

Senate
Senate Chamber
Room E3-262 Engineering Building
WEDNESDAY, November 4, 2009
1:30 p.m.
Regrets call 474-6892

AGENDA

I MATTERS TO BE CONSIDERED IN CLOSED SESSION

1. Report of the Senate Committee on Honorary Degrees

This report will be distributed at the Senate meeting. Copies will be available for inspection by members of Senate in the Office of the University Secretary on the day preceding the Senate meeting.

II MATTERS RECOMMENDED FOR CONCURRENCE WITHOUT DEBATE

1. **Report of the Executive Committee of the Faculty of Graduate Studies on Course and Curriculum Changes RE: Masters of Physician Assistant Studies program, the Department of Microbiology, the Asper School MBA, and the Departments of Economics, History, and Psychology** Page 17

III MATTERS FORWARDED FOR INFORMATION

1. **Report of the Senate Committee on Awards** Page 24
2. **In Memoriam: Professor Lew Layman** Page 30
3. **Report on Research Contract Funds Received January 1, 2009 to June 30, 2009** Page 32
4. **Items approved by the Board of Governors September 29, 2009** Page 37
5. **Correspondence from the Senate Committee on University Research RE: Establishment of the Experimental Media Research Group** Page 38

IV ELECTION OF SENATE REPRESENTATIVES

1. **Election of a Student Member to the Senate Executive Committee** Page 44

V REPORT OF THE PRESIDENT

VI 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.

**VII CONSIDERATION OF THE MINUTES
OF THE MEETING OF OCTOBER 7, 2009**

**CONSIDERATION OF THE MINUTES
OF THE MEETING OF JUNE 24, 2009**

VIII BUSINESS ARISING FROM THE MINUTES

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

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| 1. | <u>Report of the Senate Executive Committee</u> | Page 45 |
| 2. | <u>Report of the Senate
Planning and Priorities Committee</u> | |

The Chair will make an oral report on the Committee's activities.

**X REPORTS OF OTHER COMMITTEES OF SENATE,
FACULTY AND SCHOOL COUNCILS**

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| 1. | <u>Report of the <i>ad hoc</i> Committee of the Committee of
Election regarding the Election of the Chancellor</u> | Page 46 |
| 2. | <u>Report of the Faculty Council of Graduate Studies on a
Program Change to the MA program in Philosophy</u> | Page 53 |
| 3. | <u>Report of the Faculty Council of Graduate Studies on
Curriculum Changes to the MA and PhD in Psychology</u> | Page 57 |
| 4. | <u>Report of the Senate Committee on University Research
RE: Establishment of Manitoba Institute for Materials</u> | Page 62 |

XI ADDITIONAL BUSINESS

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| 1. | <u>Correspondence from UMSU</u> | Page 92 |
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XII ADJOURNMENT

Please call regrets to 474-6892 or meg_brolley@umanitoba.ca

/mb

Report of the Executive Committee of the Faculty of Graduate Studies on Course and Curriculum Changes

Preamble

1. The Faculty of Graduate Studies has responsibility for all matters relating to the submission of graduate course, curriculum and program changes. Recommendations for new programs or changes are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. In October 2007, the Faculty of Graduate Studies approved a process of *Streamlining Course Introductions, Modifications, & Deletions* which allows the Executive Committee to approve these changes in lieu of Faculty Council when the courses are not associated with a new program or program changes.
3. The Faculty of Graduate Studies Executive Committee met on the above date to consider proposals from the I.H. Asper School of Business, and the Depts. of Economics, History, and Psychology, Faculty of Arts.
4. The Faculty of Graduate Studies submits, for information, course number changes from the Master of Physician Assistant Studies and the Dept. of Microbiology.

Observations

1. It has come to the attention of the Faculty of Graduate Studies that two courses of the Masters of Physician Assistant Studies program (approved by Senate on June 24/09) and of the Dept. of Microbiology (approved by Senate on March 4/09) were assigned incorrect course numbers and have been changed to reflect the following:

PAEP 7042 Pediatrics for Physician Assistants (3)

[NEW COURSE # PAEP 7048]

A brief, comprehensive didactic introduction to the field of pediatric medicine designed to prepare the physician assistant to diagnose and treat, within his or her scope of practice, common pediatric conditions. Pre-requisite: Successful completion of MPAS year 1.

PAEP 7044 Obstetrics and Gynecology for Physician Assistants (3)

[NEW COURSE # PAEP 7050]

A brief, comprehensive didactic introduction to the field of obstetrics and gynecology designed to prepare the physician assistant to diagnose and treat, within his or her scope of practice, common obstetrics and gynecology conditions as would be encountered in a primary care setting. Pre-requisite: Successful completion of MPAS year 1.

MBIO 7180 Bioprocessing (3)

[NEW COURSE # MBIO 7070]

This course allows students with a background in either biological sciences or engineering to gain an understanding of biochemical engineering processes used to enable important chemical conversions by biological systems. Topics include

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

bioprocessing for production of biofuels, bioplastics, and biopharmaceuticals, upstream processing technologies, fermentation and bioreactor systems, and downstream processing for product recovery. These will be related to present or potential industrial applications. This course is also offered in the Dept. of Biosystems Engineering as BIOE 7180. MBIO 7180 [7070] cannot be held with BIOE 7180.

Note: The Dept. of Biosystems Engineering has been notified to reflect this change in the course description for BIOE 7180.

2. The Asper School MBA proposes the introduction of two courses, FIN 7152 Investment Policy (3) and FIN 7232 Financial Intermediaries and Capital Markets (3), and the deletion of FIN 7150 Investment Policy (3) and FIN 7230 Seminar in Financial Intermediaries & Capital Markets (3) to reflect significant course content changes.
3. The Dept. of Economics, Faculty of Arts proposes the deletion of three courses, ECON 7030 Topics in Applied Econometrics (3), ECON 7720 Advanced Microeconomic Theory: Production and Consumption (3), and ECON 7730 Advanced Microeconomic Theory: General Equilibrium and Welfare (3), the introduction of three courses, ECON 7032 Econometrics III (3), ECON 7722 Advanced Microeconomic Theory I (3), and ECON 7732 Advanced Microeconomics Theory II (3), and the modification of two courses, ECON 7010 Econometrics I (3), and ECON 7020 Econometrics II (3) to reflect changes in course title and content.
4. The Dept. of History, Faculty of Arts proposes the deletion of one course, HIST 7570 The Political Institutions of Imperial Russia (6), and the introduction of three courses, HIST 7500 Jewish and European History and Historiography (6), HIST 7772 Selected Topics (3), and HIST 7774 Independent Study/Reading (3) to offer students more options in given topic areas.
5. The Dept. of Psychology, Faculty of Arts proposes the deletion of two courses, PSYC 7010 Ethics, History and Profession of School Psychology (6) and PSYC 7020 Psycho-educational Assessment and Measurement (6) and the introduction of ten courses, PSYC 7012 Ethics, History and Profession of School Psychology 1 (3), PSYC 7014 Ethics, History and Profession of School Psychology 2 (3), PSYC 7022 Psycho-educational Assessment and Measurement 1 (3), PSYC 7024 Psycho-educational Assessment and Measurement 2 (3), PSYC 7192 Psychology of Health and Aging (3), PSYC 7300 Applied Behavior Analysis in Developmental Disabilities (3), PSYC 7620 Person X Situation Interactionism (3), PSYC 7952 Clerkship-Practicum in Clinical Psychology (0), PSYC 7954 Clerkship-Practicum in Clinical Psychology (0), PSYC 7956 Clerkship-Practicum in Clinical Psychology (0), and the modification on five courses, PSYC 7910 Clerkship-Practicum in Clinical Psychology (0), PSYC 7920 Clerkship-Practicum in Clinical Psychology (0), PSYC 7930 Clerkship-Practicum in Clinical Psychology (0), PSYC 7940 Clerkship-Practicum in Clinical Psychology (0), PSYC 7950 Clerkship-Practicum in Clinical Psychology (0) to largely split 6 CH courses into two 3CH courses to ease scheduling matters, and be able to offer more practica courses for students who must register in more than the required five.

