the Principal Award in 1989.

- John Brewster, Statistics, was named president-elect of the Statistical Society of Canada (SSC) for the period July 1, 2010 to June 30, 2011. Brewster's term as President will commence July 1, 2011.

- David Williams, English, Film, and Theatre, was a short-listed finalist for the 2009 ACQL Gabrielle Roy Prize for Literary Criticism for his book entitled *Media, Memory, and the First World War*. His book entitled *Imagined Nations: Reflections on Media in Canadian Fiction* won the 2003 Gabrielle Roy Prize, a fact that makes this latest accolade all the more outstanding.

Student Honours

- Dylan MacKay, Food and Nutritional Sciences graduate student, recently won the Mission ImPULSEible: Food Development Competition, for his "Pea-rogy," a variation of the perogy made with a chickpea and wheat flour dough and infused with mashed chickpea and potato filling.

- Suresh Neethirajan, a recent Ph.D. graduate from Biosystems Engineering, was awarded the Armand BLANC Prize by the World Congress of the International Commission of Agricultural and Biological Engineering. The Armand BLANC prize is awarded to young researchers for presenting excellent technical and scientific papers at a CIGR World Congress. Suresh was also a recipient of the Best Ph.D. Thesis Award from the Canadian Society for Bioengineering.

- Heather Wilton, Animal Science undergraduate student, won the third-place place award (of 5,000 registrants) for the Canadian regional competition for the Alltech Young Scientist Award. Entrants write a scientific paper based on a topic about animal feed technologies.

- Sherrie Rennie, School of Art undergraduate student, was the National Winner of the 2010 BMO 1st Art! Invitational Student Art Competition.

New Initiatives/Special Events

- This fall the School of Art proudly launched the Master of Fine Art program with the first contingent of graduate students. Four students are enrolled in the program and will immerse themselves in studio practice and research for the next 2 years. The School of Art also launched a new curriculum for first year students. The new courses are designed to provide students with a strong background in visual art, introduce them to more faculty members and to present the different studio areas of the school more quickly so that they may make crucial studio selections more confidently.

- The Faculty of Arts admitted the first (Fall 2010) cohort of students to the Bachelor of Arts: Integrated Studies. The degree provides a unique and much needed opportunity for graduates of selected certificate programs to ladder those credentials into a University of Manitoba degree program. The degree program is of significant interest to the nearly 3,000 adult students currently enrolled in Extended Education's certificate programs as well as our recent graduates.

- The Prime Minister of Iceland, Jóhanna Sigurðardóttir recently visited the University of Manitoba's Icelandic Collection in the Elizabeth Dafoe Library, hosted by Dean Richard Sigurdson.

- Summer Session had its best *Jazz Camp* ever with 91 enthusiastic participants, featuring Steve Kirby, Jimmy Greene, George Colligan, and new professor of Jazz Studies, Quincy Davis. The *Jazz on the Rooftop* evening concert was a sold out performance.

- A fire at the University of Manitoba's Downtown: Aboriginal Education Centre occurred on August 24. The space was deemed unusable and fall classes for the over 1,000 students have been relocated primarily to Fort Garry Campus. Affected programs include Aboriginal Focus Programs, English Language Studies, Continuing Education and Off-Campus (degree) Study.

- The department of Psychology has re-occupied the Duff Roblin building, and the Biological Sciences administrative offices are now located in the Duff Roblin trailers. The Biological Sciences department will be providing undergraduate teaching labs for seven courses in Duff Roblin 200-level this fall, as well as Machray Hall and the Allen Building.

- Over 20 actors and directors with roots in the Department of English, Film, and Theatre performed in and or directed shows in this year's Winnipeg Fringe Festival. Among those performing were Bill Kerr (Assistant Professor), who acted in and directed Enda Walsh's *Bedbound.* Megan Andres, one of this year's Faculty of Arts graduates, played Bill's daughter in the show. Chris Johnson (Professor) acted in and directed Sam Shepard's *Fool for Love*. Tim Bandfield (Theatre's teaching assistant) appeared in two shows, co-authoring one of them.

- The cover of the Summer 2010 issue of one the world's leading publications, *Computer Music Journal*, features the music of Örjan Sandred, Music. The issue also includes one of his articles entitled "PWMC, a Constraint-Solving System for Generating Musical Scores". The recipient of a CFI grant, Faculty composer Örjan Sandred is a specialist in the area of electro-acoustic music, and director of the University of Manitoba's Studio FLAT.

RESEARCH MATTERS

- Sara Kreindler, assistant professor in community health sciences, and researcher at the Winnipeg Regional Health Authority Research and Evaluation Unit received the Harkness Associate Award in Health Care Policy and Practice. This award is given to only two Canadian researchers each year and is distributed by the Commonwealth Fund's International Program in Health Policy and Practice. The fellows spend up to one year in the U.S. doing original research and working with leading American health policy experts.

- The Office of the Vice-President (Research) and Canadian Institutes of Health Research (CIHR) hosted the first of a series of six Café Scientifiques at McNally Robinson Grant Park on September 20, 2010 at 7:00 p.m. The remaining five Cafes will be held between October 2010 and March 2011. Dr. Peter Cattini, physiology and University CIHR Delegate, and Ms. Janine Harasymchuk, Research Communications & Marketing, were successful in obtaining funding for the series from CIHR's most recent competition for funds. The first Café is titled "Arthritis: Am I at risk? What can I do?" Café Scientifiques are an opportunity for members of the community to interact directly with scientists/researchers and discuss the health research they are doing. The five additional upcoming Cafes cover the topic areas of Vitamin D, Osteoporosis, Men's Health, Schizophrenia and Mobility in Older Adults.

- The 2010/11 season of the *Bringing Research to Life* public lecture series kicks off on September 29 at 7:00 p.m. in the Robert B. Schultz Lecture Theatre with Drs. David Levin and Richard Sparling presenting on "Bacteria: Refinaries for Biofuel Production." The remaining five presentations in the series cover the topic areas of age-friendly communities (Dr. Verena Menec); Canada's water supply (Dr. Tricia Stadnyk); chemical contamination and climate change (Dr. Feiyue Wang); human rights (Dr. Karen Busby); and spacial cognition (Dr. Debbie Kelly).

- The latest issue of *ResearchLIFE* is out on campus. This issue marks the first 'theme' issue around northern research strengths at the University of Manitoba. Researchers highlighted include: Drs. Søren Rysgaard, David Barber, Bruce Martin, Peter Kulchyski and Chris Trottier.

- The Office of Research Services (ORS) conducted a SSHRC Partnerships Grants Workshop on August 19, 2010, co-presented by Brent Deere (ORS) and Eve Nimmo (Research Grants Facilitator) to the Faculty of Architecture.

- The Course in Human Subject Protection Program (CHRPP) is now available on-line for all students and staff at the University of Manitoba. After piloting a review of the tutorial over the past few months, the VP (Research) Office has purchased the license to CHRPP. This is a tutorial that is completed on-line. CHRPP addresses, with contemporary examples and some Canadian content, important ethical issues necessary for review by researchers and students working with human participants. CHRPP content is applicable to all research involving humans be it related to the study

of health, the social sciences, and the humanities. The link that follows further describes this resource http://www.chrpp.ca/homepage/MAN/

- On September 1, 2010, the Social Sciences and Humanities Research Council (SSHRC) announced $2,515,327 in funding to 17 professors and 44 graduate students and fellows at the University of Manitoba. Below is a partial list of recipients (17 faculty members):

Researcher	Project Title	Amount
Benjamin Baader, history	German-Jewish Family Life: Class, Jewishness, and Gender in Letters and Diaries, 1813-1871	$56,000
Hari Bapuji, business administration	Increasing Recalls and Smaller Rate of Returns: An Exploratory Research	$39,125
Étienne Beaulieu, French, Spanish and Italian	Poétiques de la Prose Romantique Française	$62,613
Joanna Black, education	Model New Media/Video Programs in Arts Education: Case Study Research	$32,640
Kathleen Buddle-Crowe. Arthur V. Mauro Centre for Peace and Justice	De-ciphering Native gangs: Backstreet Sociality in a Prairie City	$126,710
Joyce Chadya, history	From Dust to Dust: the Cultural Shift on the Zimbabwean Deathscape, 1890-2009	$54,000
Judith Chipperfield, psychology	The Role of Control-Based Belief Systems in Achievement and Well-being	$84,436
Iain Davidson-Hunt, Natural Resources Institute	Cultural Landscapes as Land-based Practice: Everyday life and the Conservation of Natural and Cultural Heritage; and Building an International Research Network for Collaborative Coastal Management: Sharing Experiences from Brazil and Canada	$123,420 and $60,000
Lawrence Deane, social work	Localization of Social Work Practice with Urban Migrant Workers in China	$74,662
Norman Frohlich, business administration	Relating a Safety Net Theory of Distributive Justice to Liberal Democracy	$37,290
Jijun Gao, business administration	The Dark Side of Corporations: Corporate Social Irresponsibility and its Causes	$59,500
M. Sandy Hershcovis, business administration	Workplace Aggression from the Perspective of the Observer	$75,719
Sandra Ingram, design engineering	An Exploratory Study on the Role of Cooperative Education Programs in Enhancing the Career Paths of Internationally Educated Engineers	$26,270
Terry Janzen, linguistics	Designing a corpus of American sign language use in Canada	$39,986
Janet Hua Jiang, economics	Financial Stability: an Experimental Study	$17,262

Brian Lewthwaite, education	Culturally Responsive Teaching and School Development Processes for Yukon First Nation Settings	$129,697
Dawne McCance, religion	Freud after Derrida	$22,895
Elizabeth Millward, women's and gender studies	Making a Scene: a Cultural Geography of Lesbian Canada, 1964-1990	$47,254
Susan Prentice, sociology	Advancing Work-family Reconciliation: Framing Gender and Generational Justice Across Canadian and European Social Movements and Policy	$38,789
Kerstin Roger, family social sciences	Older Adults and Abuse: What is it	$14,559

- Seven researchers received funding totalling $879,850.12 for eight projects:

Researcher	**Funder**	**Project Title**	**Amount**
Jan Plaizier, animal science	Dairy Farmers of Manitoba	Reducing whole farm surpluses of phosphorous and potassium in intensive livestock operation: A case study of dairy farms	$120,000
David Lobb, soil science	Deerwood Soil and Water Management Association	Manitoba WEBs II project in South Tobacco Creek Watershed	$213,800
Kristopher Dick, biosystems engineering	Emercor Ltd.	Emercor structural insulated panels building envelope research programme - Phase 1	$24,000
Denis Krause, animal science/medical microbiology	Manitoba Cattle Producers Association	Microbiome analysis and novel microbial based diagnostics for Johne's disease in cattle	$255,000
Christina Lengyel, human nutritional sciences	Manitoba Food Processors Association (MFPA)	Consumer profiles of baby boomer and mature women residing in Manitoba: Key drivers and motivation for food choices	$45,000
Brenda Hann, biological sciences	Manitoba Hydro	Trophic interactions and energy flow in the Lake Winnipeg ecosystem	$82,050
John Eaton, libraries-law	Manitoba Law Foundation	E.K. Williams Law Library Grant 2010/11	$69,000
Kristopher Dick, biosystems engineering	North Star Fibre Inc.	North Star Fibre cellulose building envelope research programme - Phase 1	$24,000

Kristopher Dick, biosystems engineering	Octaform Systems Inc.	Building envelope research programme - Octaform Systems Phase 1	$47,000

- Networks Centres of Excellence (NCE) – eleven researchers received funding renewals (*) totalling $389,868. One researcher received new funding. In 2009/10, there were 58 University of Manitoba researchers involved in eleven NCEs nationwide. A list of the awardees follows:

Researcher	NCE	Project	Funding
Carol Hitchon (NEW), internal medicine	Canadian Arthritis Network	The role of vitamin D and oral health in rheumatoid arthritis	$44,800
Eric Bibeau*, mechanical & manufacturing engineering	Auto21	Battery Storage & Optimization for PHEV	$27,000
Shaahin Filizadeh*, electrical & computer engineering	Auto21	Battery storage and optimization of plug-in hybrid vehicles	$27,000
Ekram Hossain*, electrical & computer engineering	Auto21	Vehicular telematics over WiFi and WiMax multihop networks	$26,700
Rick Linden*, sociology	Auto21	Anti-social behavior and the automobile: Understanding and preventing automobile-linked crime in Canada	$30,318
Robert McLeod*, electrical & computer engineering	Auto21	A prototype framework for V21 application development and prototyping	$26,700
Lynne Warda*, pediatrics & child health	Auto21	Childhood automobile safety: Booster seat use among Canadian children	$20,000
John Sinclair*, Natural Resources Institute	Canadian Water Network	Governance for Watershed-Based Source Water Protection in Canada: A National Assessment	$26,150
Al Woodbury*, civil engineering	Canadian Water Network	Towards economic and environmental sustainability in agriculture through the implementation of combined beneficial management practices and remedial approaches designed to minimize impacts to water quality	$25,000
Ronald Stewart*, environment & geography	Canadian Water Network	Strategies for Managing the Effects of Climate Change on Microbial Contamination of Surface Water	$33,000

		Supplies in Small and Aboriginal Communities	
Barbara Shay*, physical therapy	Canadian Arthritis Network	Automated tracking and assessment exercise system for telemedicine-based, long-term monitoring, support and medical management for rheumatoid arthritis of the hand	$20,000
Tony Szturm*, physical therapy	Canadian Arthritis Network	Automated tracking and assessment exercise system for telemedicine-based, long-term monitoring, support and medical management for rheumatoid arthritis of the hand	$22,000
James Peters*, electrical & computer engineering		Canadian Arthritis Network Automatic tracking and assessment exercise system for rheumatoid arthritis of the hand	$106,000

- Sixty-four health researchers received funding totalling $11,855,354 from 20 sponsors. Projects receiving more than $250,000 are listed below:

Researcher	**Funder**	**Project**	**Funding**
S. Driedger, community health sciences	Canadian Cancer Society Research Institute	Advancing quality in cancer control and cancer system performance in the face of uncertainty	$711,198
Andrew Halayko, internal medicine	Manitoba Health Research Council	Effects of statins on H1N1 influenza A infection and respiratory disease severity	$300,000
Xin-Min Li, psychiatry	CIHR	CIHR team in Schizophrenia - Are oligondendrocytes the missing piece of the puzzle? A systematic study of the role of oligodendrocytes in schizophrenia from bench to bedside	$500,000
Jonathan McGavock, pediatrics & child health	CIHR	The physical activity for overweight youth at risk for type 2 diabetes (POWER) trial	$413,667
Redwan Moqbel, immunology	Manitoba Health Research Council	Tryptophan catabolism, kynurenines and glutamate in T-cell deviation in asthma	$300,000
Michael Mowat, biochemistry/medical genetics/cell biology	Canadian Cancer Society Research Institute	Role of deleted in liver cancer (Dlc) tumor suppressors genes in mammary tumor metastasis and drug response	$301,212

Francis Plummer, medical microbiology	CIHR	Identification and characterization of immunologically relevant T cell epitopes of HIV-1	$358,392
Daniel Roberts, internal medicine	CIHR	Delineation of the relationships between proton pump inhibitor (PPI) use and the development of osteoporosis and osteoporosis related fractures	$300,000
Cheryl Rockman-Greenberg, pediatrics/biochemistry/medical genetics	Enobia Pharma Inc.	Protocol: ENB-008-10 extension study of protocol ENB-006-09 evaluating the long-term safety and efficacy of ENB-0040 (Human recombinant tissue nonspecific alkaline phosphatase fusion protein) in children with hypophosphatasia	$275,258
Cheryl Rockman-Greenberg, pediatrics/biochemistry/medical genetics	CIHR	Physical activity for overweight youth at risk for Type 2 diabetes (POWER) trial	$300,000
Ronald Stewart, environment & geography	CIHR	The Canadian environment, health and social equity proof-of-concept project: Mobilizing knowledge for addressing urban environmental health inequities	$300,000
Jude Uzonna, immunology	Manitoba Health Research Council	Immunity to parasites and beyond	$410,000
Roberta Woodgate, nursing	Manitoba Health Research Council	Advancing our understanding of children's and youth's health and illness experiences	$410,000

ADMINISTRATIVE MATTERS

- **Project ROSE** – A key milestone was reached over the summer months with the completion of Phase 2, the Design Phase. Over 400 University of Manitoba staff participated in collaborative workshops led by PricewaterhouseCoopers (PwC) at which specific administrative "as is" processes were reviewed and "to be" designs were developed. The "to be" designs, implementation plans and the benefits case for change for each stream were presented to the steering committee as the first step in the process to determine which options to move forward.

A detailed design document including recommendations for implementation was presented by PwC and reviewed by the project co-chairs and University stream leads. A series of discussions were held to review the final scope, timing and prioritization for all workstreams leading to the development of an implementation plan that will be discussed with Provost's and Executive Councils at a joint retreat on September 27 and 28, 2010.

The IT Bannatyne Deskside Services pilot commenced on July 21, 2010 and will run until September 30, 2010. The pilot is providing central IT supports to administrative users in the faculties of Dentistry, Medicine and Pharmacy at the Bannatyne Campus aiming to enhance the service, support and efficiency in providing services. The initiative is piloting a service model that could potentially be adapted and deployed university wide.

Early ROSE project savings have been realized via a number of initiatives including the renegotiation of supply-chain contracts (for e.g. Grand and Toy $250,000, Unisource $33,000). Further savings are expected through the negotiation of new or revised contracts for scientific equipment, print management and IT procurement.

The leveraging of technology will result in significant financial and environmental savings through the distribution of electronic materials such as e- paystubs, e- phone book, e- monthly reports, etc. So far over 5,000 employees have been converted to this more efficient process. A pilot group from five faculties is testing the delivery of electronic monthly operating reports. After testing is complete, production and distribution of the hard copy with cease. The University's Office of Sustainability has reported that by eliminating the paper based copies of the U of M telephone directory, the University will save approximately 16.2 trees, 36 Million BTU's of energy, 7600 lbs of CO_2, 19,800 gallons of water and about 2050 lbs of solid waste annually.

The contracting out of Catering and Conference Services is anticipated to save at least $250,000 annually. The restructuring of Advocacy Services is resulting in an annual savings of $100,000.

Other planned initiatives in the short term include an on-line travel and expense booking tool which will result in further savings and improved service. On the revenue generation side, funding has been set aside to seed initiatives that will enhance recruitment of international students and funding has also been made available from the University Investment Trust (UIT) to support the hiring of additional fundraising staff.

- **COPSE Critical Projects** – A submission has been prepared and forwarded requesting funding for major capital projects for 2011/12. The total funding required to address all major capital projects is $317.92 million. The crucial projects identified as Priority 1 total $13.47 million.