Note: The latter course (3) introductions and (5) modifications entitled "Clerkship-Practicum in Clinical Psychology" all hold the same title, course description and 0 credit hours. The Senate Secretary's office has informed the Faculty of Graduate Studies that

the course introductions can be submitted in this way as a continuation of the current model of the five courses already in place; however, that it is a special case. Normally, if a department is proposing "identical" courses with different course numbers, Senate could question the rationale for it.

Recommendations

The Faculty of Graduate Studies Executive recommends THAT:

Senate approve the course and curriculum changes from the units listed below:

Master of Physician Assistant Studies Program

Department of Microbiology

I. H. Asper School of Business

Department of Economics

Department of History

Department of Psychology

Respectfully submitted,
Dean J. Doering, Chair
Graduate Studies Executive Committee

I.H. Asper School of Business

Course Deletions:

FIN 7150 Investment Policy (3)	-3
FIN 7230 Seminar in Financial Intermediaries & Capital Markets (3)	-3

Course Introductions:

FIN 7152 Investment Policy (3)	+3
The theory and practice of investment management. Topics include: portfolio theory and management, market efficiency, options and futures. This course cannot be held with FIN 7150. Prerequisite: FIN 6072 C+ (or FIN 6070 C+ or 009.607 C+)	
FIN 7232 Financial Intermediaries and Capital Markets (3)	+3
Topics include: the major participants in the capital markets and their functions, the demand and supply of money and the structure of interest rates, non money financial instruments, recent developments and international factors in the capital markets and capital market risk issues. This course cannot be held with FIN 7230. Prerequisite or concurrent requirement: FIN 6072 C+ (or FIN 6070 C+ or 009.607 C+)	

NET CHANGE IN CREDIT HOURS: +0

Dept. of Economics, Faculty of Arts

Course Deletions:

ECON 7030 Topics in Applied Econometrics(3)	-3
ECON 7720 Advanced Microeconomic Theory: Production and Consumption (3)	-3
ECON 7730 Advanced Microeconomic Theory: General Equilibrium and Welfare (3)	-3

Course Introductions:

ECON 7032 Econometrics III (3) +3
Theory and applications of time-series analysis. Topics may include stationary univariate process; maximum likelihood estimation; Markov-switching models; state-space models; unit root process; vector autoregressive models; spurious regression; cointegration; and vector error correction models. Prerequisite: ECON 7010

ECON 7722 Advanced Microeconomic Theory I (3) +3
This course will cover topics in theories of consumer demand, production and cost, distribution, market equilibrium, market organization, general equilibrium and welfare. Students may not hold credit for both ECON 7722 and the former ECON 7720 (018.772). Prerequisite: ECON 6040 (or 018.604) which may be waived on demonstration of equivalent mathematical competence.

ECON 7732 Advanced Microeconomics Theory II (3) +3
This course will cover topics in game theory. Static and dynamic games with complete or incomplete information will be studied. Topics such as market failure arising from asymmetric information, firm behaviour in oligopolistic markets, auctions, signaling, free riding, externalities, and public goods will be discussed. Students may not hold credit for both ECON 7732 and the former ECON 7730 (018.773). Prerequisite: ECON 7722.

Course modifications:

ECON 7010 Econometrics I (3) +0
An advanced course in estimation and hypothesis testing in various regression models. Topics may include: asymptotic distribution theory; ordinary least squares estimation; maximum likelihood estimation; generalized least squares estimation; generalized method of moment estimation; and seemingly unrelated regression estimation.

ECON 7020 Econometrics II (3) +0
An advanced applied course in cross-section and panel data econometrics. Topics may include logit, probit, heckman selection, and poisson; instrumental variables, difference-in-differences, regression discontinuity; fixed and random effects; dynamic panel models; quantile regression, nonparametric estimation; bootstrapping. Prerequisite: ECON 7010.

NET CHANGE IN CREDIT HOURS: +0

Dept. of History, Faculty of Arts

Course deletion:

HIST 7570 The Political Institutions of Imperial Russia (6) -6

Course introductions:

HIST 7500 Jewish and European History and Historiography (6) +6
This seminar examines issues relating to Jewish history and historiography in the context of European history and historiography.

HIST 7772 Selected Topics (3) +3
The content of this course varies. Courses offered under this number will be advanced graduate seminars investigating topics that are not part of an existing seminar course. As the course content will vary from year to year, students may take this course more than once for credit.

HIST 7774 Independent Study/Reading (3) +3
The content of this course will vary. It will be an advanced, independent reading/study course for graduate students, on a topic of particular interest to the student. Normally the topic will be one that the student cannot study in an existing seminar course. As the course content will vary from year to year, students may take this course more than once for credit.

NET CHANGE IN CREDIT HOURS: +3

Dept. of Psychology, Faculty of Arts

Course deletions:

PSYC 7010 Ethics, History and Profession of School Psychology (6) -6
PSYC 7020 Psycho-educational Assessment and Measurement (6) -6

Course introductions:

PSYC 7012 Ethics, History and Profession of School Psychology 1 (3) +3
An overview of the fundamental concepts and issues of professional School Psychology. Ethical, professional, regulatory and legal issues pertaining to the practice of school psychology are examined. Also examined are the history of school psychology and the organization of educational systems. Students may not hold credit for both PSYC 7012 and the former PSYC 7010 (017.701). Prerequisite: permission of instructor.

PSYC 7014 Ethics, History and Profession of School Psychology 2 (3) +3
A continuation of the examination of fundamental concepts and issues of professional School Psychology. Ethical, professional, regulatory and legal issues pertaining to the practice of school psychology are examined. Also examined are the history of school psychology and the organization of educational systems. Students may not hold credit for both PSYC 7014 and the former PSYC 7010 (017.701). Prerequisite: permission of instructor.

PSYC 7022 Psycho-educational Assessment and Measurement 1 (3) +3
Designed to provide students with training in the basic principles of psychological assessment

and related measurement concepts, highlighting the process of data-based decision making. Emphasis will be placed on how information from a variety of psycho-educational sources is used to identify profiles for planning intervention programs. Students may not hold credit for both PSYC 7022 and the former PSYC 7020 (017.702). Prerequisite: permission of instructor.

PSYC 7024 Psycho-educational Assessment and Measurement 2 (3) +3
A continuation of training in the basic principles of psychological assessment and related measurement concepts, highlighting the process of data-based decision making. Emphasis will be placed on how information from a variety of psycho-educational sources is used to identify profiles for planning intervention programs. Students may not hold credit for both PSYC 7024 and the former PSYC 7020 (017.702). Prerequisite: permission of instructor.

PSYC 7192 Psychology of Health and Aging (3) +3
This course considers how adults adapt to the challenges of aging and the accompanying health problems. Seminar discussions will focus on selected psychological theories and related empirical literature regarding belief systems that operate in the face of health- and age-related challenges. Students may not hold credit for both PSYC 7192 and PSYC 7310 (017.731) with the topic "Health and Aging."

PSYC 7300 Applied Behavior Analysis in Developmental Disabilities (3) +3
Students will read recent applied behavior analytic research in behavioral assessments and interventions for people with developmental disabilities, acquire skills to critically evaluate empirical evidence, and examine implications for practice. Students may not hold credit for both PSYC 7300 and PSYC 7310 (017.731) with the topic "Research in Developmental Disabilities." Prerequisite: permission of instructor.

PSYC 7620 Person X Situation Interactionism (3) +3
We will first explore research demonstrating the impact of personality and situations, separately, on behavior. We then examine the debate that arose about whether understanding the person or the situation would have the most scientific merit. We spend the remainder (and the majority) of the course discussing the theories and research that arose from that debate. The majority of this research has an interactionist perspective, taking both the person and his/her situation into account. Students may not hold credit for both PSYC 7620 and PSYC 7310 (017.731) with the topic "Person X Situation Interactionism."

PSYC 7952 Clerkship-Practicum in Clinical Psychology (0) +0
Supervised practice in a clinical service facility operated by the university or approved by the clinical training program. Direct client contact to provide experience in assessment and therapy, based on case conceptualization and supervision by clinical faculty. Enrollment normally restricted to students in Clinical Psychology. Pass/fail course. Prerequisite: consent of instructor.

PSYC 7954 Clerkship-Practicum in Clinical Psychology (0) +0
Supervised practice in a clinical service facility operated by the university or approved by the clinical training program. Direct client contact to provide experience in assessment and therapy, based on case conceptualization and supervision by clinical faculty. Enrollment normally restricted to students in Clinical Psychology. Pass/fail course. Prerequisite: consent of instructor.

PSYC 7956 Clerkship-Practicum in Clinical Psychology (0) +0
Supervised practice in a clinical service facility operated by the university or approved by the clinical training program. Direct client contact to provide experience in assessment and therapy, based on case conceptualization and supervision by clinical faculty. Enrollment normally restricted to students in Clinical Psychology. Pass/fail course. Prerequisite: consent of instructor.

Course modifications:

PSYC 7910 Clerkship-Practicum in Clinical Psychology (0) +0
Supervised practice in a clinical service facility operated by the university or approved by the clinical training program. Direct client contact to provide experience in assessment and therapy, based on case conceptualization and supervision by clinical faculty. Enrollment normally restricted to students in Clinical Psychology. Pass/fail course. Prerequisite: consent of instructor.

PSYC 7920 Clerkship-Practicum in Clinical Psychology (0) +0
Supervised practice in a clinical service facility operated by the university or approved by the clinical training program. Direct client contact to provide experience in assessment and therapy, based on case conceptualization and supervision by clinical faculty. Enrollment normally restricted to students in Clinical Psychology. Pass/fail course. Prerequisite: consent of instructor.

PSYC 7930 Clerkship-Practicum in Clinical Psychology (0) +0
Supervised practice in a clinical service facility operated by the university or approved by the clinical training program. Direct client contact to provide experience in assessment and therapy, based on case conceptualization and supervision by clinical faculty. Enrollment normally restricted to students in Clinical Psychology. Pass/fail course. Prerequisite: consent of instructor.

PSYC 7940 Clerkship-Practicum in Clinical Psychology (0) +0
Supervised practice in a clinical service facility operated by the university or approved by the clinical training program. Direct client contact to provide experience in assessment and therapy, based on case conceptualization and supervision by clinical faculty. Enrollment normally restricted to students in Clinical Psychology. Pass/fail course. Prerequisite: consent of instructor.

PSYC 7950 Clerkship-Practicum in Clinical Psychology (0) +0
Supervised practice in a clinical service facility operated by the university or approved by the clinical training program. Direct client contact to provide experience in assessment and therapy, based on case conceptualization and supervision by clinical faculty. Enrollment normally restricted to students in Clinical Psychology. Pass/fail course. Prerequisite: consent of instructor.

NET CHANGE IN CREDIT HOURS: +9

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 Scholarships, Bursaries or Fellowships*, such offers shall be submitted to Senate for approval. (Senate, April 5, 2000)

Observations

At its meeting of September 29, 2009, the Senate Committee on Awards approved three new offers, nineteen amended offers, and the withdrawal of one offer, as set out in Appendix A of the *Report of the Senate Committee on Awards* (dated September 29, 2009).

Recommendations

On behalf of Senate, the Senate Committee on Awards recommends that the Board of Governors approve three new offers, nineteen amended offers, and the withdrawal of one offer, as set out in Appendix A of the *Report of the Senate Committee on Awards* (dated September 29, 2009). 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
September 29, 2009

1. NEW OFFERS

Deanna B. Cohen Bursary

Mr. Edwin Cohen (B.Comm./57) and Mrs. Deanna Cohen (B.S.W./61) offer an annual bursary at the University of Manitoba, to support graduate students in Social Work. The annual bursary will initially be valued at \$1,500. The Jewish Foundation of Manitoba, which holds the capital used to generate the annual amount for the bursary, will confirm the bursary value with the Financial Aid and Awards Office at the University on an annual basis.

The donors agree to fund the Bursary for a term of five years, beginning in the 2010-2011 academic session, with the right to renew the commitment for successive five year terms exercisable during the fourth year of any five year term. In the fourth year of any term, the donors will advise the Financial Aid and Awards Office, in writing, of their intention either to renew their commitment for an additional term or to withdraw the award.

The bursary will be offered to a graduate student who:

- (1) is enrolled full-time in the Faculty of Graduate Studies, in the first year of the Master of Social Work or the Ph.D. in Social Work;
- (2) has achieved a minimum cumulative grade point average of 3.0 (or equivalent) based on the last 60 credit hours of study;
- (3) is undertaking a thesis or an advanced field placement in the area of gerontology;
- (4) has demonstrated financial need on the standard University of Manitoba bursary application form.

In any given year that no candidate meets the criteria set out in the preceding paragraph, the bursary will be offered to an undergraduate student who:

- (1) is enrolled full-time in the Faculty of Social Work, in the second, third, or fourth year of the Bachelor of Social Work, Interfaculty Option in Aging;
- (2) has achieved a minimum degree grade point average of 2.5;
- (3) has demonstrated financial need on the standard University of Manitoba bursary application form.