- **Restructuring Initiative - Office of Fair Practices and Legal Affairs** - Three offices have been brought together under the umbrella of the **"Office of Fair Practices and Legal Affairs"**: Equity Advisor, Access and Privacy, and the Office of Legal Counsel. These t units will operate independently of each other, but will take advantage of the synergies that can be realized by their closer cooperation. The position of Equity Advisor, renamed the Human Rights and Equity Advisor, has relocated to the former Office of the Ombudsman (406 University Centre). The new Human Rights and Advisory Services office will examine ways to streamline the equity complaints process and increase due diligence and education efforts, to ensure good decisions are made around human rights and harassment issues in the first instance, rather than relying heavily on a complaints-driven system.

The establishment of the Office of Fair Practices and Legal Affairs demonstrates the University's continued commitment to providing advocacy, advice and support services to students, faculty and staff. Although the Office of the University Ombudsman closed June 30, there are still many avenues available to obtain advice and assistance. The Human Rights and Equity Advisor will continue to work to prevent discrimination and harassment at the University by promoting, supporting and administering the University's *Respectful Work and Learning Environment Policy*.

- The **IST Help & Solutions Centre** is now located in 123 Fletcher Argue Building. Staff are available to address information technology needs including computer assistance such as password changes, wireless connectivity for portable computing devices and general computer assistance as well as Audio Visual Bookings, Special Event Bookings and Telecom services. The Centre can be reached by phone at 474-8600 or email at support@umanitoba.ca. The web address for computer information is umanitoba.ca/ist

- **High Performance Computing Centre** – The high performance computer purchased through the University's participation in the Westgrid consortium has now been received and is currently being uncrated and installed. Set up is anticipated to be complete by late December.

- **Wise Guys on Campus** - After a number of serious liquor legislation infractions, Wise Guys Bar in University Centre was shut down by the MLCC and their lease has been cancelled by the University as per the legal stipulations of the lease agreement. The space will be used as a catering venue that can be booked through Conference and Catering Services over the next four months as an interim plan before a longer term solution is identified.

- **Domino Project Update**

  ART Lab – Piling, shoring, pile caps and excavation are 100% complete. Foundation wall pours, stair cores, elevator cores, weeping tile, underground piping, electronic conduit and waterproofing installations are underway.

  Biological Sciences Building – Work is underway with significant interior renovations. Construction of a tunnel connecting the BSB and Fitzgerald Building to the University Centre-Allen Building tunnel is in progress.

  New Student Residence – Erection of the steel members for East and West towers is in progress and the steel truss spanning over Pembina Hall connecting both towers has been erected. The crossbeam is the largest piece of structural steel ever erected in Manitoba construction history.

- **Space Shuffle** – The 'mini-domino' shuffle of a number of units and departments including CHERD, UTS, LDS, Equity Services, and Environment and Geography is now complete. The move was very successful and departments are now undergoing minor renovations to their spaces.

- **Stadium Community Meeting** – A community meeting was held in Fort Richmond on August 23 to discuss concerns over the new stadium. Key concerns were traffic congestion and noise. Alan Simms (Associate Vice-President Administration) and Dan Edwards (Creswin) spoke at the event. The University is working with Creswin to coordinate two open house meetings at the end of September on campus for University Heights and Fort Richmond residents.

- **University Centre** - The tiling project in University Centre has been delayed due to the unexpected discovery of poor substrate floor conditions that prevent the tile from bonding properly. In the interim, plywood planks have been secured on the floor and the project will resume during the University closure period in December.

- **205/207 University Centre** – Renovation is underway to convert Rooms 205/207 University Centre into a 55 seat licensed restaurant offering a full-service lunch-time dining experience. A late September launch is planned.

- **Smartpark** – The Smartpark Board of Directors approved plans for the new Eureka Project and the new Event Centre. The tender process is complete and construction must be substantially complete by March 31st, 2011.

- **Duff Roblin Fire Recovery Update** – The insurance claim to date of monies spent or committed between March 29, 2009 and August 25, 2010 totals $17.6 M. Cost of restoration work to date is $4.0 M and includes the new sprinkler system, new fire alarm, West side demolition and the new elevator. Re-occupancy of the East side began August 16 for Psychology and Anthropology. Although some administrative staff from Psychology have moved back into Duff a number of staff continue to work out of Chancellor's Hall to accommodate incoming students to minimize foot and elevator traffic while the move is underway. The West side re-occupancy date is still tentatively scheduled for September 2011 and anticipating tendering construction work by late September. All West side contents and equipment have been moved into a long term storage facility offsite. As of September 14th, 22 staff from Biological Sciences have moved into the trailers in B Lot until the West side re-occupancy. The use of temporary teaching labs on the 200 level of the West side of Duff Roblin began September 7th. The Biological Sciences Museum is open for use and viewing.

- **Portage Place Fire** - A fire in the leased premises in Portage Place downtown has displaced some programs offered through Extended Education. It is anticipated that they will be back in the premises by December 2010.

- **St. Paul's College Water Damage** – On August 30 and 31, St. Paul's College suffered significant water and mud damage to Theatre 100, Room 102 east and west. Rain was substantial and pumps that had been put in place by the contractor were unable to keep up with the incoming water from an exposed access tunnel. The College carried property insurance outside of the CURIE policy and is dealing with the contractor's insurance company to resume normal operations as soon as possible.

- **Power Failure** – On Sept. 1 at 10:48 PM the Fort Garry Campus experienced a power failure that impacted Fletcher Argue, Isbister, Tier, Drake, Tache, Mary Speechly and Pembina Hall. The last three buildings to have power restored were Tier, Fletcher Argue and Isbister at 12:00 PM on Friday, September 3.

- **Delta Marsh Field Station** – The Faculty of Science has made the decision to continue funding the operation of the DMFS at a reduced level of activity and funding. Because a large number of buildings are unsafe, consultant Ian Shaw is working with the Faculty to identify buildings to be demolished and to also identify a reduced budget business plan for the station moving forward.

- **Reorganization of Security Services** - Proper implementation of the new provincially mandated Security Guard Act is underway which includes all staff working in a 'security' capacity (with the

exception of special constables). The Act involves ensuring that the University is licensed as a formal Security Guard Employer and also involves training, screening and licensing processes for all security guard staff working for Residence Life and University Centre. Because the administrative process is ongoing and complex, the management of it will now be housed in Security Services which will coordinate and implement all security guard functions across campus and may also include the Bannatyne Campus. This 'merger' will ensure centralization and standardization of processes and will help prevent possible infractions.

- **Residences** - Occupancy for residences are full with a waiting list of 74 as of August 31. The number of double room offerings and acceptances continues to increase due to a housing shortage both on campus and off. Food services for residence students will be provided in the University Centre Multi-Purpose Room until December 2010, at which time it will be moved back into Pembina Hall. The erection of steel over Pembina Hall caused the closure until the end of the year.

- **Orientation** – Orientation was held on the Pedway for the first time as an alternative to the Quadrangle and the east entrance of University Centre.

- **UMSAFE Training** – On August 31 and September 1 the U of M Student Alcohol Function Education (UMSAFE) training was given to approximately 100 participants including student groups and council members involved with presenting licensed events. This year saw the inclusion to the program of a Student Event Risk Management (SERM) segment which was facilitated by Dr. Ian McGregor of McGregor and Associates. Dr. McGregor's participation was funded by our insurers, the Canadian Universities Reciprocal Insurance Exchange (CURIE).

- **Tree Lighting strategy** - In an effort to create a more lively and illuminated campus throughout the winter a tree lighting strategy is in place to hang lights in trees on the quadrangle and the Pedway.

- **AESES Security** - After AESES Security was locked out on Friday, August 20-24 (without incident), a new 3 year collective agreement was ratified by the members and they were back to work on Wednesday, August 25. The agreement provides no salary increase in 2010 and no salary increase in 2011, and the same salary increase for 2009 as was given to all other University staff.

- **CIO search** - The search is ongoing for the Chief Information Officer to replace Gerry Miller, Executive Director of Information Services and Technology. Interviews are expected to take place late September.

- **Recycling** – A new and expanded recycling program will be launched in November 2010 under Physical Plant supervision. The new program will include classroom and conference rooms, special event recycling, outdoor recycling and an emphasis on hosting zero-waste events. The beverage container recycling program will no longer be supervised and operated by UMREG.

- **U of M Buildings win Prairie Design Awards** - Three University of Manitoba projects have won 2010 Prairie Design Awards administered by the Manitoba, Saskatchewan and Alberta Architects Association. An Award of Excellence went to Cibinil Architects for the RTDS Building at 150 Innovation Drive in Smart Park. Awards of Merit were awarded to Cibinel Architects for the Apotex Centre and to LM Architectural Group for the John A. Russell Building exterior envelope replacement.

- **Staff Golf Tournament** – The 10th Annual all staff golf tournament was held on August 23, 2010. The event was the largest to date and over $2,000 was raised for the food bank.

- **Homecoming Fun Run** – A 5K fun run is being hosted jointly by Recreation Services and the Alumni Association on Saturday, September 25 at 10:00 AM. The route will include volunteers giving short presentation at various sites to highlight the projects underway on campus.

EXTERNAL MATTERS

- **China Trade Mission:** John Kearsey, Vice-President (External) and John Alho, Associate Vice-President (External) travelled to China as part of the Premier's Mission. Advancement Services arranged meetings with donors and graduates in Beijing and Shanghai for John Alho and Dr. David Stangeland, Associate Dean of the IH Asper School of Business. They travelled to Beijing, Shanghai and Hong Kong in mid September 2010. Several graduates in each city were invited to receptions hosted by the Consuls General.

  The Alumni Association of the University of Manitoba in Hong Kong is organized a reception there on September 18, 2010 at the Marco Polo Hong Kong Hotel. The event coincided with a delegation led by Premier Greg Selinger, who attended and brought greetings at the reception. Also in attendance were Lieutenant Governor Philip Lee, President and Vice-Chancellor David Barnard and John Kearsey, Vice-President (External). Rita Mui, president of the local association, chaired the event. Over 1500 invitations were sent out.

- **Community Report:** Public Affairs created an online community report in conjunction with having a prominent presence in the Thursday, September 23rd edition of the *Winnipeg Free Press*. All ads in the *Winnipeg Free Press* will link back to the online edition of the community report. (http://ayearofmore.ca/)

- **Event Updates**

  The Joe Doupe Memorial Lecture and Celebration of the B.Sc. Med. Program was scheduled for Wednesday, September 8 from noon to 1:00PM in the Frederic Gaspard Theatre, Basic Medical Sciences Bldg. This year, the Faculty of Medicine welcomed Gregory Downey (B.Sc. Med./80, MD/80, FRCPC) who gave the lecture: "If it is so Easy to Mend a Broken Heart, why is it so Difficult to Heal the Injured Lung?" This annual lecture recognizes and honours Dr. Joseph Doupe's legacy within the University of Manitoba Faculty of Medicine and spirit of enquiry he instilled in his medical students.

  The Government Relations Office hosted eight senior public servants from Ottawa who were part of the Advanced Leadership Program on September 20, 2010. The program included meetings with Aboriginal students and administrators, several members of the Arctic Research Team, and industry representatives from Smartpark.

  Homecoming week was held from September 22 to 26th. During Homecoming week 51 of the 65 reunions planned took place.

  On Thursday, September 30, the School of Medical Rehabilitation will hold an announcement of the establishment of the Professorship in Spine Biomechanics and Human Neurophysiology, funded by the Canadian Chiropractic Research Foundation.

September 22, 2010

Report of the Senate Executive Committee

Preamble

The Executive Committee of Senate held its regular monthly meeting on the above date.

Observations

1. Speaker for the Executive Committee of Senate

Dr. Emily Etcheverry will be the Speaker for the Executive Committee for the October meeting of Senate.

2. Nominations to the Senate Committee on Nominations

Members of the Senate Committee on Nominations are nominated by the Senate Executive Committee and elected by Senate. The Senate Executive Committee has made nominations for the two student vacancies on the Committee (see recommendation below).

3. Comments of the Executive Committee of Senate

Other comments of the Executive Committee accompany the report on which they are made.

Recommendation

The Senate Executive Committee recommends that the following student nominations to the Senate Committee on Nominations be approved by Senate for one-year terms ending October 14, 2011:

Ms. Kaitlynn Porath and Mr. Andrew McGregor

Respectfully submitted,

Dr. David Barnard, Chair
Senate Executive Committee
Terms of Reference:
http://umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/477.htm

/mb

August 30, 2010

Report of the Senate Planning and Priorities Committee on the introduction of a Program Proposal Budget Form

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Preamble

1. The terms of reference of the Senate Planning and Priorities Committee (SPPC) are found on the website at: http://www.umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/508.htm, wherein SPPC is charged with making recommendations to Senate regarding the general allocation of University resources with respect to their desirability and efficiency, proposed academic programs and physical plant development, and any such studies, proposals or reports that it may initiate within itself, have referred to it by Senate, other Councils, Committees or Bodies, formal or otherwise.

2. The Committee met on the above mentioned date to discuss the introduction of a program proposal budget form.

Observations

1. The Committee noted that there is a wide variety in the format and content of budget submissions included in program proposals reviewed.

2. The Committee noted that often items such as administrative overhead and student support have been overlooked in budget proposals thus leading to an inaccurate picture of the costs to develop, implement and maintain the program.

3. The Committee proposes the use of a standardized form for all program proposal submissions in order to ensure that budget numbers, both costs and revenue, accurately reflect the cost of the program.

Recommendation

The SPPC recommends THAT:

Senate approve the Program Proposal Form to be included with all new program proposals submitted for the approval of Senate.

Respectfully submitted,

James Blatz, Chair
Senate Planning and Priorities Committee

Comments of the Senate Executive Committee:
The Senate Executive Committee endorses the report to Senate.

SENATE PLANNING AND PRIORITY COMMITTEE

NEW PROGRAM APPROVAL PROCESS

FACULTY _____

PROGRAM _____

Direct Program Costs[4]

	Funding Request Year 1 [1]	Funding Request Year 2 [2]	Funding Request Year 3 [3]	(1+2+3)
Number of new academic positions				0
Number of new administrative positions				0
Academic Salaries (incl bpl)				0
Administrative (incl bpl)				0
Capital required				0
(1) Total Direct Program Costs	0	0	0	0

Indirect Program Costs[5]

Number of new positions				0
Salaries (incl bpl)				0
Operating	0	0	0	0
Capital	0	0	0	0
Admin Overhead (formula)	0	0	0	0
(6) Graduate / Undergraduate Support	0	0	0	
(2) Total Indirect Program Costs	0	0	0	0

Program Revenue

Incremental Enrollment (headcount)				0
Tuition Fees				0
Other Revenue				0
(3) Total Direct Program Revenue	0	0	0	0

Program Funding Request

(7) Funding Request (1+2-3)	0	0	0	0

[1]. Current program funding is to be identified as Year 1 revenues and costs where the program approval request is to fund the expansion of an existing program. In the case of expansion, Year 2 costs indicate the additional funding requested.

[2]. Funding request represents additional funding required for each year of the program implementation. Funding requests are incremental (show only the change in funding and full- time equivalent staff on an annual basis) and total annual (continuing)

[3]. Where implementation of an approved program exceeds three years add additional pages to show subsequent annual funding changes until the steady-state funding year. Indicate that annual steady-state value as the final year.

[4]. Direct program costs (instructional and research) include salaries and fringe benefits of faculty and instructional support staff (e.g. laboratory assistants/technicians, etc.), related operating expenses and capital equipment.

[5]. Indirect program costs include the additional salaries, fringe benefits, operating and capital equipment requirements of department heads, clerical support, etc. IF ADDITIONAL FUNDING AND STAFF ARE REQUIRED. ADMINISTRATIVE OVERHEAD IS A CALCULATION. See additional tab for examples of indirect costs

[6]. Graduate and undergraduate support costs will be calculated by the appropriate office to take into account the required funds to maintain the per capita support for awards and scholarships that exists prior to the implementation of the program.

[7]. The source for all funds requested must be shown clearly in the program proposal document including the requirements to confirm funding prior to program approval.

September 3, 2010

Report of the Senate Committee on Admissions concerning a proposal from Enrolment Services to establish a blended entry system of admission for applicants from high school as well as from University 1 (2010.09.03)

Preamble:

The terms of reference for this committee can be found at: *http://umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/490.htm.*

The Final Report of the University 1 Review Committee, submitted to the Vice-President (Academic) and Provost on May 17, 2010, included a recommendation to allow well-prepared high school students the option of applying for direct admission to first-year degree programs (that now take students only after they have completed first year) alongside the opportunity to apply for admission to University 1.

At the current time, high school graduates have four entry points to the University:

1. Admission to University 1, with an average of 70% or higher on three Grade 12 S or U (Specialized or Dual Credit-University) courses and a minimum of 60% in Grade 12 S or U English. Students with averages of 63-69%, or with a grade in English of less than 60%, may be granted limited admission.
2. Direct admission to the School of Art or the Faculty of Music, with the same level of academic requirements as University 1 and satisfactory portfolios (in Art) or auditions (in Music).
3. Direct entry to the two-year diploma program in Agriculture, with 40S English, Mathematics, and a science recommended.
4. Direct entry to the undergraduate program in Engineering with an average of 85% over three specified Grade 12 courses, namely pre-calculus, chemistry and physics.

General Studies is also a direct entry program, but high school applicants are redirected to University 1.

The U1 Review Committee recommended that other faculties be permitted to establish 'blended entry' options, similar to the Engineering standard, which would allow well-prepared students to choose either direct entry or entry after University 1.

The University 1 Review Committee included the following recommendations on page nine in the Final Report:

> *We recommend that Senate consider establishing this "blended entry" system of admission, the principle features of which must include:*
>
> 1. *In order to qualify for direct admission to a Faculty, the applicants must have an average grade of at least 85% on three specified Manitoba Grade 12 courses, or their equivalent. A threshold different from 85% may be recommended by a Faculty where it is consistent with the underlying principles of a blended system and the principles set out in this report.*
> 2. *Each Faculty permitting direct admission must also provide for admission on the basis of performance in University 1.*

Comments of the Senate Executive Committee:
The Senate Executive Committee endorses the report to Senate.

3. *Regardless of route of entry (direct admission or via University 1), students aiming for admission to a given Faculty would take the same first-year courses and would be required to fulfill the same distribution requirements applicable to University 1 students. Allowance would have to be made for those direct entry students who present Advanced Placement or International Baccalaureate credentials at a level acceptable for registration in upper-level courses not normally open to first-year students.*

(Section 6 of the Final Report of the University 1 Review Committee deals with blended entry and is attached as Appendix I.)

Observations:

There are thirteen faculties and schools that currently admit students after University 1:

1. Agricultural & Food Sciences
2. Arts
3. Business
4. Dental Hygiene
5. Environment, Earth & Resources
6. Environmental Design
7. Human Ecology
8. Kinesiology & Recreation Management
9. Medical Rehabilitation
10. Nursing
11. Pharmacy
12. Science
13. Social Work

Although the recommendations of the University 1 Review Committee allow for blended entry, it is not suggested that this option become a requirement. Many of the faculties/schools listed above may not wish a blended system due to the very competitive nature of selection and the belief that ranking applicants on university grades provides a more level playing field than ranking them on high school achievement. Other faculties, with less competitive selection processes, may be able to accommodate all well-prepared high school applicants in addition to all qualified applicants from University 1.

Recommendations:

In order to facilitate establishing 'blended entry' programs for Faculties/Schools wishing to take advantage of this option, while being mindful of the public perception of these changes and of University 1, and the need for high schools to prepare their students for these changes, the following principles are proposed:

1. Any Faculty moving to a blended entry system must have approval of their Faculty Council.
2. Any Faculty request for a blended entry system must be submitted to the Director of Admissions by December 1 for inclusion in the next year's Student Recruitment and Admissions publications. Implementation of the blended entry will normally be effective for the subsequent year's intake (i.e., blended entry proposals approved by February 1, 2011 would allow students to apply during the 2011-2012 academic year for the 2012 September intake; see Appendix II for implementation and marketing timeline).

3. Direct entry from high school will be based on the following criteria:
    a. Average of 85% or higher in final grades in three Grade 12 S or U courses, including:
        i. One credit in English (or another language);
        ii. One course related to the discipline that is a normal prerequisite for registration in University 1 courses currently required for Faculty admission or for later registration in the degree program (e.g., biology for Kinesiology & Recreation Management; one of chemistry, physics or biology for Science);
        iii. A third course.
4. A minimum of 60% must be presented in each of the three courses used for direct admission.
5. Applicants must also meet the general University requirements which includes Manitoba high school graduation, with a minimum of five full credits at the Grade 12 level, in courses designated S, U, or G (General).
6. An admission route through University 1 must be maintained to allow students to compete for admission after 24 credit hours of qualifying work.
7. The Faculty must establish a policy for allowing a minimum number of transfer students (from University 1 and other post-secondary institutions). Well-prepared students who elect to enter University 1 and then apply for transfer should not be penalized.
8. When conditions 1-7 above can be met, the Faculty can institute blended entry without further approval required of SCADM. The details of their admission requirements must be reported for information to SCADM and to Senate. Faculties who wish to implement other standards for admission requirements must present proposals to SCADM for consideration.

The Senate Committee on Admission recommends:

THAT Senate approves the proposal on blended admission for applicants from high school as well as from University 1 as outlined above.

Respectfully submitted,

Susan Gottheil, Chair
Senate Committee on Admissions

APPENDIX I

Section 6 from the *Final Report of the University 1 Review Committee (2010 May 17)*— (i.e., the section dealing with the movement of U1 students to other UM academic programs)

6. The overwhelming majority of first-year students is admitted to University 1 and subsequently seeks admission to a degree-granting Faculty or School. The rationale for this is that first-year students are free to choose and explore a variety of disciplines since courses taken as a University 1 student are acceptable in virtually all degree programs. For students committed to a particular academic degree program, University 1 allows them to complete specific courses essential for further studies in their chosen field. For students who have not decided which degree program to pursue, University 1 allows them to enroll in a wide variety of courses that fulfill degree requirements in virtually all programs. In any case, University 1 does not represent an "extra" year to any undergraduate degree program provided of course that the student's academic performance is acceptable.

   And yet, it is not uncommon for first-year students to complain that they should be permitted direct entry into degree programs offered by Faculties. Some students (and parents) argue that they know which degrees they want to pursue, that they have been well-prepared in high school for success, and that they would be admitted by other institutions directly to the degree programs of their choice.

   From the beginning, some students have been allowed direct admission to the Faculty of Engineering. In order to qualify for direct admission, the applicant must have an average grade of at least 85% in three specified Manitoba Grade 12 courses (or equivalents). At present, slightly more than half of all second-year Engineering students entered the Faculty directly; the remainder transferred on the basis of studies in University 1. Note that all Engineering students, irrespective of how they were admitted, must complete the same courses to graduate.

   The principal justification for this exception is that very well-prepared high school students would otherwise be recruited to Faculties of Engineering at other universities. Similar worries have been expressed by other Faculties. The Asper School of Business argues that a significant majority of other Canadian universities, including the University of Winnipeg, offer direct admission to their Faculties of Management and that this puts the University of Manitoba at a competitive disadvantage in the recruitment of outstanding students.

   Others argue that direct admission of well-prepared students to degree programs encourages the development of a student cohort which in turn strengthens a sense of student camaraderie and leads to an improvement in the overall quality of the student experience. Moreover, it is said that direct admission facilitates high-quality program-specific academic advising since students are in their target Faculty from the onset of their studies. Finally, it is argued that, as a matter of principle, students should be permitted the "freedom to choose" direct admission if they satisfy the admissions criteria.

   Any scheme permitting direct entry to a Faculty must also provide for admission on the basis of University 1 performance, as happens now in the Faculty of Engineering. No Faculty should be permitted to "fill up" its second-year enrolments exclusively with direct admission students. Moreover, students opting for direct admission into a particular Faculty would take the same courses as would University 1 students aiming for subsequent admission.

Since all students in the second year of academic programs will have been admitted directly on the basis of high school results or admitted on the basis of performance in University 1, we refer to this as the "blended entry" system. Each Faculty could choose to adopt the Faculty of Engineering admission model, but some Faculties might decide that direct admission is not suitable. Every Faculty would be required formally to decide whether or not to adopt the "blended entry" system of admission.

We recommend that Senate consider establishing this "blended entry" system of admission the principal features of which must include:

1. **In order to qualify for direct admission to a Faculty, the applicant must have an average grade of at least 85% in three specified Manitoba grade 12 courses, or their equivalent. A threshold different from 85% may be recommended by a Faculty where it is consistent with the underlying principles of a blended system, and the principles set out in this report.**

2. **Each Faculty permitting direct admission must also provide for admission on the basis of performance in University 1.**

3. **Regardless of route of entry (direct admission or via University 1), students aiming for admission to a given Faculty would take the same first-year courses and would be required to fulfill the same distribution requirements applicable to University 1 students. Allowance would have to be made for those direct entry students who present Advanced Placement or International Baccalaureate credentials at a level acceptable for registration in upper-level courses not normally open to first-year students.**

APPENDIX II: Blended Entry Implementation and Marketing Plan

August –September 2010

- Permissive recommendation presented to SCADM and then to Senate to allow faculties to implement blended entry system

August 2010 – December 2010

- Faculties develop blended admission proposals and pass through their Faculty Councils

September 2010

- Enrolment Services presents the proposed admission changes to high school counselors at U of M annual Counsellors Seminar

October 2010 – November 2010

- Enrolment Services presents the proposed admission changes to the ES High School Advisory Committee for feedback

December 2010

- Submission of proposals to Director of Admission
- Any proposals requesting differentiation from the standards submitted to SCADM for consideration

January 2010

- Faculty proposals that meet the permissive document standards are submitted to SCADM and Senate for information.

January 2011

- Student Recruitment sends notification of admission change to high schools
- This timing will allow students and schools to adjust timetable development (takes place annually in February) accordingly for students entering their grade 12 year

February 2011 – June 2011

- Student Recruitment/Admissions publications are developed with appropriate messaging to market the changes to the affected faculties and University 1
- Changes are communicated to prospective students through annual recruitment fairs throughout Manitoba (most of these fairs are attended by grade 9-11 students)

September 2011

- Final admission changes are communicated at Counsellors Seminar, including special focus on University 1 and the affected faculties

September 2011 – December 2011

- Final changes communicated across Canada through annual fall recruitment presentations

November 2011 – May 2012

- Students apply under new blended admission policies

May 2012 (approximate depending on application deadline)

- Implementing faculties conduct admission procedures for both streams in the blended admission model; with the last of the full admits to second year of the faculty through U1 (regular quota) as well as the first set of admits to the first year direct entry option (as an advanced portion of the following year's admission quota)

September 2012

- 'Double cohort' registration, with both direct entry first year students and the second year intake students

May 2013 (approximate based on application deadline)

- First attempt to merge transfer and U1 admits to the programs that already have second year continuing direct entry students, with quota adjustment of the transfer applicant category

September 3, 2010

Report of the Senate Committee on Admissions concerning a proposal from the Asper School of Business to establish a blended entry system of admission, from high school as well as from University 1, for applicants to its Bachelor of Commerce (Honours) Program (2010.09.03)

Preamble:

1. The terms of reference for this committee can be found at: *http://umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/490.htm.*

2. The Asper School of Business submits the following undergraduate admissions revision for consideration. The proposal was reviewed and approved at a Faculty Council Meeting held on Friday, May 14, 2010. A slight revision to the high school mathematics requirement was made to the proposal after this meeting as the proposal was being prepared for the meeting of the Senate Committee on Admissions; this revision will be presented to the September 10 meeting of the Asper Faculty Council.

Observations:

1. This proposal is in response to a simple question: Is the I.H. Asper School of Business (the Asper School) attracting the best and brightest students into our undergraduate program, or are we losing the best students to other universities? There is increasing evidence that suggests that our current process for admitting students presents an impediment to attracting the best and brightest students.

   The Bachelor of Commerce (Hons) at the University of Manitoba is an indirect admission program, that is, all students must apply after completing University 1. We propose that we move to a blended admission program with students being admitted both directly out of high school and indirectly having completed University 1. The proposed model is very similar to that used in Engineering. Students at or above a certain grade point average (i.e., 85%) can choose to be accepted directly into the program. Indirect admission will be preserved on a competitive basis for those who chose not to apply directly to the School. That is, we are proposing a blended model. This is important for us to be competitive in attracting for the province's best students and to allow us to compete for students from outside Manitoba. Further, it should enhance the quality of the student intake and significantly increase the number of applicants.

2. Context: We need to modify how we admit students into the BComm (Hons) program for competitive reasons (i.e., to attract and retain Manitoba's best students), to enhance the student experience through building a stronger sense of community, and to provide the most relevant business education.

   The market for business school students is becoming increasingly competitive. Our system of indirect admission is leaving us at a competitive disadvantage. We are losing too many of the very best Manitoba students to other provinces (this was a conclusion from an October 2005 Undergraduate Enrolment Task Force). Further, the University of Winnipeg's new School of Business and Economics is very actively pursuing the same students that we are. One of their primary messages is that students can enter directly into their business

Comments of the Senate Executive Committee:
The Senate Executive Committee endorses the report to Senate.

program, while the Asper School does not allow direct admission. They perceive that one of their competitive advantages is how the Asper School admits undergraduate students. This message by the University of Winnipeg appears to be gaining significant traction, even with the province's best students.

Why would some students choose a direct entry program over being admitted indirectly following the completion of University 1? First, even the very best students are risk averse. They will choose admission with certainty, over a possibility of future admission. Anecdotal evidence suggests that this is even true of the very best students. Second, many potential students prefer to be part of a community immediately. This is especially relevant with the Asper School where the sense of community is so strong.

Further, students perceive they will receive a stronger experience under direct admission. This is likely accurate. They will have an opportunity to become more involved in the School and develop a sense of local community at an earlier time. This includes being involved in activities of the Commerce Students Association and other student groups. They are part of a business school cohort in first year.

Finally, it is easier to build the broader educational experience under direct admission. For those entering directly, they will be better prepared for entry into co-op and would be more likely to pursue international exchanges as they could be approached earlier.

Note that following the Undergraduate Enrolment Task Force in October 2005, the school introduced guaranteed admission for outstanding high-school students – those who had an average of 90% or higher. While this assisted in retaining some of the best students, it has not fully met the needs of either the School or the University. The Asper School cannot compete with the University of Winnipeg nor business schools outside Manitoba without direct admission for the best students. Both the number of applications and admissions to the BComm (Hons) program has declined in the last two years – we believe that a significant part of this decline relates to our admission structure.

3. Why Blended Rather than All Direct Admission? We believe that the University 1 experience can provide a solid foundation for our students, and provides for broader ties to the University of Manitoba. However, the problems caused by indirect admission can only be addressed if there is the opportunity for direct admission into the Asper School's BComm (Hons) program for the most academically qualified Manitoba students.

   A blended system would truly provide the freedom to choose. A student, with sufficiently high school grades, may choose to enter the BComm (Hons) program directly. Alternatively, the student can choose to attend University 1. They would then have the opportunity to apply from University 1 to the commerce program, if they so chose.

4. What will be the Effect on the Quality of Students? There appears little risk associated with a blended admission strategy. Our experience with the guaranteed admission strategy is that no student who met the guaranteed admission criteria failed to meet our current cut-off. At the same time, the potential upside (retaining the best and brightest in Manitoba) and being able to compete with the University of Winnipeg is large. Engineering's experience suggests that students with an 85% average have a very high likelihood of success.

Recommendation:

The Asper School of Business proposes that students who meet the requirements outlined below be eligible to apply for direct admission to its Bachelor of Commerce (Honours) Program, while the Asper School continues to ensure that there is a competitive admission process from University 1. This competitive process will remain the same, with both track 1 and track 2 admissions. Please note that all students – whether directly admitted or admitted through University 1 – will have the same course requirements.

The Senate Committee on Admission recommends:

THAT Senate approves the proposal from the Asper School of Business that the Bachelor of Commerce (Honours) Program admit students through a "blended entry" system of admission, effective September 2011, with the following features:

(A) Add a 'direct entry' category with the following criteria:

1. **Manitoba high school graduation (or equivalent), with five full credits at the Grade 12 level, in courses designated S (Specialized), G (General), or U (Dual Credit–University), with**

2. **A minimum 85% average over three courses: Pre-Calculus 40S or Applied Mathematics 40S (Pre-Calculus recommended), English 40S, and one other 40S/U course, and**

3. **A minimum 60% in each of the three courses noted in point 2 above;**

4. **Applicants may require a higher average than stipulated in point 2 to be successful in the annual competition for admission.**

(B) The 'direct entry' category will replace the 'guaranteed admission' category and the 'guaranteed admission' category will no longer be offered.

(C) Track 1 and Track 2 categories, which are competitive, will continue to be offered.

(D) The 'special consideration' category will continue to be offered.

Respectfully submitted,

Susan Gottheil, Chair
Senate Committee on Admissions

April 26, 2010

Report of the Senate Planning and Priorities Committee on the proposal to introduce a Master of Science (MSc) and Doctoral (PhD) Program in Biomedical Engineering in the Faculty of Engineering

Preamble

1. The terms of reference of the Senate Planning and Priorities Committee (SPPC) are found on the website at: http://www.umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/508.htm, wherein SPPC is charged with making recommendations to Senate regarding proposed academic programs.

2. The Programs and Planning Committee of the Faculty of Graduate Studies (FGS) has the responsibility of reviewing new graduate programs and makes recommendations to FGS Council.

3. The FGS recommends that Senate approve a new Master of Science (MSc) and Doctoral (PhD) degree program in Biomedical Engineering (BME) in the Faculty of Engineering.

Observations

1. The committee noted that this proposal has emerged out of five years of collaborative planning by the Faculties of Engineering and Medicine. The Faculties are proposing the introduction of a graduate level program in BME in the Faculty of Engineering. The proposal has emerged from consultations and needs assessment with the BME community in Manitoba, Canada and abroad.

2. The Faculty of Engineering has indicated that no new funds would be required to implement this proposed program. Specifically, the committee noted that the Faculty of Engineering has indicated that BME program would require four new academic staff at the rank of assistant professor. The Faculty has indicated that it has already hired two staff whose duties will include teaching in the program and has indicated that the Faculty of Medicine will provide the two other academic positions. In addition, the committee noted that an additional 1.5 FTE administrative and technical support staff as well as an additional $17,000 for supplies would be required to the implement the program. The Faculty has indicated that it will provide these additional resources to meet these support staff and supply needs.

3. The committee noted that, after receiving some clarification from the Faculty of Engineering, the students from this BME program would be treated the same as all other graduate students at the University of Manitoba, competing for same scholarship funding until such time as alternate scholarship funding can be raised specifically for BME graduate students.

4. The committee noted that the proposal provided documentation which indicated that the University of Manitoba Libraries staff has reviewed the library resource needs for the proposed program. The report of the Director of Libraries indicates that the Libraries' journal collection can support the proposed graduate program in BME. However, the

Comments of the Senate Executive Committee:
The Senate Executive Committee endorses the report to Senate.

monograph collection would need to be augmented with the addition of one-time funds of $5,000 to bring the collection up to the desired level and continuing funds of $5,000 to maintain this collection. The committee has been assured by the Faculty of Engineering that these costs will be borne by the Faculty of Engineering.

5. The committee noted that the Faculty of Engineering indicated that it could accommodate the additional equipment, student, instructional and office space requirements for the BME and there would be no additional funding necessary for space construction or renovation.

Recommendation

The SPPC recommends THAT:

Senate approve and recommend to the Board of Governors that it approve the introduction of a new MSc and PhD Program in Biomedical Engineering (BME) in the Faculty of Engineering. The Senate Committee on Planning and Priorities recommends that the Vice-President (Academic) not implement the program until she is satisfied that there would be sufficient space and funding to support the ongoing operation of the program.

Respectfully submitted,

James Blatz, Chair
Senate Planning and Priorities Committee

UNIVERSITY OF MANITOBA

Faculty of Engineering
Office of the Associate Dean,
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Faculty of Engineering
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James_Blatz@umanitoba.ca

August 13, 2010

Senate Planning and Priorities Committee
Office of the University Secretary
312 Administration Building
University of Manitoba
Winnipeg, MB
R3T 2N2 Canada

RE: Graduate Program in Biomedical Engineering Proposal

Dear Committee Members,

Please find attached a revised proposal for the Graduate Program in Biomedical Engineering (Biomed) that was considered and approved by the Senate Planning Priorities Committee in April of 2010. The proposal was then forwarded to Senate Executive where it was forwarded for presentation on the June 23, 2010 Senate agenda for approval. Concerns were raised by some senate members about the Human Resources section (Section B) prior to the senate meeting that resulted in the proposal being removed from the agenda during the meeting to be revised according to the concerns raised. This letter and attached revised proposal address the concerns and form the basis for resubmission to the Senate Planning and Priorities Committee for consideration to be approved in its modified format.

The concern identified by the senate members was in regards to Section B of the proposal (Human Resources). The concern centered around the fact that the proposal included the names, research areas and unit information as well as a column heading for percentage time spent on the Biomedical Engineering program. The percentage time column was the focus of the concerns raised. The percentage time column was intended to indicate the percentage time spent by the individuals listed in the table on what would be considered biomedical related research. However the table was interpreted by a number of people to mean that the percentage time was the percentage of the appointment of each listed individual to be spent on the Biomed graduate program. As such, the table could also be

considered percentage of an FTE committed by a unit and therefore be misinterpreted as commitments by the various departments for faculty resources. This was a misinterpretation due in large part to the presentation of the information. As such the table has been revised in the current version to show the names of the individuals who will be the founding members of the Biomed graduate program and every single member listed has provided approval in writing for their name appearing on the current Human Resource table in the format that has been provided. The percentage time column has been removed as it is not a necessary component of the table and the percentage time spent by the founding members will depend on a number of factors and will change constantly depending on their graduate student load. A statement to clarify the intent of the listing in the table has also been added to indicate explicitly that there is no departmental commitment of human resources to the program. The list is simply indicating the founding members of the program. The future membership will change as the program enrolment changes to reflect the required involvement. The process for new membership and changes in membership are clearly laid out in the proposal.