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

Abraham and Mary Mathai University Entrance Scholarships

In memory of Abraham and Mary Mathai, their daughter offers three entrance scholarships, valued at \$500 each, for graduates of the International College of Manitoba who are admitted to the University of Manitoba. One scholarship will be offered to the student who:

- (1) has successfully completed a University Transfer Program (UTP) Stage 2 in Arts, Business, Engineering, or Science at the International College of Manitoba;
- (2) has achieved a minimum grade point average of 3.5 based on a minimum of 24 credit hours;

- (3) in the next ensuing academic session, is admitted to, and is registered full-time in the Faculty of Arts, the Faculty of Engineering, the I.H. Asper School of Business, or the Faculty of Science;
- (4) is determined by the selection committee to be the most improved student over the course of his or her studies at the International College of Manitoba.

The International College of Manitoba will nominate one candidate each year. The nominating committee for this award shall be comprised of staff and faculty from the College, other than the donor for this award. The nomination will be forwarded to the University of Manitoba.

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

Two scholarships will be offered to students who:

- (1) have successfully completed a University Transfer Program (UTP) Stage 2 in Arts, Business, Engineering, or Science at the International College of Manitoba;
- (2) have achieved the first and second highest grade point averages, with a minimum grade point average of 3.5, based on a minimum of 24 credit hours;
- (3) in the next ensuing academic session, are admitted to, and are registered full-time in the Faculty of Arts, the Faculty of Engineering, the I.H. Asper School of Business, or the Faculty of Science.

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

E.H. Price Entrance Scholarships for Engineering

E.H. Price provides \$10,000 annually to the University of Manitoba to offer the E.H. Price Entrance Scholarships for Engineering. The Financial Aid and Awards Office will confirm the availability of funding with E.H. Price each year prior to offering the Scholarships. E.H. Price offers these Scholarships as part of the Faculty of Engineering's initiative to establish an awards program that offers entrance scholarships to strong students admitted to the Faculty through the direct entry stream. Each year, forty entrance scholarships, valued at \$250 each, will be offered to undergraduate students who:

- (1) have been admitted to, and register full-time in, their first year of study in the Faculty of Engineering via direct entry;
- (2) have achieved high standing, with a minimum average of 85 percent on those courses considered for the University of Manitoba General Entrance Scholarship program.

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

2. AMENDMENTS

B.A. and E.W. Finkle Prize in Anthropology

Several changes have been made to the terms of reference for the B.A. and E.W. Finkle Prize in Anthropology.

- At the donor's request, the name of the award has been changed to the Dr. Joan F. de Pena Prize in Anthropology.

- Two references to “G.P.A.” have been amended to clarify that students are assessed based on their degree grade point average.
- A number of editorial changes have been made.

Minerva Safety in Engineering Design Prize

A number of amendments have been made to the terms of reference for the Minerva Safety in Engineering Design Prize.

- In order to increase the pool of candidates, individual students who complete a thesis that addresses issues of workplace safety and health will also be consider for the prize, in addition to teams of students who complete a design project that focuses on these issues.
- It follows that references to the specific courses for which the prize was previously offered (BIOE 4580, CIVL 4590, ECE 4600, MECH 4860) have been removed from the terms; and
- membership of the selection committee will no longer include the instructors of the design courses noted above; and
- the process by which a call for nominations will be announced to engineering course instructors has been revised.
- A number of editorial changes have been made.

Portnoy Award

Two changes have been made to the terms of reference for the Portnoy Award.

- Interdisciplinary Case Studies (currently numbered DENT 4020) has been added to the list of eligible courses.
- The membership of the selection committee has been amended to include the Course Coordinator for Interdisciplinary Case Studies.
- A number of editorial changes have been made.

Statistical Association of Manitoba Bursary

Several amendments have been made to the terms of reference for the Statistical Association of Manitoba Bursary, which is offered to students entering the third or fourth year of a major or honours program in Statistics at either the University of Manitoba or the University of Winnipeg.

- The opening paragraph has been revised to reflect that the donors for this award, members of the Statistical Association of Manitoba, have established an endowment fund at the University of Manitoba to support the award. The award has been offered as an annually funded award since it was established in 1990.
- The value of the bursary has been amended from: \$200 to: the available annual interest from the fund will be divided equally to offer two bursaries.
- Each year, one of the two bursaries is to be offered to a student at the University of Manitoba and one to a student at the University of Winnipeg.
- Normally, one bursary will be offered at each institution. The selection committee at each university will, however, have the discretion to offer multiple bursaries, of equal value, where two or more candidates are determined to be equally qualified.

- The selection committee at each university will be named by the Head of the Department of Statistics (or designate). Previously, the committee included one representative of the Statistical Association of Manitoba and one representative of the Department of Statistics at each university.

Harold E. Welch Memorial Graduate Scholarship

Amendments made to the terms of reference for the Harold E. Welch Memorial Graduate Scholarship follow from the amalgamation of the Departments of Botany and Zoology into the Department of Biological Sciences.

- As the graduate stream in 'zoology' will no longer be offered, the revised terms specify that the scholarship will be offered to a student who is either entering, or registered in, the first year of an M.Sc. or Ph.D. program in 'biological sciences, with a focus in animal biology.'
- The selection committee is to be named by the Head of the Department of Biological Sciences.

Winnipeg Society of Financial Analysts Prize

Several changes have been made to the terms of reference for the Winnipeg Society of Financial Analysts Prize.

- The name of the award has been amended to the 'Chartered Financial Analysts Society of Winnipeg Prize.' One other reference to the donor organization in the first paragraph has also been updated to reflect the change to the Society's name.
- The prize will now be offered to the student who has achieved the highest grade in the course Investments (currently numbered FIN 3410) with a minimum grade of B+, within the previous 12 months, and who meets the other requirements established in the terms. Previously, the award was offered to the student who had achieved the highest grade point average in either Investments and Security Analysis or Investments and Financial Markets and Institutions within the previous 18 months.
- A number of editorial changes have been made.

Manitoba Scholarship and Bursary Initiative

Terms of reference for 13 awards were revised to reflect that the Manitoba Scholarship and Bursary Initiative has made a contribution to the endowment or trust fund for the award.

- Ray and Joan Bailey Bursary
- Wayne Cadogan Award
- Michael Cox Scholarship
- Clifford H. Edwards C.M., O.M., Q.C. Memorial Bursary
- Great-West Life Student Athletic Award
- Dr. Cameron Jay Memorial Scholarship
- John A. Russell Alumni Bursaries
- Harry Seidler and John Russell Recruitment Award in Architecture
- Arun Sud Memorial Scholarship
- Dr. Emőke J.E. Szathmáry Graduate Fellowship in Biological Anthropology
- Frances May Telford Bursary
- Charles H. Thomsen Award in Landscape Architecture
- Margaret Tobin Bursary for Single Parents in Social Work

3. WITHDRAWALS

SHOWCASE Award

The terms of reference for the SHOWCASE Award were withdrawn, as the SHOWCASE research fair has been discontinued.