I trust that you will find that the changes have addressed the concern identified regarding the Human Resources table and I hope that you will consider the proposal in its revised form for approval to be forwarded to Senate for consideration.

If you have any questions or concerns about the revised proposal or the details outlined in this letter please contact me at your earliest convenience to discuss.

Sincerely,

James Blatz, Ph.D., P.Eng., FEC
Associate Dean (Research & Graduate Programs),

cc: Janice Tilly, Deans Office
Douglas Buchanan, Acting Dean

UNIVERSITY OF MANITOBA

Proposal (Revised version, R3):

Biomedical Engineering Graduate Program

Prepared by:

Zahra Moussavi (Faculty of Engineering)

in consultation with:

Joe LoVetri (Faculty of Engineering)

Ed Kroeger (Faculty of Medicine)

Stephen Pistorious (Faculty of Science)

Juliette Cooper (Faculty of Medicine)

Ed Shwedyk (Faculty of Engineering)

April 20, 2009

Last updated on Sept. 23, 2010

Table of Contents

A. PROGRAM DESCRIPTION

1. Rationale, objectives and features

I. Clearly state the rationale for the program.

Biomedical engineering (BME) is a rapidly growing area of research focus for many faculty members and their graduate students in a number of faculties at the University of Manitoba. Currently, there are many graduate students whose work involves the area of BME research but in the absence of a formal BME program, their degree is granted under one of the current existing UM programs (and thus not receiving the benefit of being appropriately recognized as biomedical engineering). In the absence of a specific BME program, not only is the work of these students not sufficiently recognized, but also, the existing complementary expertise in various relevant faculties is not made available to these students in a coordinated and coherent manner. Additional benefits to the formation of a formal BME program include cooperative resource allocation, increased opportunities for research collaboration and research grant funding, providing a forum for the interaction of researchers with complementary BME research interests and strengthening of the stature of the University of Manitoba in a strategic area of research activity.

As the need for biomedical specialists is increasing rapidly, we need to rigorously educate our graduate students with a strong foundation in engineering, physics, chemistry, mathematics and biology to develop a core competency in a specific specialized area of the multifarious field of biomedical engineering. Particular focus will be given to in-depth education in the bioengineering concepts related to physiological processes. The principal means of accomplishing these goals is through a comprehensive interdisciplinary curriculum, which begins with a critical understanding of biomedical engineering principles building towards state-of-the-art biomedical engineering research and development. In this domain, the program will build on the strong academic foundations of research expertise in several cooperating faculties.

BME research is extremely attractive to students who apply for a graduate program in the Faculty of Engineering and will expand opportunities for interaction with their peers in Medicine, Dentistry, Science, Animal Science and Pharmacy, to name just a few. Demand for BME graduate studies is high from engineering students but there is also an opportunity to recruit students from the life sciences, and medicine. A formal graduate BME program provides an opportunity for strategic promotion of this area of research training to students both locally and national/internationally, and expand our current offerings in medical devices and clinical technologies through emerging interests in the clinical sector and hospitals.

II. Clearly state the objectives of the program.

The principal objectives of the proposed BME Program, consistent with the needs of students and the international expectations of BME graduates, are:

(1) to provide a strong post-graduate curriculum, research training opportunities and educational infrastructure leading to M.Sc. and Ph.D. degrees in BME;

(2) to enrich the educational experience of students by fostering the collaboration of researchers in interdisciplinary BME research, course development, and joint supervision of students;

(3) to attract excellent students from around the world to the BME program.

III. Indicate how the program fits within the research/academic priorities of the unit and faculty/school.

The Faculty of Engineering has made biomedical engineering one of its highest priorities for future research and training of graduate students. The current research strategic plan developed by the Faculty of Engineering lists Biomedical Engineering as one of its four key strategic research areas. This is exemplified by the recent hiring of Dr. Arkady Major and Dr. S. Sherif in biomedical engineering area in the Department of Electrical and Computer Engineering (ECE). The department of Biosystems Engineering has also recently hired Dr. Jason Morrison, who has expertise in biomedical image processing. The Faculty of Medicine similarly, has made important contributions (including the development of patented technologies for medical diagnosis, treatment and the assistance of physically challenged individuals, analysis of lung sounds/digital stethoscope, gamma knife research and a variety of research collaborations with the NRC Institute for BioDiagnostics) and recognizes the potential for enhanced research opportunities in collaboration with Engineering and the WRHA through this initiative. The Faculty of Science has a strong (accredited) Medical Physics program at the Graduate level and is introducing a Medical Physics stream at the Undergraduate level. One of the courses within this program includes PHYS 3220 which covers topics of interest to both Medical Physicists and Biomedical Engineers and which a number of Engineers have taken in the past. In the past there has been significant collaborative research carried out by Medical Physicists and Biomedical Engineers. The creation of a BME program will facilitate and provide opportunities for graduate students from the faculties of Science and Engineering to collaborate on projects of mutual interest. This is essential if we are to make the best of the strengths of these diverse but collaborative disciplines.

As of Nov. 07, the University of Manitoba has allocated a Tier II CRC chair position for an international leader in biomedical engineering. This is a joint position between the two faculties of Engineering and Medicine. A candidate has been selected and the CRC application will be submitted to NSERC in fall 2008.

Prior to that, in 2007, the university also allocated a Tier I CIHR CRC for an international leader in gene expression in cancer cell progression, a Tier II CIHR CRC in the area of functional genomics/stem cell biology, and recruited two Tier II CIHR CRCs whose research is focused on neuro-oncology and on new cancer therapy development.

The above examples are clear indications of the University of Manitoba's commitment to biomedical engineering as one of its strategic priority areas.

IV. Highlight novel or innovative features of the program.

The main innovative feature of this program is not its concept nor its content -there are many other similar programs in North America- but its functional design; the proposed program will be created not by the creation of a new faculty or department, but by the goodwill, combined strength, coordinated efforts and joint administration of the Faculties of Engineering, Science and Medicine. Another innovative feature of the proposed program is its admission's flexibility: the program will recruit students from a wide variety of backgrounds, and tailor each student's program by taking their particular background into account. This will result in a flexible, student-centered BME program that meets the degree objectives and accountability criteria of the Institution.

2. Context

I. Indicate the extent to which the program responds to current or future needs of Manitoba and/or Canada.

Canada spends more than $100 billion on health care each year—more than $3,300 per capita —with almost three quarters coming from public funds. In Manitoba the direct cost of health care each year surpasses $3 billion. Support of this massive health care enterprise requires an active biotechnology sector that includes related industries as well as government and university research institutions. Manitoba has a good share of the Canadian biotechnology sector: the 2005 Manitoba Life Sciences Industry Directory lists 42 companies and 32 research institutes. A healthy supply of graduates from the new Biomedical Engineering Program will benefit the health care enterprise across the board, with students filling positions at any of the many research institutes, industries, and clinical institutions in Manitoba and across Canada. The development of a strong health/biotechnology sector represents an important priority for the Government of Manitoba.

II. What is (are) the particular strength(s) of the program? e.g. this program will be known for its strength in areas A, B and C in the discipline.

The Faculty of Engineering has approximately 84 faculty members who are organized into four departments: Biosystems (10), Electrical and Computer (30), Mechanical and Manufacturing (26), and Civil Engineering (18). There are also more than 300 graduate students and more than 30 technical staff in the Faculty. Several groups in the Faculty of Engineering are involved in biomedical engineering research, which is focused on several strategic areas. Faculty members engage in collaborative biomedical research with colleagues from several of local medical laboratories as well as with researchers from around the world. The biomedical application areas that engineering faculty members are currently working in and in which there is considerable strength are:

1. Biological Signal Processing
2. Biomechanics: Human Dynamics, Orthopedic mechanics, Rehabilitation
3. Biomedical Image Processing and Reconstruction;
4. Gait Analysis and Rehabilitation;
5. Telemedicine;
6. Robotics and Teleoperation;
7. Computational Neurosystems and Motor Learning;
8. Biophotonics;
9. Electrical biosensors, medical instrumentation, nano-technology;
10. Biochemical biosensors

Due to the multidisciplinary nature of BME, the above areas of research include members from the faculties of Engineering, Medicine and Science working together on specific research projects.

The relevance of other expertise to BME research in the Faculties of Medicine and Science is obvious, and the effective application of such expertise requires a vehicle such as the proposed BME program. The Faculty of Engineering also requires the complexity of relevant actual medical models for the application of their technologies as well as to enhance the BME educational component. The

development of a BME program is relevant to the Faculty of Science because of the mutually beneficial collaboration which can take place in areas of Biomedical Imaging, Treatment Optimization and Modeling. The clinical medical physician often encounters clinical problems that a biomedical engineer may help to resolve with considerable laboratory and experimental facilities.

III. **What will outsiders know the program for in terms of areas of concentration or specialization?**

We will advertise our strengths that we already possess in the research areas listed above, and by fostering new collaborations amongst the diverse faculty members involved in the program we will enhance our strengths and forge new research area. Areas of unique complementary strength include but are not limited to diagnostic biomedical signal processing, medical rehabilitation, haptic devices design, and medical imaging.

IV. **Indicate the extent to which the program extends or uses existing programs at The University of Manitoba as a foundation.**

As previously stated, creation of the new Biomedical Engineering Program is not in itself the creation of new research programs or an expensive administrative unit. Many biomedical engineering research groups already exist at the University of Manitoba. Rather, the new program will be a formalization and systematic extension, including course development, of what is already happening on an ad hoc basis. This will give the students already involved in biomedical engineering research the enrichment of a broader formalized program and the formal recognition that their training deserves. It will also enable faculty members to collaborate more effectively, advertise these training opportunities appropriately.

V. **Indicate the extent to which the program enhances co-operation among Manitoba's universities.**

By allowing and promoting adjunct appointments of faculty members from other Manitoban universities as appropriate, to the new Biomedical Engineering Program, we will thereby enhance the co-operation between Manitoba's universities such as University of Brandon, Biomedical research group in Science faculty and University of Winnipeg.

VI. **Indicate the extent to which the program is likely to enhance the national/international reputation of The University of Manitoba.**

The creation of a new Biomedical Engineering program that with the leadership involvement of the three largest relevant faculties, Engineering, Science and Medicine, for the benefit of the Institution broadly, will strengthen intra-institutional research connections, enable new research funding for collaborative research, and increase exposure to the research that our existing biomedical researchers are performing. It will lead to a more attractive environment for visiting international researchers (*e.g.*, those who are on sabbaticals) as well as for student exchanges.

Viewed more broadly, the University of Manitoba will be enriched by the new graduate BME program in two ways: it will expand research and research funding. A multidisciplinary program such as the

proposed BME program inherently draws on several disciplines; hence expansion in BME research will also enhance the research of others in the participating departments and schools.

Furthermore, the total amount of money for health-care related projects and research is the highest in North America compared amongst engineering fields. The new BME program will allow existing and new faculty members to tap into these other sources such as Canadian Institutes for Health Research (CIHR), which typically has a funding budget of over $800 million per year. This new option will enhance cross-university cooperation, and help create bridges between researchers in different departments. This enhanced research environment will positively affect the national and international reputation of the University of Manitoba.

VII. Indicate where similar programs are offered in Canada and North America. (Tabular format).

In Canada there are many undergraduate and post-graduate BME programs. The following is a representative list:

- **McMaster University**

  New programs being initiated as part of the new *McMaster School of Biomedical Engineering*.

- **Dalhousie University**

  Department of Biomedical Engineering Dalhousie University offers both Master of Applied Science (M.A.Sc.) and Ph.D. degrees in Biomedical Engineering. Qualified students will be accepted into the programs from undergraduate engineering programs, from honours mathematics and physical or biological science programs, as well as from clinical professional programs (M.D., D.D.S., D.V.M.). M.A.Sc. to Ph.D. transfer is available. **Degrees Offered**: M.A.Sc. - Biomedical Engineering; Ph.D. - Biomedical Engineering **Research Areas**: Biomaterials; Tissue Engineering; Biomechanics; Human Dynamics; Rehabilitation Engineering; Physiological Modelling; Medical Imaging; Drug Design; Hearing; Cell Mechanics; Cardio-pulmonary function; Dental Materials and Mechanics; Robotics

- **McGill University**

  The Department of Biomedical Engineering provides instruction and opportunities for interdisciplinary research in the application of engineering, mathematics, and the physical sciences to problems in medicine and the life sciences through M.Eng. and Ph.D. degree programs. Currently active areas include: neuromuscular and postural control, muscle mechanics, the vestibular system, oculomotor control, the auditory system, joint prosthetics, biomaterials, artificial cells and organs and medical imaging. Staff members are also active in more applied research related to the development of quantitative analysis tools and instruments for biomedical research. Areas of activity there include signal analysis, system identification, modeling, simulation and parameter estimation, image processing, pattern recognition, ultrasound and bio-robotics. **Degrees Offered**: M.Eng.- Biomedical Engineering; Ph.D.- Biomedical Engineering. **Research Areas**: Aerospace Medicine; Artificial Cells and Organs Engineering; Auditory Mechanics; Biomaterials; Biomedical Modeling Computer Applications and Instrumentation; Computers in Medical Education; Medical Imaging; Neuromuscular Control; Oculomotor and Vestibular Control; Orthopedic Biomechanics; Systems and Signal Analysis

- **University of Alberta**

  Department of Biomedical Engineering. **Degrees Offered:** M.Sc.; Ph.D.

- **University of Alberta/University of Calgary**

  The Biomedical Engineering Graduate Program is a coordinated graduate program in Biomedical Engineering for the Province of Alberta, offered jointly by the University of Calgary and the University of Alberta. This program establishes a Western Canadian centre of excellence in biomedical engineering graduate education and research by coordinating and consolidating the complementary research and teaching programs at these two universities. The unique design of this program has U of C and U of A sharing resources through core and elective courses taught over a high-speed video link, ensuring that students draw upon the expertise of researchers and instructors at both universities. **Degrees Offered:** M.Sc.; Ph.D. **Research Areas:** Bioinstrumentation and imaging; Clinical engineering; Rehabilitation engineering; Biomechanics and finite element modeling; Biomaterials; Systems physiology; Aerosols.

- **University of Saskatchewan**

  College of Graduate Studies and Research, Biomedical Engineering Division. **Degrees Offered:** M.Eng.- Biomedical Engineering; M.Sc.- Biomedical Engineering; Ph.D.- Biomedical Engineering

- **University of Toronto**

  Institute of Biomaterials and Biomedical Engineering. Program has been designed to accommodate students and researchers with varying interests, within the field of Biomedical Engineering. Students with backgrounds in physics, biology, medicine, engineering, or biotechnology are invited to apply. **Degrees Offered:** M.Sc., M.Eng. and Ph.D.

- **University of Waterloo**

  Biotechnology & Health Engineering Centre

- **University of Western Ontario**

  Dept. of Mechanical and Materials Engineering and Dept. of Biomedical Engineering in the Faculty of Engineering Science and the Dept. of Medical Biophysics in the Faculty of Medicine. **Research Areas:** metered dosage inhalators; respiratory drug delivery; prosthetics; Application of first-and-second-moment turbulence closures for the prediction of complex engineering and biomedical flows. **Degrees Offered:** M.Sc. Ph.D.

3. Specifics

I. Indicate the credential (degree or diploma) to be granted a student on successful completion of the program.

M.Sc. and/or Ph.D. of Biomedical Engineering

Where a new credential is being proposed, provide:

a) Rationale for the name

NA

*b) **An indication of whether the credential is offered under the same name, similar or different names elsewhere (and if different, state why a new name is chosen)***

NA

*c) **A list of those (individuals, groups, universities, organizations etc.) consulted in arriving at the new name***

NA

*d) **An indication of whether accreditation for the new degree is required by an external body***

There is no external accreditation required from the Canadian Engineering Accreditation Board for post-graduate engineering degrees.

II. **Describe the program under the following headings:**

*a) **Admission requirements***

Minimum admission requirements for the M.Sc. and Ph.D. degrees in BME are the same as those of the Faculty of Graduate Studies for M.Sc. and Ph.D. in general.

*b) **Course requirements***

BME M.Sc. Program

Minimum Number of Required Credit Hours: 21 including the 6 credit hour course "BME for Engineers" or "BME for Life Science Students", and attendance and participation in the 0 credit hour biweekly BME seminar. Three courses can be taken at the 4000 level courses and the rest must be taken from 7000 or higher level courses.

BME Ph.D. Program

Minimum Number of Required Credit Hours: 18 including the 6 credit hour course "BME for Engineers" or "BME for Life Science Students" (unless the student is an M.Sc. graduate of this program, which in that case the minimum credit hours will be 12), and attendance and participation in the 0 credit hour biweekly BME seminar. Two courses can be taken at the 4000 level courses and the rest must be taken from the 7000 or higher level courses.

*c) **Graduate Program Supervision***

Each student will have a graduate program adviser and a co-adviser assigned throughout the course of his or her studies as well as an Advisory Committee, whose members are designated by the BME Admission Committee by consultation with the student and his/her graduate program advisor. It will be the job of the adviser to guide the student through a research program that leads to the submission of a thesis.

*d) **Thesis, practicum or comprehensive procedures and regulations***

M.Sc. Thesis: Every student must write a thesis on his/her major research and follow the standard thesis defense process. The defense committee members will be defined by the BME

Admission Committee by consultation with the student's graduate program advisers. The thesis defense is open to all faculty members and students.

Ph.D. Research Proposal: Students will be required to submit a concise research proposal (approximately 10 pages), in which the student identifies the areas of proposed study, and presents the pilot studies or literature review that he/she has done related to the proposal. This research proposal will be examined by the Advisory Committee, whose members are designated by the BME Admission Committee by consultation with the student's graduate program advisor. The Ph.D. research proposal must be submitted within the 12 months after enrollment in the program. If the research proposal is not approved by the Advisory Committee, the student will have a second chance to revise his/her research proposal and submit again within two months after the first trial. If the research proposal is not approved again, the student cannot proceed in the program.

Ph.D. Candidacy Exam: The student will be required to submit a candidacy paper (approximately 50 pages) written in the area of his/her approved thesis research proposal. The candidate will present an oral defense of his/her candidacy paper to the Advisory Committee. If a student passes the examination and has completed all other requirements for the Ph.D. degree, with the exception of the thesis and its defense, the student will be considered to have formally advanced to candidacy for the degree. If the student does not pass, he/she must re-defend the initial candidacy paper or prepare, submit, and defend a new paper, as the Advisory Committee deems appropriate. Successful completion (pass/fail) of all of the prescribed elements is required within a period of time 9 months after thesis research approval and 9 months prior to graduation but no later than 5 years after enrollment in the program. If a student does not pass the Ph.D. Candidacy exam within the limits outlined above, his/her program will be terminated in the Ph.D. program. In such circumstances, the Advisory Committee may recommend that the student be offered a transfer into the M.Sc. program, with sufficient and stated time limits to allow the student to reasonably complete the requirements for that degree. The candidacy oral presentation is open to all faculty members and students.

Ph.D. Thesis: Every student must write a thesis on his/her major research and follow the graduate study standard thesis defense process. The Defense Committee members will be the same as those who evaluated the student's candidacy (student's Advisory Committee) plus an additional member who is from outside the university. Thesis defense is open to all faculty members and students.

e) ***Ability to transfer courses into the program***

At the discretion of the BME Curriculum Committee, and on the recommendation of a student's Advisory Committee, the student may transfer courses into the BME Program. A maximum of 9 credit hours of courses are allowed to be transferred into a student's degree program.

f) ***Other procedures and regulations specific to the program, but not covered above - Supplemental Regulations***

Mandatory Courses

Two full courses (each 6 credit hours) are designed uniquely for the BME program to serve as bridging (introductory) courses for all the students who enroll in the program from the two main streams: Engineering or life science, either at the M.Sc. or Ph.D. levels. One will be *"BME for Engineers"* and the other *"BME for Life Science Students"*.

Taking one of these two courses is mandatory. However, if a student enrolled in the Ph.D. program already has the BME M.Sc. granted from this program, they do not have to repeat either of these two courses. For students who are admitted into the BME program from other disciplines or other universities, the Curriculum Committee will assign one of these two courses as appropriate.

The two mandatory *"BME for Engineers"* and *"BME for Life Science Students"* courses (which are lecture and lab based courses) will provide fundamental cross-cutting knowledge necessary for a BME program. These courses will be designed on a modular basis with lectures on anatomy, biochemistry, kinesiology, biomedical instrumentation and measurement, biological signal analysis, and biomechanics, all with corresponding labs. While the two courses have many BME concepts in common, and if they are offered at the same semester they may share some modules, however, the *"BME for Engineers"* course will provide more background on human biology related topics, and the *"BME for Life Science Students"* course will provide more background on electronics, instrumentation and signal analysis related topics. In order not to impose extra work load on the various departments' faculty members who would provide the lectures and labs for these two courses, some basic background modules will be designed such that they fit in some sections of the existing courses, i.e. the students who take any of the two BME courses, may attend a section of one of the current regular anatomy courses for the anatomy module.

Students who enroll in the BME M.Sc. program from other disciplines may be required to take additional courses that will be defined by the BME Curriculum Committee. Students who wish to enroll in the Ph.D. program from other disciplines without an M.Sc. in Biomedical Engineering either from this program or from similar programs in other universities will be required to take an individually customized Pre-Ph.D. set of courses as an occasional student (OS) student, and upon successful completion of those courses they can apply to the Ph.D. program.

BME Seminar

The seminar course will convene regularly throughout the term (defined by the Curriculum Committee). These seminars will require student participation (assessed) in various topics in BME. Every student is required to present at least once per year and the presentation should be based on the research methods being taught in the mandatory introductory courses. Feedback will be provided to the student who is presenting by the attending faculty members and other students.

Colloquium

In addition to the seminar course, each year students will be required to make a presentation during a one day colloquium for the BME program.

BME Program Initiative Organization Chart

A committee chaired by the Dean of the Faculty of Engineering, and whose other two members will be the Dean's (or their appointees) of the Faculties of Science, and Medicine, will appoint a director from the Engineering Faculty for the BME program. The director will report directly to the Dean of Engineering. The Director will choose two associate directors from the other two faculties (other than his or her own faculty) who will be responsible for the management of the BME program. As with all

graduate programs, the BME graduate program will abide by all the rules and regulations established and implemented by the Faculty of Graduate Studies for its graduate programs.

1. BME Program Director is directly responsible for the entire program, forms the committees, and assigns the committee members for the committees listed below. It will also be the responsibility of the director to assign instructors for courses falling exclusively under the BME program. This is a 3-year term position (renewable).
2. Committees of the BME Program
    i. *Admissions Committee* consists of 5 members: 2 from Engineering, 2 from Medicine and 1 from Science each having 3 year staggered terms. They will meet 3 times per year and their duties are: evaluating applicants and admitting students into the program, annual student progression evaluation, assigning the examination and advisory committees for students, identifying anomalies and making recommendation to the Faculty of Graduate Studies for disciplinary actions when necessary. They report to the director of the BME program.
    ii. *Curriculum Committee* consists of 5 members: 2 from Engineering, 2 from Medicine and 1 from Science each having 3 year staggered terms. They will meet twice per year. Their duties are: organizing the two mandatory BME courses, evaluating and approving offered courses, approving students' programs and setting the individually customized Pre-Ph.D. program by consultation with the students' graduate adviser, when required. They will report to the director of the BME program.
    iii. *Awards Committee* consists of 3 faculty members: one from each of the Engineering, Medicine and Science Faculties. They will meet twice a year having 3 year staggered terms. Their duties are: evaluating and recommending outstanding students among the applicants for various available awards.
    iv. *Membership Committee* consists of 3 faculty members from each of the Engineering, Medicine and Science Faculties. They will meet twice a year having 3 year staggered terms. Their duties are: evaluating and recommending BME membership of the faculty members as well as qualified applicants from industry and regional research labs to be faculty (or adjunct) members of the BME program. The criteria to be a faculty (or adjunct) member of the BME program are: a) to be doing research in a BME related field, b) be teaching a course at least biennially in the BME program, and preferably c) be currently supervising or have recently supervised a student in the BME program. Adjunct faculty members, those from industry and regional research labs, will only be allowed to *co-supervise* a student in conjunction with a full member of the BME program. Individual membership application recommendations of the committee will have to be approved by the director of the BME program.
    v. Faculty Members of the BME Program {consist of all members of the BME program}. They will report to the head of their home department. However, for their duties associated with the BME program, they will report to the director of

the BME program. The director of the BME program will make recommendations to the faculty member's head on workload compensation for duties associated with the BME program.

4. Projections and Implementations

I. Provide a sample program listing for a typical student in the program and a timeline for completion of their studies leading to the credential proposed.

A typical Program for a M.Sc. student

Year	Fall Semester	Winter/Spring Semester	Summer
Year 1	Courses: 1- BME for Engineers/Life Science Students I (3) 2- Any two courses approved by the student's advisory committee (6) 3- BME Seminar (0) --- Thesis: literature review	Courses: 1- BME for Engineers/Life Science Students II (3) 2- Any two courses approved by the student's advisory committee (6) 3- BME Seminar (0) --- Thesis: literature review/pilot studies	Working on Thesis project Data collection if necessary
Year 2	One relevant course approved by the student's advisory committee (3) BME Seminar (0) --- Thesis: working on project	BME Seminar (0) --- Thesis: working on project	Writing the thesis Thesis Defense

A typical Program for a Ph.D. student

Year	Fall Semester	Winter/Spring Semester	Summer
Year 1	Courses: 1- BME for Engineers/Life Science Students I (3) 2- Any two courses approved by the student's advisory committee (6) 3- BME Seminar (0) --- Thesis: literature review	Courses: 1- BME for Engineers/Life Science Students II (3) 2- Any two courses approved by the student's advisory committee (6) 3- BME Seminar (0) --- Thesis: literature review/pilot studies	Working on research proposal Data collection if necessary Submitting the research proposal by the end of summer
Year 2	BME Seminar (0) --- Thesis: working on the project	BME Seminar (0) --- Thesis: working on the project Preparing for Candidacy exam	Working on the thesis project Data collection if necessary Submitting the Candidacy paper Candidacy Exam
Year 3	BME Seminar (0) Thesis: working on the project	BME Seminar (0) Thesis: working on the project	Working on the thesis project
Year 4	Thesis: working on project	Thesis: Write UP	Ph.D. Defense

II. **Estimate the enrolment for the first 5 years of the program and provide the evidence on which the projection is based.**

It is expected that the intake of students will come from various areas of Engineering, Medicine, and the Natural Sciences. Within the first year, we expect a total of 20 students (10 M.Sc. and 10 Ph.D.) to enroll in the program. This number includes only the new students who will enroll in the program. Current students working in BME (potentially as many as 50) will have the option to be transferred to the new program with the transfer protocol (make-up courses, thesis proposals, etc.) being handled on an individual basis. The following table shows the estimated student enrollment and graduation over the first 5 years of the program. The numbers have been estimated based on the following assumptions:

- The average duration for graduating from M.Sc. and Ph.D. programs are of 2.5 and 4.5 years, respectively.
- Every year the number of M.Sc. and Ph.D. enrollments have increments of 2 and 1, respectively.
- The numbers are estimated at the beginning of each year.

Year	Ph.D. intake	M.Sc. intake	Total Cumulative intake	M.Sc. Graduate	Ph.D. Graduate	Total enrolled in program
2009	10	10	20	0	0	20
2010	11	12	43	0	0	43
2011	12	14	69	-4	0	65
2012	13	16	98	-11	0	83
2013	14	18	130	-13	-5	97

III. **State whether there is an intent to provide some aspects of the program through distance education and if so, how this will be effected.**

Since most of Biomedical Engineering courses require lab experiments, we do not intend to offer the program through distance education.

IV. **Provide a schedule for implementation.**

We anticipate accepting students into both the M.Sc. and Ph.D. Biomedical Engineering Programs by September 2009.

B. HUMAN RESOURCES

1. Faculty

List all faculty members associated with the program (include adjuncts).

I. **For research-based programs (i.e. thesis) indicate their expected association as:**

a) ***Thesis advisors***

b) ***Thesis committee members***

For both parts (a) and (b), the list include: (the abbreviated C.V.s are attached.) The individuals listed in the table below have provided written confirmation that they are willing to serve as inagural members of the Biomedical Engineering Graduate Program. As such they are able to supervise graduate students in the program and serve on advisory committees in addition to having their graduate courses listed as those eligible to meet BME program requirements. Membership in the program does not require any explicit time commitment as the amount of involvement is in supervision and mentoring duties is at the discretion of the members.

Name	Position/Department	Area of Expertise
Zahra Kazem-Moussavi	Assoc. Prof. /Elect. & Comp. Eng.	BME Instrumentation/Sign. Proc.
Arkady Major	Assist. Prof. / Elect. & Comp. Eng.	Biophotonics
Sherif Sherif	Assist. Prof. / Elect. & Comp. Eng.	Biophotonics
Joe LoVetri	Assoc. Prof. /Elect. & Comp. Eng.	BME Image Proc./ Reconstruction
Derek Oliver	Assoc. Prof. /Elect. & Comp. Eng.	Biosensors/electrophysiology
Doug Thomson	Prof. / Elect. & Comp. Eng.	Biosensors /nano-tech
Bob McLeod	Prof./ Elect. & Comp. Eng.	BioInformatics
Witold Kinsner	Prof./ Elect. & Comp. Eng.	BioInformatics
Wai-Kung Fung	Assist. Prof. / Elect. & comp. Eng.	Tele Robotics / Computational Intelligence
Christine Wu	Prof./ Mech. & Manu. Eng.	Biomechanics / Gates
Nariman Sepehri	Prof. / Mech. & Manu. Eng.	Tele Robotics
S. Balakrishnan	Prof./ Mech. & Manu. Eng.	Clinical Applications of Robotics
Yunhua Luo	Assist. Prof. / Mech. & Manu. Eng.	Biomechanics / Rehab.
Qingjin Peng	Assist. Prof. / Mech. & Manu. Eng.	Med. Image Proces.
Jason Morrison	Assist. Prof. /Biosys. Eng.	Biomechanics
Stephan Cenkowski	Prof. / Biosys. Eng.	Biomechanics of Brain
Jitindra Paliwal	Assoc. Prof. / Biosys. Eng.	Vibrational spectroscopy
Tony Szturm	Assoc. Prof. / School of Med. Rehab.	Rehabilitation

Jacquie Ripat	Assist. Prof. / School of Med. Rehab.	Rehabilitation
Art Quanbry	Prof. / School of Med. Rehab.	Biomechanics/Rehabilitation
Juliette Cooper	Prof. Emeritus/School of Med. Rehab.	Rehabilitation/ Orthopedic Mechanics
Judy Anderson	Prof. / Biological Sciences	Skeletal Muscle Mechanics
Wen Zhong	Assist. Prof. /Microbiology	Nano tech. (biopolymer nanofibers)
Francis Lin	Assist. Prof. / Physics	Immune cell trafficking
David McCrea	Prof. / Physiology	Biosensors/Rehab
Stephen Pistorius	Prof. / Physics and Astronomy	Med. Image Proc. & Reconstruction
Mark Torchia	Prof. / Surgery	Biomedical Devices, Brain Imaging
Brian Blakley	Prof. / Otolaryngology	Ototoxicity / Hearing devices
Carson K. Leung	Assoc. Prof. / Computer Science	Databases and Data Mining for Biomed Applications
Jiming Kong	Assoc. Prof. / Human Anatomy & Cell Sci.	Cellular Neurological Diagnostics
Marc R. Del Bigio	Prof. / Pathology	Neuropathology
Song Liu	Assist. Prof. / Textile Sciences	Biochemical biosensors
Pourang Irani	Assist. Prof. / Computer Science	Human-Computer Interaction

c) ***Course teachers***

All the people listed above in parts (a) and (b) plus the following individuals:

Dr. Eric Bohm, Dept. Surgery

Dr. Andrew Goertzen, Radiology Dept.

Dr. Stephen Portet, Math. Dept.

Dr. Julien Arino, Math. Dept.

Dr. Frank Labella, Pharmacology Dept.

Provide an abbreviated* c.v. for thesis advisors and student program advisors. For others, provide only a list (by year) of graduate courses taught over the last 5 years or a rationale for the individual's inclusion in their respective category.

The C.V.s of the professors listed in a-b-c parts including the required information are attached.

Indicate the extent of participation of thesis advisors listed in I.a) above in other programs and anticipated participation in the proposed program (using relative measures, e.g. 80/20 split program A/program B).

The relative participation of the advisors in the program depends on the individual opportunity to supervise or serve on advisory committees for Biomedical Engineering students. The list of founding members for the program are adequate to service the requirements of the anticipated student numbers presented for the program.

Describe the impact of the proposed program on teaching loads.

The BME courses or sections of the two BME modular courses that are among the existing courses in each department will not impact the teaching loads. However, the core faculty members of the BME program who also teach a new BME course will have the equivalent teaching relief from their home departments. This has been reflected on the budget and contribution from each faculty.

2. Support Staff

Indicate the role or participation, if any, of clerical or technical support staff in the delivery or administration of the program.

A dedicated full-time administrative assistant will be required for the BME program. Another part-time administrative assistant will also be required to design and maintain the BME program Web Page and its online requests.

3. Other

Indicate the participation in the program, if any, of individuals or groups external to the University of Manitoba and provide a rationale for their participation. List the credentials for each individual/group supporting their involvement.

Adjunct Members

Name	Institution	Area of Expertise
Scott King	NRC	Med. Image Proc.
Mark Hewko	NRC	Med. Image Proc.
Dan P. Popescu	NRC	Optical Coherence Tomography
Phillip Unger	Element Life Science	Med. Image Proc. / Instrumentation
Hacene Serrai	NRC	
Lawrence Ryner	NRC	
Sergio Camorlinga	TRLabs	EHealth
Harry R. Ingleby	Cancer Care Manitoba	Med. Image Proc.
Idris Elbakri	Cancer Care Manitoba	Med. Image Proc.
Mark D. Alexiuk	IMRIS Inc	BME. Sig. Proc. / Biosensors
Behzad Mansouri	Neurology, U of Manitoba	TMS on Brain degenerative diseases
Mandana Modirroosta	Psychiatry, U of Manitoba	Neurophysiology
Murry Enns	Psychiatry, U of Manitoba	Psychiatry
Barry Campbell	Psychiatry, St. Boniface	Alzheimer disease diagnosis
Tammy Ivanco	Psychology, U of Manitoba	Human Behavioral
Jonathan Moratta	Psychology, U of Manitoba	Human Visual perception
Eleni Gianouli	Internal Medicien, U of Manitoba	Respiratory Acoustics
Hans Pasterkamp	Pediatrics, U of Manitoba	Respiratory Acoustics

C. PHYSICAL RESOURCES

1. Space

Describe the physical space in which the students will carry out this program of study and in which this program will be administered. (Classrooms for existing courses are assumed in place and no comment is required, but may be included if desired.)

A 'resource implication' statement is required from the Director of Student Records.

Because the BME students are enrolled mostly in existing graduate courses (only a few new courses will be required to be developed), no additional classrooms are required. However, there are some operating costs for lab maintenance considered in the budget.

I. Students

Student offices, study carrels, study/reading rooms, rooms with computer connections (if not included in other space), laboratory space, other research or study space as may be appropriate for the program.

While it is expected that the proposed BME program attracts more students to our university in general, however, it may draw a major percentage of its students from the pool of applicants to the graduate program of our university. Hence in total, we predict a maximum of 20% increase to the number of graduate students at the three involved faculties. Engineering Faculty has recently considered such growth and has gone through renovation providing more space for upcoming students and laboratory.

II. Administrative

General office, graduate chair office (if applicable).

Since the program is Biomedical Engineering, its home administrating issues will be done at the base of Engineering Faculty and a space in an office at the Engineering Building (TBA) will be dedicated as the general office for BME program.

2. Equipment

The proposed BME program will basically use the existing laboratories across the three faculties. Therefore, there is no particular equipment required. However, due to the increase usage of labs for the BME program and also an increase number of students using the labs, a budget has been considered for miscellaneous items used in the labs.

I. Teaching

Instructional equipment needed in delivery of courses/workshops/seminars in the program (projectors, video, computers, etc.)

There is no extra instructional equipment required for teaching courses in BME program. However, there is a budget considered for workshops/seminars/colloquium delivery.

II. Research

Major research equipment accessible to graduate students in the program, plans to retire/upgrade equipment or to obtain new equipment over the next 5 years.

A 'resource implication' statement is required from the Director of Information Services Technology.

Since the BME program is built upon the existing research potentials in the university, there is no extra major research equipment required.

3. Computer

Facilities available to graduate students in the program (laptops, PC's, mainframe, scanners, printers, etc.), and anticipated usage of open areas, facilities reserved for students in the program, availability of a University account for use with email, internet access, etc.

Due to an estimated increase in the number of recruited graduate students, a budget for lab supply including new computers has been considered. The IST statement is also attached.

4. Library

a) ***Describe existing resources available for use in the program***

Because the BME students are enrolled mostly in existing graduate courses the available library resources will be used.

b) ***Describe new resources required***

Your unit should comment on the Library statement and any new resources that are required for the program.

For the two mandatory bridging courses of the BME program there is a need for some simulation software and new books that a budget has been considered for. The library statement is attached.

D. FINANCIAL RESOURCES

1. Delivery Costs

List and describe immediate and projected additional costs involved in running the program.

I. **Costs associated with Human Resources implications under the headings B. 1, 2 & 3**

Salaries

Four new BME position at level of assistant professor, each with an estimated $90k/year. Faculty of Engineering has already contributed by filling two positions in BME. One position is supposed to be contributed by Faculty of Medicine and one position by COPSE.