In memoriam: Lew Layman: October 4, 1935 – August 15, 2009

Very few people knew his middle name – Magnus. Lewis Magnus Layman. Since he was physically closer to Minimus than Magnus, some might find the name ironic. But he was a man with a great heart and a great old soul. Magnus suited him, though he was too self-effacing and perhaps bemused by its Latinate grandiosity to admit it.

Lew Layman was a New Yorker. He went to Great Neck High School and then on to Middlebury College, a not-quite Ivy League place in the mountains of Vermont. Among other things, he was the manager of the college's football team. Lew later wrote an amusing short story called "Donnie's It", about a small, smart and compassionate manager trying to find room among rough behemoths; they were coached by a guy who made up fake names for his players because he was too obsessed with his own greatness to remember their real ones. Managing that team was probably as much career training as Lew ever got in grad school – or needed. He himself rarely forgot a student's name.

Lew came to the University of Manitoba in 1961, encouraged to apply by Robin Hoople, his friend and fellow grad student at the University of Minnesota who had just been hired. Between 1965 and 1969 he studied at the University of British Columbia, completing his Ph.D. thesis entitled "Fourteen Ways of Looking at a Blackbird: Point of View in The Sound and the Fury." It is a key to two of his abiding passions: birds and modern American Literature. Back at the University of Manitoba, Lew became one of the most responsible and dependable members of an English Department with its fair share of colorful, distractible characters and ne'er-do-wells. He was the go-to guy when it came to course assignments, teaching not just his specialty but courses in Chaucer, Russian Literature in Translation, Canadian Literature, 20th Century British Literature, and 17th Century English Literature as well as Honors courses in American Poetry, American Prose, American Romanticism and Studies in the Novel. He also served on all of the department's committees, often as chairman, some Faculty of Arts committees, and as the department's UMFA representative. In 1991-2 he even volunteered to teach an expanded 4.120 course with 77 students enrolled (yes, seventy-seven! Think of the grading!).

Lew could be an observant and careful scholar -- as is proven by his essay on the influence of Walt Whitman's "Song of Myself" on Vincent Van Gogh's iconic masterpiece "Starry Night". He also supervised a masters thesis on William Carlos Williams by Dianne McGifford, currently the province's Minister of Education. But he was more concerned with the services he could provide the university and his community. He was co-founder and Chair of the St. Adolphe School Parents Committee from 1976 to 1983 and then a school trustee from 1983 to 1992, expertly shepherding that school division through a troubling time of Anglophone-Francophone tensions. At the University of Manitoba he served as Associate or Assistant Head of the English Department almost continually from 1988 to 1998. In 1995 and again in 1997 he was Acting Head. His generous contributions to the department's wellbeing cannot be denied.

As a teacher, Lew was sought out by students, not just for one course but for a second and third. Described by his students as "outstanding", "superb", and "a model", he was admired for his command of the materials, his ready and sometimes wicked wit, his willingness to listen and give extra time to their needs, and his enthusiasm at their accomplishments. He had the uncanny

knack for remembering not only students' names and faces but also an anecdote about them, often amusing, all the way back to the sixties (when memory was an indication that you somehow were not there).

To his many friends he was known as an unembarrassed punster, an enthusiastic birder (he was "the owl man of St. Adolphe" who had a look of genuine regret if you missed a rare bird that he had chased and found), and a man of wry wit and charm; he rarely passed up an opportunity to quote verbatim from the great works of literature, especially the modernist poets (and in particular Whitman and Emily Dickenson), though without the self-importance that often accompanies such feats.

He will be dearly missed by his family, his many friends and colleagues.



UNIVERSITY
OF MANITOBA

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MEMORANDUM

TO: Mr. Jeff Leclerc, University Secretary
FROM: Digvir Jayas, Vice-President (Research)
DATE: September 15, 2009
SUBJECT: Report on Research Contract Funds Received
COPIES: Drs. Glavin and Ristock, Associate Vice Presidents (Research)

Attached is the Report on Research Contracts Received for the period January 1, 2009 to June 30, 2009. Please include the report for information on the next Senate agenda.

Thank you.

DJ/nis

Attach.

Research Contract Funds Awarded

ORS Processed Date: January 1, 2009 to June 30, 2009

Faculty	PI Name	Sponsor	Awarded Amount	Project Title
Faculty of Agricultural and Food Sciences	Akinremi, Olalekan	Manitoba Livestock Manure Management Initiative Inc	112,050	Downward movement of nitrate and phosphorus from liquid versus solid swine manure in an annual and perennial cropping systems
	Arntfield, Susan	Agriculture and Agri-Food Canada	93,150	Utilization of pulse flours and their fractionation products in bakery applications
	Boyd, Milton	Agriculture and Agri-Food Canada	24,900	Research on livestock disease insurance and implications for modeling
	Flaten, Donald	Province of Manitoba	300,000	Quantify relationships between soil P measures and P loss by runoff and leaching for Manitoba soils under field conditions
	Kebreab, Ermias	Manitoba Agriculture, Food & Rural Initiatives	8,500	Literature reviews on investigation of climate change BMP's
	Krause, Denis	Mount Sinai Hospital	56,000	Genetic seriological and microbial factors related to patterns of ileal inflammation
		Faculty Total:	594,600	
Faculty of Dentistry	Liu, Kan	Johnson & Johnson Consumer Companies, Inc.	60,000	Infrared spectroscopy: A novel diagnostic tool for periodontal inflammation and other associated disorders
	McNicol, Archibald	Johnson & Johnson Consumer Companies, Inc.	49,984	Periopathogens, platelets and atherothrombotic mediators
		Faculty Total:	109,984	
Faculty of Education	Falkenberg, Thomas	Canadian Council on Learning	30,000	Sustainable development and living through changing teacher education and teaching in Manitoba
		Faculty Total:	30,000	
Faculty of Engineering	Bibeau, Eric	Agriculture and Agri-Food Canada	94,267	Network for the conversion of agricultural crops and wastes to green chemicals, green fuels and green energy
	Bibeau, Eric	Manitoba Conservation	10,000	Remote wind energy and hybrid energy systems
	Bibeau, Eric	Manitoba Conservation	25,000	Testing kinetic turbines for distributed generation
	Gorczyca, Beata	Province of Manitoba	25,000	Control of Manitoba water disinfection with chlorine dioxide
		Faculty Total:	154,267	