One new Investigator Award position (NIAP/CIHR), $60k/year to be contributed by faculty of Medicine.

CRC Chair position, $100k/year, contributed by CRC.

1.5 Administrative Assistant, $37k/year for one full-time employee plus 18.5k/year for one part-time employee contributed by COPSE

Offload (hiring sessional instructors for compensate the teaching loads of BME members), $20k/year contributed by COPSE

II. **Costs associated with Physical Resources implications under the above headings B. 1, 2 &3**

Office supplies, $5k/year

Seminar/colloquium, $3k/year

Library items, $3.5k/year

Lab supplies, $20k/year

III. **Costs associated with research not covered above.**

Although it is not necessary for delivering the program, however it would be advantageous to offer two scholarships to the top students at each M.Sc. and Ph.D. levels.

Awards/scholarship (2 M.Sc.), $28k/year

Awards/scholarship (2 Ph.D.), $34k/year

Matching Awards/scholarship (6 undergraduate summer students), $15k/year. The award will be matched by the BME faculty supervisor, similar to the NSERC summer scholarship program.

For the categories above indicate which costs are to be covered by internal (to unit) reallocation of existing budget(s) and which costs represent need for new funds.

The costs that are being covered by internal units:

Salaries of three professors and one investigator have been budgeted by the Faculties of Engineering and Medicine.

CRC Chair salary

2/3 of seminar/colloquium budget is covered by Engineering and Medicine Faculties.

1/2 of lab supplies budget is covered by Engineering and Medicine faculties.

The costs that are in need of new funds by COPSE:

One Professor Salary

One Administrative Assistant salary

Sessional Instructors Salary

Tech and lab maintenance

Library supplies

1/3 of seminar/colloquium budget

1/2 of lab supplies

Awards/scholarships

For details, please see the attached budget sheet.

2. Student Support

Indicate how and to what extent support of students is anticipated and indicate what commitment is made for student recruitment.

The requested dedicated scholarships for graduate BME students will definitely provides a means to increase the recruitment. Furthermore, the summer student projects which are requested to be supported partially by COPSE with a matching fund of the BME faculty members will provide a very efficient way to attract excellent local students to the BME program for their graduate education.

3. Identification of new financial resources

Indicate any new sources of funds that are anticipated for supporting the program.

TRLabs strongly supports the proposed BME program by providing M.Sc. and Ph.D. scholarships, office space and computers to BME graduate students assigned to TRLabs approved research projects. (Letter of support is attached.) NRC Institute for biodiagnostics is another strong supporter of the program. Several of their members will be adjuncts to this program; hence providing research support such as using the available facility at NRC as well as partial financial support for BME graduate students who are assigned to NRC approved research projects. CMC microsystems is also another supporter of the BME program and will continue its support by providing equipment and scholarship for the graduate students assigned to CMC approved research projects.

4. Balance sheet

Provide a financial statement summarizing the expected costs and the revenue anticipated. Present a financial plan that includes all costs from start-up to achievement of a "steady-state" operation of the program. Include such items as capital start-up needs and phasing in of FTE growth.

Please see the attached document.

E. Supporting documents

Provide letters of support from departments/faculties/units and outside groups/agencies/organizations as appropriate.

Letter of support from Dean of Engineering (Attached)

Letter of support from Dean of Medicine

Letter of support from NRC-IBD

Letter of support from TRLabs (Attached)

Library Statement (Attached)

Computer Services Statement (Attached)

Register's office letter (Attached)

Mandatory Course Outlines (Attached)

faculty of graduate studies
University of Manitoba

PROPOSAL FOR COURSE INTRODUCTIONS

UNIT NAME	PREPARED BY	Date Approved by unit Faculty Council
Biomedical Engineering Program	Dr. Zahra Moussavi	

COURSE TO BE INTRODUCED

PROPOSED COURSE NUMBER	COURSE TITLE	CREDIT HOURS
BME.700	BME for Engineering Students	6

ABBREVIATED COURSE TITLE (Maximum 15 characters)

BME-Eng

GRADING MODE Letter Grades ☑ Pass / Fail ☐

PROPOSED NEW CALENDAR DESCRIPTION
(Including any pre- or co- requisites. Must not exceed 4 lines, 75 characters per line)

The goal of this course is to introduce human biological systems and human physiology. The emphasis of this course will be both theoretical and practical, with topics being divided into modular units consisting of lectures and labs. Each unit will provide lectures detailing the basic theoretical background of the topic area, following by practical work in the labs. This course is designed for engineers and thus, its core focus is on human biological systems, human physiology and kinesiology. This course is highly interdisciplinary, with the units being comprised of material from multiple health related faculties and departments. Prerequisites: CHEM 1300, Biology, BIOL 1020

STATE REASONS FOR THE INTRODUCTION OF THE NEW COURSE

Core transdisciplinary course informing students with a
Engineering background regarding the human biological systems
and human physiology. Demand by students and enrichment of the program.

EXPECTED ENROLLMENT 10

COURSE OFFERING CYCLE - eg. "yearly," "every two years," "as needed"
(Provide explanation if not yearly)

yearly

DURATION OF DELIVERY Weeks/Terms 2 terms

Hours per week 3

REQUIRED OR ELECTIVE COURSE (indicate degree program)

Required

IS THERE ANY ADITIONAL COST IN TERMS OF STAFF, FACILTIES OR EQUIPMENT?
(If yes, a statement from the Budget Dean must be appended) Yes ☐ No ☐

TO BE APPENDED FOR ALL COURSES INTRODUCED

☐ Course Outline

Format: A short description of the intent of the course with concise and accurate statements of the main topic or conceptual areas to be covered. Clarify the nature of the course, such as whether it is theoretical or practical, laboratory, seminar, or other form. Identify required textbook (s) (if applicable). Include a statement on Academic Dishonesty and a breakdown of the the course is evaluated.

☐ Letters of support (if necessary, from units perceiving duplication or overlap)

☐ Library Resource Statement

Note: The library must be provided with a course outline as described above. As well, the proposing unit and the subject librarian should discuss and agree upon the bibliography to be used in assessing the strength of the library's collection in the field. The library will need at least one month notice of course proposals, and six months notice of program proposals, in order to prepare its statement.

SIGNED APPROVAL

HEAD OF DEPARTMENT

CHAIR, FACULTY GRADUATE COMMITTEE

BUDGET DEAN

DATE OF UNIT FACULTY COUNCIL APPROVAL

BME for Engineering Students (BME-ENG, 6 credit hours)
Course Outline

Course Description
The goal of this course is to introduce human biological systems and human physiology. The emphasis of this course will be both theoretical and practical, with topics being divided into modular units consisting of lectures and labs. Each unit will provide lectures detailing the basic theoretical background of the topic area, following by practical work in the labs. This course is designed for engineers and thus, its core focus is on human biological systems, human physiology and kinesiology. This course is highly interdisciplinary, with the units being comprised of material from multiple health related faculties and departments. The course has three main modules and each module will be evaluated independently.

Course Objectives
Students will become comfortable with the covered physiological systems and their functions. Students will be able to derive and utilize engineering models of the covered human physiological systems. The parallels between chemical (e.g., cell biology), electrical (e.g., pulmonary), mechanical (e.g., biomechanics), and physiological models will be analyzed from both theoretical and practical points of view.

Prerequisites
CHEM 1300, Biology, BIOL 1020

Detailed Course Content

Module 1: Overview of Human Functional Anatomy (10 weeks of lectures and 6 labs)
Topics:

1) Introduction to function and structure of bones, joints, muscles, nerves, blood vessels, The EMG Signal – motor units and the muscle membrane
2) Head, Neck and Trunk – function and structure of the skull, vertebral column, thoracic cage. Breathing, phonation, swallowing
3) Upper Limb: function and structure of the shoulder, function and structure of the forearm and hand
4) Lower Limb: function and structure, locomotion
5) Neuroanatomy: elements of the nervous system (CNS-PNS, neurons, glia, ganglia, tracts, spinal cord, brain), sensory tracts, motor tracts, peripheral nerves, cranial nerves, control systems (reflexes, cerebellum, basal ganglia)

Module 2: Foundations of Physiology (10 weeks of lectures, 5 labs)
Topics:

1) Human Physiology for Engineers
2) Physiology of Smooth Muscles
3) Physiology of Respiration
4) Cardiac Physiology
5) Cardiovascular Electrophysiology

6) Neuroscience, neurophysiology

Module 3: Biochemistry and Microbiology (5 weeks and 3 labs)

Topics:

1) Biomolecules and an Introduction to Metabolic Energy
2) Introduction to Human Genetics
3) Proteins: Purification, bioinformatics, characterization, expression, structure, folding and engineering of proteins
4) Cellular and Molecular Biochemistry
5) Experimental Methods for Electronic Materials: Methods for growing and analyzing electronic materials

Module 4: Ethics (1 week)

1) Ethics and the practice of the professions of medicine and engineering

Instructional Methods

The course will be delivered in both a theoretical and practical manner. Lectures will form the theoretical basis of the course, which will be matched with its accompanying practical knowledge gained through the hands-on labs. A project will also be undertaken by each student, in which they will have to read papers to determine a research question, postulate the experimental methodology and protocol, recruit study participants, collect biological data, analyze the data, and write a scientific paper detailing their study.

Evaluation

Each module, will be evaluated separately and the final course grade will be the average of the grade of each module. The grade of each module is determined by the student's performance on the following:

Component	Value	Details
Exam(s)	40%	
Assignments	15%	
Lab Experiments	15%	
Project(s)	30%	

The lab and subsequent lab assignments will be used to gauge the student's ability to perform practical and hands-on work for the module.

Academic Integrity

Students are expected to conduct themselves in accordance with the highest ethical standards of the Profession of Engineering, and to evince academic integrity in all their pursuits and activities at the university. As such, in accordance with Section 7.1 of the General Academic Regulations and Requirements of the University of Manitoba, students are reminded that plagiarism or any other form of cheating in examinations, assignments, laboratory reports or term tests is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university). A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.

faculty of graduate studies
UNIVERSITY of MANITOBA

PROPOSAL FOR COURSE INTRODUCTIONS

UNIT NAME	PREPARED BY	Date Approved by unit Faculty Council
Biomedical Engineering Program	Dr. Zahra Moussavi	

COURSE TO BE INTRODUCED

PROPOSED COURSE NUMBER: BME.xxx

COURSE TITLE: BME for Life Sciences Students

CREDIT HOURS: 3

ABBREVIATED COURSE TITLE (**Maximum 15 characters**): BME-LS

GRADING MODE: Letter Grades ☒ Pass / Fail ☐

PROPOSED NEW CALENDAR DESCRIPTION
(Including any pre- or co- requisites. **Must not exceed 4 lines, 75 characters per line**)

The goal of this course is to introduce engineering analysis techniques for application to human biological systems, in order to analyze biomedical data and solve biomedical problems. The emphasis of this course will be both theoretical and practical, with topics being divided into modular units consisting of lectures and labs. Each unit will provide lectures detailing the basic theoretical background of the topic area, following by practical work in the labs. This course is designed for students in the life sciences and thus, its core focus is on basic electronics instrumentation and signal and image analysis techniques, and their application to human biological systems. This course is highly interdisciplinary, with the units being comprised of material from multiple health related faculties and departments. Prerequisites: Math 1210 (Linear Algebra), Math 1510 (Calculus I)., PHYS 1050, COMP 1010

STATE REASONS FOR THE INTRODUCTION OF THE NEW COURSE

Core transdisciplinary course informing students with a life science background regarding the Engineering approaches, instrumentation and signal and image analysis. Demand by students and enrichment of the program.

EXPECTED ENROLLMENT 10

COURSE OFFERING CYCLE - eg. "yearly," "every two years," "as needed"
(Provide explanation if not yearly)

yearly

DURATION OF DELIVERY Weeks/Terms 2 terms

Hours per week 3

REQUIRED OR ELECTIVE COURSE (Indicate degree program)

Required

IS THERE ANY ADITIONAL COST IN TERMS OF STAFF, FACILTIES OR EQUIPMENT?
(If yes, a statement from the Budget Dean must be appended) Yes ☐ No ☒

TO BE APPENDED FOR ALL COURSES INTRODUCED

☒ Course Outline

Format: A short description of the intent of the course with concise and accurate statements of the main topic or conceptual areas to be covered. Clarify the nature of the course, such as whether it is theoretical or practical, laboratory, seminar, or other form. Identify required textbook (s) (if applicable). Include a statement on Academic Dishonesty and a breakdown of the the course is evaluated.

☐ Letters of support (if necessary, from units perceiving duplication or overlap)

☒ Library Resource Statement

Note: The library must be provided with a course outline as described above. As well, the proposing unit and the subject librarian should discuss and agree upon the bibliography to be used in assessing the strength of the library's collection in the field. The library will need at least one month notice of course proposals, and six months notice of program proposals, in order to prepare its statement.

SIGNED APPROVAL

HEAD OF DEPARTMENT Joe LoVetri (Joe LoVetri Assoc. Dean Research Engineering)

CHAIR, FACULTY GRADUATE COMMITTEE Joe LoVetri (for Faculty)

BUDGET DEAN

DATE OF UNIT FACULTY COUNCIL APPROVAL

BME for Life Sciences Students (BME-LS, 6 credit hours)
Course Outline

Course Description
The goal of this course is to introduce engineering analysis techniques for application to human biological systems, in order to analyze biomedical data and solve biomedical problems. The emphasis of this course will be both theoretical and practical, with topics being divided into modular units consisting of lectures and labs. Each unit will provide lectures detailing the basic theoretical background of the topic area, following by practical work in the labs. This course is designed for students in the life sciences and thus, its core focus is on basic electronics instrumentation and signal and image analysis techniques, and their application to human biological systems. The course has three main modules and each module will be evaluated independently.

Course Objectives
Students will become comfortable with utilizing engineering models of the covered human physiological systems. The parallels between chemical (e.g., cell biology), electrical (e.g., pulmonary), mechanical (e.g., biomechanics), and physiological models will be analyzed from both theoretical and practical points of view.

Prerequisites
Math 1210 (Linear Algebra), Math 1510 (Calculus I), PHYS 1050, COMP 101

Detailed Course Content

Module 1: Signal Analysis and Processing (8 weeks of lectures and 4 labs)
Topics:
1) Classification/Representation of Signals
2) Fourier Series Representation of Periodic Signals, Frequency Spectrum
3) Aperiodic Signals - Fourier Transform
4) Autocorrelation - Energy/Power Density Spectrum
5) Impulse Function/ Impulse Response/ Convolution/ LTI system/ Transfer Function
6) Random Signals, Random events, Bayes theorem; probability
7) Intro to Random Process: EMG signal/EEg signal
8) Power Spectral Density of a Random Process

Module 2: Instrumentation (8 weeks of lectures and 4 labs)
1) Basic Circuit Theory Elements: R,L,C, Voltage/Current Sources
1. KVL/KCL
2. 1st and 2nd order circuits; differential equation & Laplace transform solutions; transient & steady-state response.
2) Thevenin/Norton Equivalent Representation
3) Operational Amplifier
4) Instrumentation Amplifier
5) Design of Instrumentation Amplifier for Biological Signals: Use EMG as a Practical Example.
3. Discuss effect of electrodes and model

6) Revisit Laplace Transforms More Generally: LTI System; Transfer Function Concept; Effect of
7) Pole/Zeros Placement on Frequency Response, Transient Response; Filter Designs
8) Safety Considerations in Design: Macro & Micro
9) Getting Signals into the Computer: Sampling/A/D Conversion
10) Discussion of Other Biomedical Instrumentation: Defibrillators/Pacemakers/Tasers

Module 3: Biomechanics (4 weeks of lectures and 2 labs)

1) The mechanical and anatomical analysis of human movement
2) Principles underlying human motor performance and motor skill learning
3) Theory and practical application of biomechanics of human movement in relation to rehabilitation

Module 4: Engineering Electromagnetic (5 weeks of lectures and 2 labs)

1) Vector analysis, Differential and integral calculus
2) Electrostatics: Coulomb's law, Electric field, Electric potential, Gauss's law
3) Electric fields in matter, Polarization, Field inside a dielectric
4) Magnetostatics, The Lorentz force law, Biot Savart law
5) Electrodynamics, Ohm's law, Faraday's law, Ampere's law, Maxwell's equations
6) Poynting's Theorem, Electromagnetic waves, The wave equation, Electromagnetic waves in vacuum, Electromagnetic waves in matter, Absorption and dispersion

Module 5: Ethics (1 week)

1) Ethics and the practice of the professions of medicine and engineering

Instructional Methods

The course will be delivered in both a theoretical and practical manner. Lectures will form the theoretical basis of the course, which will be matched with its accompanying practical knowledge gained through the hands-on labs. A project will also be undertaken by each student, in which they will have to read papers to determine a research question, postulate the experimental methodology and protocol, recruit study participants, collect biological data, analyze the data, and write a scientific paper detailing their study.

Evaluation

Each module, will be evaluated separately and the final course grade will be the average of the grade of each module. The grade of each module is determined by the student's performance on the following:

Component	Value	Details
Exam(s)	40%	
Assignments	15%	
Lab Experiments	15%	
Project(s)	30%	

The lab and subsequent lab assignments will be used to gauge the student's ability to perform practical and hands-on work for the module.

Academic Integrity

Students are expected to conduct themselves in accordance with the highest ethical standards of the Profession of Engineering, and to evince academic integrity in all their pursuits and activities at the university. As such, in accordance with Section 7.1 of the General Academic Regulations and Requirements of the University of Manitoba, students are reminded that plagiarism or any other form of cheating in examinations, assignments, laboratory reports or term tests is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university). A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.

UNIVERSITY OF MANITOBA | Faculty of Medicine

Office of the Assoc. Dean (Research)
753 McDermot Avenue
Winnipeg, Manitoba
Canada R3E 0W3
Telephone (204) 789-3375
Fax (204) 789-3942

August 25, 2008

To: Dr. Joe Lovetri, Associate Dean
Faculty of Engineering

From: Dr. Patrick Choy, Associate Dean
Faculty of Medicine

Cc: Dr. J. Dean Sandham, Dean of Medicine
Dr. E. Kroeger, Assistant Dean (Graduate Studies) in Medicine

Re: The Biomedical Engineering Program

On behalf of Dr. J. Dean Sandham, I wish to reiterate the support of the Faculty of Medicine for the Biomedical Engineering Program. The support from the Faculty of Medicine will include but not limited to the following items:-

1. The Faculty of Medicine and the Faculty of Engineering cosponsored and were successful in obtaining a Tier II Canada Research Chair in Biomedical Engineering. Recruitment of the CRC jointly by Engineering and Medicine has been completed.
2. Dr. Tony Szturm- School of Medical Rehabilitation, Faculty of Medicine and a cross-appointee to the Faculty of Engineering, has considerable interest in the Biomedical Engineering Program. He plans to make a significant contribution to the Program.
3. The Faculty of Medicine will sponsor a qualified individual for the New Investigator Award of the Canadian Institutes of Health Research. This sponsorship is contingent on identifying an individual whose research interest in biomedical engineering also fits into the priority of the Faculty of Medicine.
4. The Faculty of Medicine is in the process of recruiting five junior scientists for the Regenerative Medicine Program. Some of these individuals may have interest, background and/or research training in biomedical engineering or a related field. They will be encouraged to participate in the Biomedical Engineering Program.

We wish to thank you for taking the lead in the development of this Program. I hope that our support will provide you with a firm basis to submit the Biomedical Engineering Program to FGS sometime this week.

UNIVERSITY OF MANITOBA | Faculty of Engineering
Office of the Dean

E2-290 Engineering Building
Winnipeg, Manitoba
Canada R3T 5V6
Telephone (204) 474-9806/7
Fax (204) 275-3773

20 August 2008

Dr. John Doering, Dean
Faculty of Graduate Studies
500 University Centre

Dear Dr. Doering:

The Faculty of Engineering considers the creation of a formal graduate level Biomedical engineering (BME) program one of its highest priorities. This is an important research area for which many of our faculty members already devote much of their research efforts and a formalized program will help these researchers in the many ways that are detailed in the BME proposal. The program will include a comprehensive interdisciplinary curriculum that will give students the foundations needed for state-of-the-art biomedical engineering research and development. We expect the BME program to be quite attractive to students who apply for a graduate program in the Faculty of engineering and that this will create opportunities to recruit students from the life sciences and medicine leading to an increased graduate student population. As described in the proposal, this is a joint program between the Faculties of Engineering and Medicine that will require us to expand our current course offerings and will foster new and enhanced collaborations amongst the researchers of the two Faculties as well as with other faculties such as the Faculties of Science and Dentistry.

The Faculty of Engineering does not foresee any issues related to physical resources associated with mounting this comprehensive BME program. The laboratory and student office space will be accommodated in our existing facilities. Our future growth in terms of Faculty members and research personnel has been outlined in the proposal and will be a natural growth that is to some extent independent of the BME program. That is, our future plans in the area of BME have already been put into motion to include the new BME program, not because of the BME program.

The Faculty of Engineering is fully committed to this new formalized BME program. It is strongly believed that the BME program will enrich the educational experience of our graduate students, will provide a consistent post-graduate curriculum and educational infrastructure

leading to M.Sc. and Ph.D. degrees in BME, and will attract excellent students from around the world.

Sincerely,

Douglas Ruth, P.Eng. Ph.D.
Professor and Dean

DR/jt

Copy: Dr. J. LoVetri, Associate Dean (Research and Graduate Programs)

TRLabs
100, 135 Innovation Drive / Winnipeg, Manitoba, Canada R3T 6A8
t: 204.489.6060 f: 204.488.1564
www.trlabs.ca

Re: A multidisciplinary Biomedical Engineering (BME) Program at the University of Manitoba

TRLabs strongly supports the establishment of a postgraduate level Biomedical Engineering (BME) Program at the University of Manitoba. TRLabs stands to benefit from the establishment of this program given that the research conducted through it would be of interest to organizations affiliated with TRLabs, including the Brandon Regional Health Authority. Consequently TRLabs would support the BME Program by providing Masters and Doctoral level scholarships to BME postgraduate students assigned to TRLabs approved research projects.

A large number of TRLabs' industry sponsors (including the Brandon Regional Health Authority) are interested in supporting research that leads to the realization of a distributed personalized healthcare system. This is one of the goals of TRLabs research program, and has resulted in TRLabs establishing its eHealth Focus Area. Dr. Moussavi is a leading researcher in TRLabs eHealth Focus Area. Her exceptional leadership, insight, and dedication have resulted in research of interest to our industry members. We fully expect her leadership of the BME program will also benefit our sponsors and lead to the commercialization of research conducted through the University of Manitoba. TRLabs' goal is to assist in the commercialization of university research ideas. As a result, the interaction between the UofM researchers and our industry sponsors generated by the BME should result in economic benefits in the form of increased activity within existing companies and/or the generation of new companies.

TRLabs is Canada's largest information and communications technology (ICT) not-for-profit R&D organization. TRLabs drives the competitiveness of western Canada's ICT industry with the supply of brain power and innovative technologies. From the seeds of ideas, to applied research, to technology development, TRLabs' engagement in all aspects of the innovation process delivers sector-leading commercialization rates, and "in-demand" high quality people. We believe that the collaboration between TRLabs and the proposed University of Manitoba's BME program will generate significant innovation within Manitoba which will be embraced by the health care delivery sector and ultimately improve the quality of life in Manitoba.

Sincerely,

Rainer Iraschko
Vice President, Research

Len Dacombe
Director, Manitoba Operations

UNIVERSITY OF MANITOBA | Information Services And Technology

IST
Information Services and Technology

Executive Director/
Central Administration
E3-606 EITC
Winnipeg, Manitoba
Canada R3T 2N2
Tel: (204) 474-9590
Fax: (204) 474-7515

August 22, 2008

Zahra Moussavi
Associate Professor
Room E3-513 Eng. Bldg.
Dept. of Electrical & Computer Engineering

Dear Dr Moussavi;

Thank you for sending me the proposal for the program in Biomedical Engineering..

Based on the material therein and expected enrollments this proposed new program should have no significant effect on IST facilities.

G E Miller
Executive Director IST

Academic Computing & Networking
E3-606 EITC
Winnipeg, MB R3T 2N2
(204) 474-9590
(204) 474-7515 FAX

Administrative Systems
100 Administration Bldg.
Winnipeg, MB R3T 2N2
(204) 474-9905
(204) 474-7502 FAX

Bannatyne IT Group
S206 Medical Service Bldg.
Winnipeg, MB R3E 0W2
(204) 789-3747
(204) 789-3919 FAX

Telecom Group
133 MAchray Hall
Winnipeg, MB R3T 2N2
(204) 474-9590
(204) 474-7515 FAX

Classroom Technology Group
123 Fletcher Argue Bldg.
Winnipeg, MB R3T 2N2
(204) 474-8163
(204) 474-7598 FAX

Media Production Group
112 Armes Bldg.
Winnipeg, MB R3T 2N2
(204) 474-8946
(204) 474-7625

www.umanitoba.ca

THE UNIVERSITY
OF MANITOBA
LIBRARIES

LIBRARY SUPPORT STATEMENT FOR PROPOSED COURSE CHANGES

The signatures below endorse the findings of the bibliographer whose comments are attached. They do not necessarily indicate that the library has the resources to support the course change as outlined in the departmental submission.

NAME OF PROGRAM

Faculty: Engineering

Department:

Program: Graduate Program in Biomedical Engineering

SUPPORT STATEMENT PREPARED BY: Judy Harper (Bibliographer)

APPROVED BY: Jan Horner
Coordinator, Collections Management

Director of Libraries

DATE: 21 August 2008

UNIVERSITY
OF MANITOBA

UNIVERSITY OF MANITOBA | Sciences and Technology Library

211 Machray Hall
Winnipeg, Manitoba
Canada R3T 2N2
Telephone (204) 474-9281
Fax (204) 474-7627

Date: August 22, 2008

To: Dr. Zahra Moussavi, Electrical and Computer Engineering Department

From: Judy Harper, Head, Sciences and Technology Library

Re: Proposed New Graduate Program: **Biomedical Engineering**

I have assessed the University of Manitoba Libraries (UM Libraries) resources in response to the proposed plan to introduce a multidisciplinary M.Sc. and Ph.D. program in Biomedical Engineering. It is my understanding that the Faculties of Engineering, Medicine and Science will be involved. My assessment finds that the Libraries' journal collection is strong enough to support the new program. However, while books are less important to the subject, the monograph collection needs to be strengthened. The Libraries will use some of its one-time funds ($4,540) to improve the collection. However, it cannot provide the further one-time funds of $5,000 needed to bring it up to the desired level, nor the continuing funds of $5,000 needed to maintain this collection going forward.

Background

While the University of Manitoba Libraries has not been supporting a separate Biomedical Engineering graduate program there are a number of related collections presently available in the Sciences and Technology Library (in both the engineering and science collections) and the Neil John Maclean Health Sciences Library.

Introduction

Because of the importance of current information, journals are normally more important than books in graduate programs in science, technology and medicine. ISI's *Journal Citation Reports (JCR)* for 2007[1], which provides a ranked list of journals by citation impact factor[2] was used to assess the

[1] *JCR* for 2007 was published in July 2008.

[2] The impact factor is an indicator of how often, on average, an article in a journal published in the two previous years is cited by other articles in the current year.

strength of the journal collection.

Because of time constraints, specific monographs were not checked to determine the level of support the Libraries can provide for this new program. Instead, the three bibliographers involved in collection development in this area (Norma Godavari, Engineering Library, Bill Poluha, Sciences and Technology Library and Hal Loewen, Neil John Maclean Health Sciences Library) were interviewed to determine the current collecting level. The BISON online catalogue was checked to determine the number of books published since 2004 that were in the collection and this figure was compared to the number held by the libraries at the Universities of Alberta and Toronto where similar programs are already being offered.

Databases important for this program were also identified.

Journals

The University of Manitoba Libraries has current subscriptions, mostly in electronic format, to 28 (85%) of the 33 journal titles listed in ISI's *Journal Citation Reports* section "Engineering, Biomedical". According to the "UML Collection Assessment Guidelines" this percentage indicates that the journal collection is capable of supporting graduate research.

Monographs

Each of the bibliographers mentioned above is presently collecting in one or more aspects of biomedical engineering. The Libraries' approval plan is also bringing in some titles of importance in this area.

A keyword search in the University of Manitoba Libraries' BISON catalogue for the words "biomedical" and "engineering" identified 95 titles (excluding journals) published between 2004 and the present. The same search in the University of Alberta and University of Toronto catalogues identified 206 and 442 titles respectively. Please see the table below.

Date Published	Number of Titles - UML	Number of Titles - U of A	Number of Titles - U of T
2008	5	18	22
2007	22	55	64
2006	22	59	92
2005	20	35	123
2004	26	39	141
Total	95	206	442

While it may not be necessary for the University of Manitoba Libraries to have the same size of collection as the University of Toronto, there should be more books in the UM Libraries than are presently available for it to support this program. Recent books would be of greatest value. Therefore taking the average of the books held by the University of Alberta and the University of Toronto for 2008 and 2007, the University of Manitoba Libraries should have 80 books not 27 (i.e. an additional 53 books). Using $180[3] as the average price, the Libraries would need an additional $9,540 in one-time funds to upgrade the current collection. The Libraries has $4,540 available in one-time funds which could be used to purchase some of these books. A further $5,000 would be needed from the program or from the faculties supporting it. To maintain the collection once the program begins, the Libraries will need an additional $5,000 annually.

Databases

The Libraries provides excellent access to a number of electronic databases which would be useful for students in this program.

ACM Digital Library 1985-
Biological Abstracts 1929-
BioOne
CINAHL 1982-
Compendex 1884- (now also included in *Scopus*)
Dekker Encyclopedias (Biomaterials and Biomedical Engineering 2008)
IEL (IEEE/IEE Electronic Library) 1988-
EMBASE 1980-
ENGnetBase 1999-
INSPEC 1969-
Knovel
Metadex 1966-
Scopus
SpringerLink (covers e-journals and all books published by Springer in electronic format since 2005 including the areas of biomedical sciences and biosystems engineering)
PubMed 1950-
SciFinder Scholar 1907-
Web of Science 1955-

The *ENGnetBASE* subscription covers biomedical engineering, electronics, machine design, computer engineering, electrical engineering and lasers and optical engineering

The *Knovel* subscription covers several engineering sections which include biomedical engineering material.

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[3] This figure is the average of the following three figures: the 2007-2008 average expenditure at the University of Manitoba Libraries for an engineering book @ $285, the average expenditure for a medical book @$141, and the average expenditure for a science book @ $116.

Other Library Services

In the past few years the Libraries has implemented a number of services to enhance and facilitate research.

Document Delivery

Since 2002 document delivery services, by which the Libraries acquires material form other libraries outside of Manitoba, has been offered free of charge. It takes approximately three days to acquire journal articles and three weeks for books.

RefWorks

This is an online reference manager available to assist students in organizing their research results and creating bibliographies.

UMLinks

This feature provides a direct link from a bibliographic database to the Libraries' electronic resources and BISON.

Conclusion

The Libraries' journal collection can support the proposed graduate program in Biomedical Engineering. Even though books are less important, the monograph collection will need to be augmented with the addition of one-time funds of $5,000 to bring the collection up to the desired level and continuing funds of $5,000 to maintain this collection. The Libraries cannot provide these additional funds within its present budget.

cc J. Horner, Coordinator, Collections Management
N. Godavari, Head, Donald W. Craik Engineering Library
B. Poluha, Bibliographer for Physics, Sciences and Technology Library
A. Ducas, Head, Neil John Maclean Health Sciences Library
H. Loewen, Medical Rehabilitation Librarian, Neil John Maclean Health Sciences Library

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September 9, 2008

To: Zahra Moussavi, Associate Professor, Dept. of Electrical & Computer Engineering

From: Neil Marnoch, Registrar

Re: **Proposal for a M.Sc. and Ph.D. Programs in Biomedical Engineering (BME)**

Dr. Moussavi, having reviewed the program proposal for a Masters and Doctoral Programs in Biomedical Engineering, I see no problems in the Registrar's Office supporting this program with respect to registration, fee assessment and academic evaluation.

Please note that:

- although transfer of credit from external institutions may be permitted by the program administrators, credit awarded will not reduce a student's program fees.
- Based on the outline and description of the Masters program, this program will be administered as a Two-Year Masters program under the current Graduate Studies fee structure.
- In order to be implemented for September 2009 and appear in the 2009-2010 Graduate Calendar, this proposal must be approved by Senate by December 2008.

Best of luck with your proposal.

Neil Marnoch
Registrar

Report of the Senate Committee on Rules and Procedures regarding the proportion of Senators elected by faculty and school councils pursuant to section 27(1) of the *University of Manitoba Act*

Preamble

1. The terms of reference of the Senate Committee on Rules and Procedures is available online on the Governance website wherein the committee is charged to "at the request of Senate or any committee thereof, or on its own motion, to consider and recommend on any matter concerning rules and procedures".
2. In June of 2008, the Senate Executive Committee referred the matter of senate representation by members elected to Senate by faculty and school councils to the Senate Committee on Rules and Procedures for consideration and review. The last such review occurred in 1975.

Observations

1. While this matter was referred to the Committee as a result of a proposal for GFT reform in the Faculty of Medicine, the Committee felt it should more broadly review the process for allocating Senators to faculties and schools generally before specifically focusing on one faculty or school.
2. Under the current Rules, proportionate representation is determined by determining the total number of Senators to be elected by Faculty and School Councils (this number is twice the number of *ex officio* members of Senate in any given year) and applying a formula based on the number of eligible electors in any given faculty or school council as a proportion of the total number of eligible electors from all faculties and schools. Included in this number are all those academics holding full time positions and all those voting support staff members of faculty and school councils.
3. The Committee asked the University Secretary to research three questions:
   - How do other medical/doctoral universities determine the number and proportion of senators elected by faculties and schools?
   - How has the proportion of Senators elected by Faculty and School Councils changed since the current formula was first used in 1975?
   - What options are there for re-calibrating what is done at the University of Manitoba, should that be required.
4. With regard to the second question, since 1975, there have been gradual, but in some cases significant changes in the proportion of Senators by unit. In 1975 and 2010 there 63 and 68 Senators, respectively, elected by Faculty and School Councils. Seven units have the same number of Senators now as in 1975 (Dentistry, Art, Law, Music, Nursing, Pharmacy and Social Work). Although the number of elected Senators has increased over the last 35 years, seven units have fewer Senators now than in 1975 (Agriculture -1,

Comments of the Senate Executive Committee:
The Senate Executive Committee endorses the report to Senate.

Architecture -1, Arts -5, Education -2, Engineering -1, Human Ecology -1, Business -2, and Science -2). Two units have more Senators than in 1975 (Kinesiology +1 and Medicine +13). Of these three the most significant change is Medicine that has gone from having 11 Senators or 17.5% of the representation elected by faculty and school councils in 1975 to 24 (35.3%) of those Senators today. As the numbers of GFT faculty members has increased at a greater speed than other full time faculty members, Medicine's representation on Senate has slowly but significantly increased. A chart summarizing the change in representation in raw numbers of senators per unit elected by faculty and school councils is appended to this report (Appendix 'A').

5. The Committee observes that while it makes sense for some faculties and schools to have more representation on Senate than others, it is important to the purpose of Senate to place a limit on the maximum percentage of faculty and school council seats that any one faculty or school can hold.

6. In order to address the question of how other medical/doctoral universities determine the number and proportion of Senators elected by faculties and schools, thirteen English-language medical-doctoral universities were surveyed (UBC, Alberta, Calgary, Saskatchewan, Manitoba, McMaster, Toronto, Western Ontario, Queen's, Ottawa, McGill, Dalhousie and Memorial). Of the 13 institutions:
   - Seven use the principle of the number of Faculty Senators elected being at least twice the number of ex officio members on Senate (UBC, McMaster, Saskatchewan, Manitoba, Memorial, Alberta and Calgary).
     - Of those seven, four proportion the number of Senators each faculty and school is entitled to elect based on full time faculty members in each faculty and school (Manitoba, Memorial, Alberta and Calgary).
     - Of those seven, three have two or three Senators elected by each faculty and school and the rest are elected at large by all faculty members across the University (UBC, McMaster and Saskatchewan).
   - One (McGill) has the number of Senators per Faculty and School defined in governing legislation.
   - One (Western) has a number of Senators per Faculty and School defined in legislation, but the Senate can request a change in that part of the legislation with a two-thirds vote.
   - One (Dalhousie) has a blended formula using the number of full time faculty members **and** the number of FTE students together to determine the number of Senators each faculty and school is entitled to elect.
   - One (Ottawa) has two ex officio Senators per Faculty and one Senator elected by Faculty Council per faculty.
   - Two (Queen's and Toronto) have the number of Senators per faculty and school set by the Board of Trustees and Governing Council respectively.

7. As the survey of other institutions finds, there are a few different models at use in Canada, and some of the models could not be used at the University of Manitoba. For example, electing Senators in at-large elections across the University would not work because it would violate section 27(1) of the University of Manitoba Act, which states:

> 27(1) **Each faculty council and each school council shall annually elect** such number of persons to be members of senate as the senate has determined the faculty council or school council is entitled to elect (emphasis added).

8. Based on the gradual, but significant changes in the proportionality of Senators by Faculty and Schools, the Committee has concluded that the formula used in 1975 to determine the allocation of Senators to faculties and schools no longer provides an appropriate result. The Committee also observes that the need to ensure that all faculties and schools are appropriately represented in Senate elections, warrants changes to the formula used at the University of Manitoba.

9. In light of the Committee's desire to update and adjust the formula, the Committee considered a number of models including:
   - the status quo;
   - allocating each unit an equal number of Senators regardless of size;
   - considering both student and faculty numbers in determining the allocation;
   - weighting faculty based on the type of appointment they hold for the purposes of determining each unit's allocation; or
   - setting a maximum percentage (cap) of the Senators elected by faculty and school councils. This would be the status quo with a cap introduced.