Research Contract Funds Awarded

Faculty of Environment, Earth & Resources	Koper, Nicola	Manitoba Conservation	16,000	Bird responses to prairie size
	Koper, Nicola	Manitoba Conservation	16,000	Western grebes at Delta Marsh
	Manseau, Micheline	Parks Canada	96,000	Inuit knowledge in Nunavut National Parks: Communicating project results
	Wang, Feiyue	Government of Canada	22,050	Geochemical analysis
Faculty Total:			150,050	
Faculty of Human Ecology	House, James	Pulse Canada	13,000	Determination of the folate content of Canadian pulses: Effect of processing
	Shooshtari, Shahin	Queen's University	11,825	Enhancing autism spectrum disorders surveillance in Canada
Faculty Total:			24,825	
Faculty of Kinesiology & Recreation Management	Halas, Joan	Public Health Agency of Canada	30,000	Aboriginal youth healthy living mentor program
Faculty Total:			30,000	
Faculty of Medicine	Bernstein, Charles	The Broad Foundation	135,000	A population-based characterization of potential microbial etiologies of IBD using geographically defined high and low rate prevalence/incidence areas in Manitoba
	Brownell, Marni	Manitoba Education, Citizenship & Youth	40,000	Monitoring early literacy intervention in Manitoba
	Choy, Patrick	Western Economic Diversification (WED)	1,712,770	Establishment of a centre of excellence for regenerative medicine
	Embree, Joanne	Sanofi Pasteur	147,760	Safety and immunogenicity of tetanus and diphtheria toxoids adsorbed combined with component pertussis vaccine and inactivated poliomyelitis vaccine (TdcP-IPV) compare to tetanus and diphtheria toxoids adsorbed combined with component pertussis vaccine and inactivated poliomyelitis vaccine (TdcP-IPV) and hepatitis B vaccine given concurrently in adolescents 11-14 years of age (Td 9809 10 year follow-up)
	Greenberg, Cheryl	Enobia Pharma US	183,648	Compassionate use protocol to provide access to ENB-0040 (Eunobia's human recombinant tissue non-specific alkaline phosphatase fusion protein) in up to 6 severely affected patients with infantile HPP
	Hicks, Geoffrey	European Commission Research Directorate - General	30,105	The international data coordination centre (IDCC)

Research Contract Funds Awarded

Katz, Alan	College of Family Physicians of Canada	107,553	Canadian primary care sentinel surveillance network (CPCSSN)
Marshall, Aaron	Intellikine, Inc.	50,000	Assessment of immune regulatory activities of dual inhibitors of PL 3-kinases
Minuk, Gerald	Public Health Agency of Canada	61,500	Hepatitis B and C viral infections in patients with chronic lymphocytic leukemia
Moses, Stephen	The World Bank	46,200	Mapping key populations for HIV prevention in Sri Lanka: A proposal
Smith, Mark	Public Health Agency of Canada	9,900	Examining the feasibility of using administrative data for cardiovascular disease surveillance in Manitoba
Smith, Mark	Public Health Agency of Canada	8,925	Provincial/territorial administrative databases for surveillance of asthma and COPD in Canada: Testing feasibility of revised case definitions
Songok, Martim	Kenya Medical Research Institute (KEMRI)	33,000	A developing story: HIV resistance among African populations maybe linked to genotypic traits of type 2 diabetes
Taback, Shayne	MacroGenics Inc	230,134	A phase 2/3, randomized, double-blind, multicenter, multinational, 4-arm, controlled, dose-ranging study to evaluate efficacy and safety of Teplizumab (MGA031), a humanized, FcR non-binding, anti-CD3 monoclonal antibody, in children and adults with recent onset type 1 diabetes mellitus
Taback, Shayne	Novartis Pharmaceuticals Canada Inc.	53,105	A multicenter, randomized, double blind placebo controlled efficacy and safety trial of intravenous zoledronic acid twice yearly compared to placebo in osteoporotic children treated with glucocorticoids for chronic inflammatory conditions
Yu, Bo	Manitoba Health	135,000	Burden of diabetes in Manitoba
Zahradka, Peter	Agriculture and Agri-Food Canada	375,000	Investigating the relationship between specific phytochemicals in pulses and vascular disease using nutrigenomic and metabonomic approaches
Faculty Total (Medicine):		3,359,600	
Crooks, Dauna	Health Canada	28,786	Right to deliver primary care courses of University of Manitoba
Faculty Total:		28,786	

Research Contract Funds Awarded

Faculty of Pharmacy	Chee, Gaik-Lean	Chemtura Corporation	92,000	Optimization of Chemtura anticancer leads
	Gu, Xiaochen	Lanxess Corporation	10,000	Characterization of percutaneous permeation of repellent picaridin and sunscreen oxybenzone from concurrent applications in vitro
		Faculty Total:	102,000	
Faculty of Science	Duncan, James	Manitoba Conservation	20,500	Habitat selection of barred owls
	Gough, Kathleen	University of Saskatchewan	10,000	Biodegradation and phytodegradation studies: Reduce the overall environmental fingerprint of oil sands contaminants in aquatic environments
	Standing, Kenneth	Cangene	40,000	Mass spectrometry confirmation of protein sequences
		Faculty Total:	70,500	
I. H. Asper School of Business	Larson, Paul	Manitoba Science, Technology, Energy and Mines	40,000	Manitoba vehicle standards advisory board
		Faculty Total:	40,000	
		Total Awarded:	4,694,612	

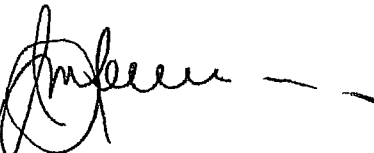


UNIVERSITY
OF MANITOBA

Office of the University Secretary

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MEMORANDUM

DATE: October 13, 2009
TO: Dr. David Barnard, Chair of Senate
FROM: Jeff M. Leclerc, University Secretary 
SUBJECT: Items approved by the Board of Governors on September 29, 2009

The Board of Governors, at a meeting held on September 29, 2009, considered the following items of interest to Senate:

Proposal for Program

The Board of Governors approved the proposal for a Bachelor of Science (Major) and a Major Co-op in Biotechnology [as recommended by Senate June 24, 2009].

Proposal for Professorship

The Board of Governors approved the establishment of a Professorship in Spinal Cord Research [as recommended by Senate June 24, 2009].

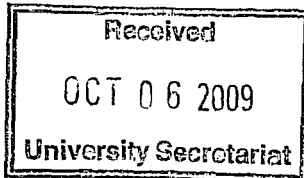
Reports of the Senate Committee on Awards

The Board of Governors approved the reports of the Senate Committee on Awards [dated May 19, 2009, June 15, 2009 and July 31, 2009].



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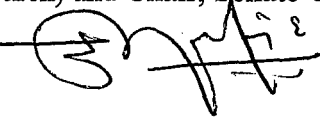
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MEMORANDUM

TO: Mr. Jeff Leclerc, University Secretary

FROM: Digvir Jayas, Vice-President (Research) and Chair, Senate Committee on
University Research (SCUR) 

DATE: October 6, 2009

SUBJECT: Notification to Senate on establishment of the Experimental Media Research Group

COPIES: Dr. Gary Glavin, Associate Vice-President (Research)
Dr. Janice Ristock, Associate Vice President (Research)
Dr. Edmund Dawe, Dean, Marcel Desautels Faculty of Music
Prof. Paul Hess, Director, School of Art
Dr. Peter Macdonald, Section head, Orthopaedic Surgery, Faculty of Medicine
Dr. Richard Perron, Acting Dean, Faculty of Architecture
Dr. Richard Sigurdson, Dean, Faculty of Arts
Dr. Doug Ruth, Dean, Faculty of Engineering
Dr. Mark Whitmore, Dean, Faculty of Science
Prof. Herb Enns, Faculty of Architecture

The Research Centres, Institutes, and Groups Policy, section 3.4, Procedures for Establishing Research Groups, states that "the official recognition and designation of a research group is at the approval of the Vice-President (Research), normally on the recommendation of the department head (where applicable) and dean/director."

Accordingly, the Deans of Music, Engineering, Arts, Science and Architecture, as well as the Director of the School of Art and Section Head of Orthopaedic Surgery have forwarded a recommendation for the establishment of the Experimental Media Research Group to me as Vice-President (Research). I subsequently reviewed and approved the proposal.

As Chair of SCUR, I am now requesting that Senate be informed of the establishment of the Experimental Media Research Group.

Please contact me should you require further information. A copy of the proposal for the research group is attached for your information.

DSJ/nis
attach.



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SEP 29 2000

OFFICE OF THE VICE-PRESIDENT (RESEARCH)

Herbert Enns
B.E.D., M. Arch., MAA, MRAIC
Professor of Architecture
Chair, Editorial Board, MOSAIC
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Winnipeg, MB
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t. 204.474.6796
c. 204.296.2192
f. 204.474.7532
e. <ennsh@cc.umanitoba.ca>

29.09.09

Digvir S. Jayas, Ph.D.
Vice-President (Research)
207 Administration Building
University of Manitoba
Winnipeg, MB, Canada
R3T 2N2

t. 204.474.9404
e. digvir_jayas@umanitoba.ca

Dear Dr. Jayas:

Re: **EXPERIMENTAL MEDIA RESEARCH GROUP**

Please find the Experimental Media Research Group (EM) proposal attached. It has been prepared in accordance with the University Policy on Research Centres, Institutes and Groups as per your request. The Deans are supportive of the proposal. A core group of academics are eager to pursue collaborative research and creative works in digital media, technology, and visualization, and to expand upon on a number of external national and international research opportunities. The proposal includes statements related to objectives, rationale, and constitution. I look forward to the growth of this exciting and innovative program, and thank you for your advice and support.

Respectfully submitted,



Herbert Enns

cc Dr. Joanne Kesselman, Vice-President (Academic) and Provost
Dr. Edmund Dawe, Dean Marcel Desautels Faculty of Music
Prof. Paul Hess, Director, School of Art
Dr. Peter Macdonald, Section head, Orthopaedic Surgery, Faculty of Medicine
Dr. Richard Perron, Acting Dean, Faculty of Architecture
Dr. Richard Sigurdson, Dean Faculty of Arts
Dr. Doug Ruth, Dean, Faculty of Engineering
Dr. Mark Whitmore, Dean, Faculty of Science
Mr. Doug McCartney, Director, Science, Innovation & Business Development Division
Manitoba Science, Technology, Energy & Mines

15 September 2009

PROPOSAL FOR THE ESTABLISHMENT OF A UNIVERSITY OF MANITOBA RESEARCH GROUP

Name: Experimental Media Research Group

Preamble:

A Forum was held in the Fall of 2005 to introduce the concept of a possible New Media program to a larger University audience. Spearheaded by the Faculty of Architecture, the NEW MEDIA FORUM at the Virtual Reality Lab, Smart Park was supported by the Deans of Faculties of Engineering, Science, Arts, and Music, and the Director of the School of Art, and included faculty demonstrations, and remarks by the President, Vice-President (Research), and Associate Vice-President (Academic). Following the recommendations of Dr. Alice Mansell to the President in February 2006, Prof. Enns was seconded from Architecture to develop a comprehensive plan for a trans-disciplinary program in New Media. Key to the evolution was a discussion with a variety of experts, including Bill Buxton, Chief Research Scientist, Microsoft, and the subsequent pre-publication review of his book, *Sketching User Experience*. The vision to bring a wide range of creative, design and scientific units together to tackle complex problems in digital interaction, production, and visualization has generated support from a number of key faculty members, Private Sector Partners, Governmental Agencies, and International Academic units.

Rationale for Formation of the Research Group

A revolution of visualization technologies, complex projection environments, gaming techniques, and spatial audio systems are creating compelling opportunities for new scientific exploration, global networking and exchange, and creative narrative forms. Topics of the EM Research Group will include high capacity broadband infrastructure; increasingly sophisticated compression algorithms; image resolutions at 4K, 8K, 12K, 28K and 68K@50 frames per second; advances in Artificial Intelligence in computing; powerful projection systems (for example, JVC has launched the D-ILA (Direct-Drive Image Light Amplifier), a projector that has the world's largest number of pixels and is able to display images of approximately 35 megapixels - 8192 x 4320 pixels, or 16 times the resolution of Full HD); stereoscopic (3D) imaging; high performance photonic (fibre optic) networks; and distributed ('cloud') computing. These culture-shifting technologies and applications collapse the space between artificial and real environments, offering the potential for rich qualitative experiences and new forms of trans-disciplinary research and creative works.

The proposed *Experimental Media (EM) Research Group* at the University of Manitoba will be a Research, Creative Works, and Design venture involving trans-disciplinary partnerships, collaborations, and alliances across multiple sectors. The EM Research Group will be aligned with Manitoba Science, Technology Energy and Mines (STEM). Working in collaboration with STEM Innovation and Knowledge Enterprises division, the EM Research Group will be a central and core catalyst for the advancement of Digital Media and Interactive Arts and Research in Manitoba. Supported by local, national, and international partners, sponsors, and stakeholders, the EM Research Group will demonstrate the innovative capacity of trans-disciplinary media-based Research Projects, Creative Works, and Design.

Objectives:

The Objectives of the group are to develop a trans-disciplinary research consortium in next generation digital media and technology, with emphasis on 6 key areas:

1. **High Speed Photonic Networks and Telecommunications Systems** that facilitate the sharing of complex information and data sets, and for networked research and creative works. The threshold for this kind of research is being defined by groups like CANARIE in Canada and CINEGRID, a non-profit California enterprise demonstrating networked collaborative tools to enable the production, use and exchange of very-high-quality digital media over photonic networks;
2. **Trans-Disciplinary Visualization**, to invent new software tools, networked and interactive stereo (3D) rendering for high-resolution real-time collaborations, beginning with projects in Astronomy and Molecular Biology;
3. **Next Generation Digital Media**, including ultra high resolution '4K' digital video and spatial audio transmission. This research will be built around the idea of Rich Spatial Networks, a strategy for fully immersive systems, with links to the UCSD Center for research in Computing and the Arts; iCinema, University of New South Wales; and the Canada California Strategic Innovation Partnership (CCSIP).
4. **Arctic Digital Media Collaborative**, a Thematic Network of the University of the Arctic presents an opportunity for scientists and artists to pursue collaborative projects in cultural, ecological, climatic and political issues in the north;
5. **Medical Simulation Tools** with the proposed 'Total Joint Institute' at Concordia Hospital will apply visualization, simulation and communication technologies to enhance pre-operative, inter operative, and post operative orthopaedic surgery.
6. **Intellectual Property Management and Commercialization Opportunities**, working in collaboration with the University of Manitoba Technology Transfer Office to develop strategies for economic development and benefit for faculty, the University, partners, and the Province.