10. After careful consideration the Committee recommends the last option, i.e., setting a cap on the maximum number of Senators that can be elected by any faculty or school council. The Committee feels that this change maintains the spirit of what is done now, while ensuring an equitable distribution of Senate seats. The Committee recommends that the cap be set at twenty (20) percent of the total number of Senators elected by faculty and school councils. An example of the distribution of seats using the new model is attached (Appendix 'B').

11. At the present time, academic staff members from Student Affairs and Extended Education are considered as one constituency for the purposes of Senate elections. In practice, Student Affairs elects one Senator, and Extended Education the other. The Committee recommends that the rules related to Senate elections be modified to split these constituencies.

12. Finally the Committee noted that the current provisions regarding the election of Senators by faculty and school councils has not been reviewed in 35 years. The Committee recommends that these provisions be reviewed by the Committee at least every six years.

13. At the May 2010, Senate meeting, Senate deferred consideration of this report to the October Senate meeting due to concerns expressed by some

members of the Faculty of Medicine. Discussions with the Dean of Medicine took place and the Committee has agreed to two additions to the proposed changes to the rules, as outlined in the appendix to this report.

Recommendations

The Senate Committee on Rules and Procedures recommends:

1. That Senate approve the changes to the Standing Rules of Senate Relating to Members Elected Under Section 27 of The University of Manitoba Act (the "Rules"), as outlined in Appendix C, effective for the 2011 Senate elections;
2. That Senate direct the University Secretary to ensure that the Rules are reviewed by the Senate Committee on Rules and Procedures at least once every six years.

Respectfully submitted,

Dean John Doering, Chair

Senate Committee on Rules and Procedures

/jml

Faculty/School	Total # of 1975 Senators	Total # of 10/11 Senators	Net Change
Agriculture	4	3	-1
Architecture	2	1	-1
Arts	14	9	-5
Extended Ed/Cnsl.	n/a	1	1
Dentistry	2	2	0
Education	4	2	-2
Engineering	4	3	-1
Environment	n/a	2	2
Fine Arts	1	1	0
Human Ecology	2	1	-1
Law	1	1	0
Library	n/a	2	2
Management	3	1	-2
Medicine	11	24	13
Music	1	1	0
Nursing	2	2	0
Pharmacy	1	1	0
Kinesiology	1	2	1
Science	9	7	-2
Social Work	1	1	0
Total	63	68	5

Appendix A

Faculty/School	Total # of 1975 Senators	Total # of 10/11 Senators	Net Change
Agriculture	4	3	-1
Architecture	2	1	-1
Arts	14	9	-5
Extended Ed/Cnsl.	n/a	1	1
Dentistry	2	2	0
Education	4	2	-2
Engineering	4	3	-1
Environment	n/a	2	2
Fine Arts	1	1	0
Human Ecology	2	1	-1
Law	1	1	0
Library	n/a	2	2
Management	3	1	-2
Medicine	11	24	13
Music	1	1	0
Nursing	2	2	0
Pharmacy	1	1	0
Kinesiology	1	2	1
Science	9	7	-2
Social Work	1	1	0
Total	63	68	5

SEATS on SENATE (20% Cap Model)

Faculty/School	2010-11 Faculty/Support Staff on Faculty/School Council: Faculty	Support	Subtot. Staff	Number of Senators: *2010-11 Seats*	**Proposed**	Diff.
Agric. & Food Sc.	76	2	78	3	4	1
Architecture	37	3	40	1	2	1
Arts	245	2	247	9	11	2
Extended Ed	36	4	40	1	2	1
Dentistry	48	2	50	2	2	0
Education	48	2	50	2	2	0
Engineering	81	2	83	3	4	1
Clayton H. Riddell	45	3	48	2	2	0
Fine Arts	20	8	28	1	1	0
Human Ecology	32	1	33	1	1	0
I.H. Asper	53	2	55	2	2	0
Kines. & Rec. Mgmt	35	12	47	2	2	0
Law	23	1	24	1	1	0
Library	63	1	64	2	3	1
Medicine	634	6	640	24	14	(10)
Music	25	1	26	1	1	0
Nursing	52	1	53	2	2	0
Pharmacy	19	1	20	1	1	0
Science	178	3	181	7	8	1
Social Work	38	2	40	1	2	1
sums	1788	59	1847	68	67	(1)

total ex-oficio 34

ELECTION OF ACADEMIC AND SUPPORT STAFF TO SENATE (amendments in bold underline approved by SCRP on September 21, 2010)

The University of Manitoba Act (the "Act") provides for the election of persons to Senate by each Faculty and School Council [Section 26(1)(n) and Section 27]. The method by which this is done is determined by Senate in the form of Standing Rules of Senate. The relevant sections of the Act are provided together with the Standing Rules which govern the process. Because the number of elected members of Senate is determined by formula using the list of eligible members of faculty/school councils, the size of Senate will change from time to time.

Provisions of The University of Manitoba Act Respecting Members Elected by Faculty and School Councils

Powers of Senate 34(z): From time to time, by by-law, determine the total number of persons to be elected as members of senate by the faculty councils and school councils, the total number of whom shall not be less than twice the number of persons mentioned in clauses 26(1)(c) to (j), (p) and (q).

1. Members from faculty councils, etc.
27(1) Each faculty council and each school council shall annually elect such number of persons to be members of senate as the senate has determined the faculty council or school council is entitled to so elect.

2. Terms of elected members
27(2) If a faculty council or school council is entitled to so elect as members of senate (a) only one person, he shall be elected for a three-year term; (b) two or more persons, such persons shall be respectively elected for such terms not exceeding three years as will result in their terms respectively expiring in successive years.

3. Termination of term of office
27(3) A person elected as provided in this section ceases to be a member of senate upon his ceasing to be a full-time member of the faculty or school by whose council he was elected.

4. Term of office
28(1) The term of office for which a member of the senate shall be appointed or elected under clauses 26(1)(k), (l) and (m) after the coming into force of this Act, other than to fill the unexpired term of a member of the senate who has ceased to be such, is subject to subsection (2) and to section 29, the number of years commencing on June 1 of the year of appointment or election hereinafter stated:

(a) the term of each member appointed by the board shall not exceed three years and not more than one term shall expire in any year;

(b) the term of each member elected by the students of the university under clause 26(1)(l) shall be as determined by the senate under clause 34(1)(cc);

(c) the term of each member appointed by the board of directors of the alumni association shall not exceed three years and not more than one term shall expire in any given year.

5. Continuation of term
28(2) A member of the senate whose term of office has expired on May 31 in any year shall continue as such until his successor has been appointed or elected and shall be eligible for re-appointment or re-election.

6. Notification of name of member
28(3) The body possessing the power of appointment or election of a member of senate shall forthwith after the appointment or the election by it of a member of the senate give notice thereof in writing to the secretary of the senate; and no appointed or elected member of the senate has the right to sit or act as a member of the senate unless his appointment or election is so certified in writing to the University Secretary.

7. Removal of member
29 Any appointed or elected member of the senate may be removed from office at any time by the body that appointed or elected him.

8. Vacancies
30(1) Where an appointed or an elected member of the senate resigns, ceases to be a member of senate or becomes incapable of acting, his seat becomes vacant; and a declaration of the existence of the vacancy entered upon the minutes of the senate is conclusive evidence thereof.

9. Filling of vacancies
31(1) Where a vacancy in the senate occurs from any cause, the vacancy shall, in the case of an appointed or an elected member, be filled by the body possessing the power of appointment or election; and the person so appointed or elected shall hold office for the remainder of the term of the person in whose place he is appointed or elected.

10. Minimum membership of senate
32 Notwithstanding any vacancies in the senate, the senate is legally constituted for all purposes so long as not fewer than 25 members of the senate remain in office.

11. Chancellor determines questions of membership
33 Where a question arises touching the election of an elected member of the senate or touching the right of any person to be, or sit or act as, a member of the senate, the question shall be determined by the chancellor or, at his option, by a committee consisting of the chancellor and such others as he may appoint.

12. Powers of senate
34(1) The senate has general charge of all matters of an academic character; and, without restricting the generality of the foregoing, the senate shall

(aa) by by-law, establish a formula for the determination of the number of members of senate, each faculty council, each school council, and each faculty council and school council joined for the purposes of the election, is entitled to elect, and in accordance with that formula determine the number of members of senate each faculty council, each school council, and each faculty council and school council joined for the purposes of the election, is entitled to elect;

(bb) by by-law, determine when the elections to which reference is made in clause (aa) are to occur and, if desired, the manner in which nominations shall be made and the elections conducted;

(dd) determine the eligibility of any person for election as a member of senate by a faculty council or a school council or a faculty council and school council joined for the purpose of the election.

Standing Rules of Senate Relating to Members Elected Under Section 27 of The University of Manitoba Act

1. Number of Representatives

The total number of Senators elected by faculty/school councils shall be not less than twice the number of *ex officio* members designated in Section 26(1), (c) to (j), (p) and (q) of the *Act*.

2. Eligibility for Nomination

All full-time members of the academic and support staff of the University who are members of a faculty/school council, in addition to those academic staff in Student Affairs, the Extended Education Division and the Libraries), except those designated *ex officio* under Section 26 of the *Act*, shall be eligible for election to Senate from the faculty/school council to which they belong or in which they have been accepted for purposes of Senate elections (see 3(b) below). **For greater clarity, clinical faculty members in the Faculty of Medicine holding GFT appointments are considered full-time members of the academic staff.**

3. Eligibility to Vote

(a) All members of the academic and support staff (including *ex officio* members of Senate but excluding sessional and part-time support staff appointments) who are members of a faculty/school council having six or more members eligible for nomination are entitled to vote in Senate elections, provided that they are able to vote at the time and in the manner prescribed by Senate and faculty/school council by-laws or regulations. Members of the academic and support staff including those in Student Affairs, the Extended Education Division, and the Libraries are entitled to vote in Senate elections, and shall do so with the other eligible staff in their constituency.

(b) *Ex officio* members of Senate, who are not members of a faculty/school council having six or more members eligible for nomination may vote with any faculty/school council willing to accept them as members for the purposes of elections to Senate.

(c) In the case of cross-appointments, deans and directors shall ascertain from the individuals concerned the faculty/school council of which they wish to be considered members for the purpose of elections to Senate. Decisions must be communicated to the University Secretary in order that the number of Senators from each constituency may be made final.

4. Number to be Elected by Each Faculty/School Council Constituency

(a) Faculty/school councils, academic staff in Student Affairs, the Extended Education Division and the Libraries having six or more members eligible for nomination shall be entitled to at least one representative on Senate.

(b) The remaining places shall be distributed proportionately in accordance with procedures set forth below.

(c) No member of the University shall be counted, vote or be nominated in more than one faculty or school.

5. Procedures for Determining Proportionate Representation

(a) On December 31 of each year, the University Secretary shall be provided a list of all full-time academic staff of the University with the rank of instructor, lecturer, assistant professor, associate professor, and full professor, or the equivalent, in each faculty or school of the University, including members of the Student Affairs, the Extended Education Division and the Libraries.

(b) The University Secretary shall forward to each dean or director for verification the list of persons he/she considers eligible in each faculty or school.

(c) At the same time, the University Secretary shall notify the academic staff of the requirements of rules 3(b) and 3(c) above, inviting those concerned to make arrangements to join a faculty/school council for the purpose of Senate elections by January 31.

(d) During the first week in February, deans and directors shall return the lists with such amendments as may be necessary, including the addition of:

(i) the names of any members eligible for nomination whom the faculty/school council has accepted as members for the purpose of elections to Senate;

(ii) the names of support staff who are members of faculty/school councils; and

(iii) those names to be added in accordance with 3(c) above.

(e) Formula:

The University Secretary shall determine the number of representatives each council-constituency shall be entitled to elect to Senate by application of the following formula:

Let N = total full-time members eligible for nomination (see 2 above).

X = twice the number of *ex officio* members (see 4.2.1 above).

Nf = total eligible members of a faculty/school council constituency.

Rf = number elected from a faculty/school council constituency.

Then, Rf = X/N times Nf.

Rf will rarely work out to be an integer. It should be computed to at least four significant figures. The number of Senators to be elected by a faculty or school shall be the integer closest to the value of Rf.

Example: If Rf = 1.49, the faculty will have one elected member.

If Rf = 1.50, the faculty will have two elected members and so forth.

This is subject to the rule that a faculty or school council with six members eligible for nomination shall be entitled to elect at least one Senator.

This is also subject to the principle that no faculty or school council or other constituency shall be permitted to elect more than 20% of the Senators elected by Faculty or School Councils under section 27(1) of *The University of Manitoba Act*. In the event that the application of this formula would result in a faculty or school council or other constituency electing more than 20% of the Senators as noted above, that faculty or school council or constituency will be capped at 20% of the Senators and the calculation for the remaining constituencies will be adjusted iteratively in order to allocate the remaining Senate seats.

No faculty who would be entitled to 20% of the Senators elected by Faculty or School Councils as of January, 2011 shall be allocated less than that number in any consequent year.

(**NOTE:** With these rules the number of elected Senators will not always work out to be exactly twice the number of *ex officio* members. In extreme cases it could be above or below the allotted number by a number equal to one-half the total number of faculties and schools. This is, however, an unlikely event, and it should usually work out to be within plus or minus two of the allotted number.)

6. Procedures for Election

Each council constituency shall be responsible for the conduct of its own election and shall formulate its own rules, provided that:

(a) the election is completed and reported to the University Secretariat by April 15th at the latest;

(b) all members eligible to vote are given at least 10 days' notice of vacancies to be filled together with a list of members eligible for election and a statement of procedures for filling nominations (by mail, meeting or electronic means);

(c) all members eligible to vote are given at least 10 days' notice of nominations received.

7. By-Elections

When a vacancy occurs, 6(b) and 6(c) shall apply as far as possible provided that if a vacancy occurs within 45 days of the date of the annual election, it shall remain vacant until that date.

8. Replacements for Members of Senate Going on Leave

A faculty member intending to go on leave:

(a) who has been a member for one year, may be replaced for a term of either one or two years, as determined by the faculty or school council;

(b) who has been a member for two years, may be replaced for the remaining year;

(c) who is going on a six-month leave, may be replaced for six months, or for one year, or for the remainder of the term of office, as determined by the faculty or school council.

9. Removal of a Member

(a) "Any appointed or elected member of the senate may be removed from office at any time by the body that appointed or elected" the member (*The University of Manitoba Act*, Section 29).

(b) A faculty or school council may remove its representative in accordance with the section on removal in the Faculty and School Council General By-Law.

(c) When a member of Senate elected by a faculty or school council has failed to attend three consecutive meetings of Senate, the member shall be notified by the Secretary with a copy to the dean or director of the faculty or school concerned. If the dean or director has not received a satisfactory explanation of the absences within a reasonable time of receipt of such notice, the dean or director shall in accordance with the procedure set forth in the Faculty/School Council General By-law, call a meeting of the council to consider a resolution to remove the member from office and elect a replacement. The University Secretary must be notified of the disposition of the matter.

10. Designates

There is no provision for individual members or assessors on Senate to name a delegate to their position. The only exception to this is the Deputy Minister of Education as provided for in Section 26(1)(q) of *TheUniversity of Manitoba Act.*

11. Assessors

(a) Senate from time to time by resolution may provide for assessor members to Senate.

(b) A person who is otherwise a member of Senate is not eligible to be an assessor to Senate.

(c) Assessors are permitted to participate fully in the deliberations of Senate but may not make or second motions, and may not vote.

(d) In the event that Senate moves into closed session, assessors will not be required to leave the Senate Chamber unless specifically excluded.

Revised by Senate Committee on Rules and Procedures 31 January 1975.
Amended by Senate 4 March 1975.
Amended by Senate 6 July 1976.
Amended by Senate 9 January 1979.
Amended by Senate 6 June 1990.
Amended by Senate 3 August 1993.
Amended by Senate June 28, 2000.

Draft amendments – March, 2010.

October 6, 2010

Report of the Senate Committee on Nominations

Preamble

1. Each year the Senate Committee on Nominations delegates the nomination of students to the student representatives on the Senate Committee on Nominations (the "Student Nominating Sub-Committee").

2. The terms of reference for the SCN are found on the University Governance website.

Observation

1. Appendix A indicates the slate of nominees as recommended by the Student Nominating Sub-Committee, including the names of the nominees being proposed, their faculty/school, and the expiry date of their terms.

Recommendation

1. THE SCN recommends to Senate the following list of nominees:

APPENDIX A

Senate Committee	Nominee	Faculty	Term Ending
Senate Committee on Academic Computing	TBA		2012.10.14
	TBA		2012.10.14
Senate Committee on Academic Dress	TBA		2011.10.14
	TBA		2011.10.14
Senate Committee on Academic Freedom	Jaye Rynar	Arts	2011.10.14
	TBA		2011.10.14
Senate Committee on Academic Review	Amanda Ciprianio	Education	2011.10.14
	Caitlin Rose	Education	2011.10.14
Senate Committee on Admissions	Solomon Boakye-Yiadom	Graduate Studies	2011.10.14
	TBA		2011.10.14
	TBA		2011.10.14
Senate Committee on Admission Appeals	Joel Myskiw	Law	2011.10.14
	Mike McDermid	Music	2011.10.14
Senate Committee on Appeals	Joel Myskiw	Law	2011.10.14
	Sprague Richardson	Agriculture	2011.10.14
	Aubrie Schettler	Arts	2011.10.14
	TBA		2011.10.14
	TBA		2011.10.14

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Senate Committee on Animal Care	TBA		2012.10.14
	TBA		2012.10.14
Senate Committee on Awards	Ted Paranjothy	Science	2011.10.14
	TBA		2011.10.14
Senate Committee on the Calendar	TBA		2011.10.14
Senate Committee on Curriculum and Course Changes	Kathryn Marcynuk	Engineering	2011.10.14
	Jaye Rynar	Arts	2011.10.14
	Solomon Boakye-Yiadom	Graduate Studies	2011.10.14
Senate Committee on the Ethics of Research Involving Human Subjects	Ted Paranjothy	Science	2012.10.14
	TBA		2012.10.14
Senate Committee on Instruction and Evaluation	Murat Ates	Environment	2011.10.14
	Chad Duffield	Education	2011.10.14
	David Brown	Education	2011.10.14
	TBA		2011.10.14
Senate Committee on Joint Master's Programs	TBA		2011.10.14
Senate Committee on Joint Master's Programs Appeals	TBA		2011.10.14
Senate Committee on the Libraries	Corey Shefman	Law	2012.10.14
	TBA		2012.10.14
Senate Planning and Priorities Committee	Murat Ates	Environment	2012.10.14
	TBA		2012.10.14
Senate Committee on Rule and Procedures	TBA		2011.10.14
Senate Committee on University Research	TBA		2012.10.14
	TBA		2012.10.14

Respectfully submitted,

Prof. Emily Etcheverry, Chair

/lrjl