The flexibility of the EM Research Group allows for trans-disciplinary funding applications to CFI, NSERC, SSHRC, CCSIP, *Mathematics of Information Technology and Complex Systems* (MITACS), Centres of Excellence, and the Canada Council Inter-Arts Program. International opportunities for partnering with Universities in the EU, with Australia's *Collaborative Research Centres* (CRC) and *National Information and Computer Technology Australia* (NICTA), and for participating with the *Canada California Strategic Innovation Partnership* (CCSIP). Demonstration projects under development include visualization in Astronomy; new applications for Smart Surface technology; Rich Spatial Networks (a proposal for Next Generation Digital Media to imagine and build ultra high quality telecommunications and interactive networking environments); opportunities in northern and international mobile computing; Interactive Weave, the inaugural project of the Arctic Digital Media Collaborative; and proposals in distributed 'cloud' computing.

3. Description of the Constitution of the Research Group in terms of:

Organizational Structure

The Research Group will be based in the Faculty of Architecture. Key founding groups include the Marcel A. Desautels Faculty of Music, the Faculty of Engineering (Computer Engineering), the Faculty of Science (Computer Science and Physics and Astronomy), and the Faculty of Architecture. Professor Herbert Enns, who has developed the Experimental Media concept, projects, and partnership opportunities, will serve as its Director.

Membership

Membership will be open to University Academics who seek trans-disciplinary interaction for projects that require a broad spectrum of scientific and creative inputs exploring advanced applications in digital technology and visualization. Formal admission to the EM Research Group will be by recommendation of the appropriate Dean, and subject to the approval of the Director.

Reporting Procedures

Members will report to their respective Department Heads and Deans. The Research Group Director will provide an Annual Summary Report to the Vice President (Research), to the Senate Committee on University Research (SCUR), and to Deans and Directors of the Faculties and Units with EM Research Group participants.

Mechanisms for regular review and assessment

The Research Group will define a Research Program and Work Plan based on the Objectives, and establish joint projects with a high probability of external funding and significant innovation potential. The Research Group will conduct semi-annual summaries of research activities; publications; grant applications; resource acquisitions (equipment, tools, software, hardware, etc.). The EM Research Group Director will prepare an annual report for the Vice-President (Research).

4. List of Inaugural Members (Abbreviated Curriculum Vitae Attached.)

Dr. Jayanne English, Department of Physics and Astronomy

Prof. Herbert Enns, Department of Architecture, and Chair, Editorial Board, MOSAIC

Dr. Gordon Fitzell, Marcel A. Desautels Faculty of Music

Prof. Kevin Kelly, School of Art

Dr. Pourang Irani, Computer Science, Faculty of Science

Dr. Witold Kinsner, Department Head, Computer Engineering

Dr. Struan Sinclair, English Film and Theatre, Faculty of Arts

Dr. Thomas Turgeon, B.Sc., M.D., M.P.H., F.R.C.S.(C), Orthopaedic Surgery, Joint Replacement Unit

Dr. John Wilkins, Director, Manitoba Centre for Proteomics, Faculty of Medicine

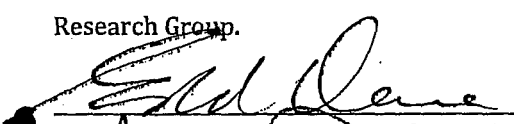
5. Statement on Resource Sharing and Financial responsibilities

Professional Time: The Deans and Directors agree to allow faculty members of the Experimental Media Research Group to undertake research and research promotion for that group, within the allocation described in each faculty member's contract.

Space: Space allotments will be sought as the EM Research Group's programs, research income, and equipment assets accumulate, as projects demand, and as resources allow.

Financial Resources: Financial Resources will be derived from EM Research Group grant applications. The EM Research Group will be joining national and international consortia to pursue joint funding in order to build extended knowledge transfer networks. The EM Research Group will share interactive tools and software.

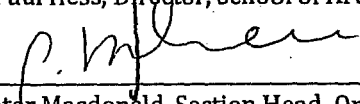
Cost Sharing: Indirect Cost Sharing commitments on Contract Research will be established within each at the Contract Phase of Grants. In most cases, the EM Research Group will augment and expand existing research programs initiated by individual members. Resource sharing, teaching release and professional time are at the discretion of the representatives, and the departments and faculties with representation in the EM Research Group.


Dr. Edmund Dawe, Dean, Marcel A. Desautels Faculty of Music



Date


Prof. Paul Hess, Director, School of Art

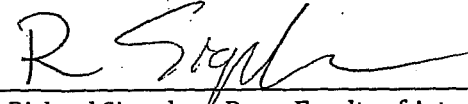

Date


Dr. Peter Macdonald, Section Head, Orthopaedic Surgery

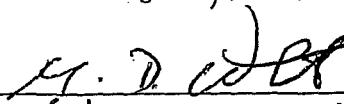

Date


Dr. Doug Ruth, Dean, Faculty of Engineering

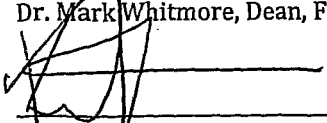

Date


Dr. Richard Sigurdson, Dean, Faculty of Arts


Date


Dr. Mark Whitmore, Dean, Faculty of Science


Date


Dr. Richard Perron, Acting Dean, Faculty of Architecture


Date

Election of a Student Senator to the Senate Executive Committee

1. The composition of the Executive Committee makes provision for three student assessors. The Assessors are as follows:
 1. President of UMSU (or designate) term: May 1, 2009 – April 30, 2010
 2. President of GSA (or designate) term: May 1, 2009 – April 30, 2010
 3. Student Senator appointed by caucus of Student Senators term: April 1, 2009 – March 31, 2010
2. The composition of the Executive Committee makes provision one elected Student member of Senate Executive Committee. A candidate for this position is nominated by the caucus of Student Senators at Senate. Term for this position: April 1, 2009 – March 31, 2010

Procedures:

- (a) A nomination for the position shall be provided by the Student Senate Caucus.
- (b) Senators shall vote by a show of hands.

October 21, 2009

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 November 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, 2010:

Mr. Atnatyos Hailu and Mr. Brian Latour

Respectfully submitted,

Dr. Joanne Keselman, Acting Chair
Senate Executive Committee

Terms of Reference:

http://umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/477.htm

/mb

Report of the *ad hoc* Committee of the Committee of Election regarding the election of the Chancellor

Preamble

1. The *ad hoc* Committee of the Committee of Election was established by Senate on September 9, 2009 and by the Board of Governors on September 29, 2009.
2. The Committee met on October 6, 2009 to consider the nomination period for the election of the Chancellor, to review the election procedures and to recommend the date for the meeting of the Committee of Election.

Observations

1. The *ad hoc* Committee of the Committee of Election, consisting of Mr. Terry Sargeant and Ms. Jan Lederman representing the Board of Governors and Professor Phil Hultin and Dean Doug Ruth representing the Senate was established to:
 - a. Perform the functions required under the procedures for the Committee of Election which were used for the 2001 Chancellor election (the nomination of the Chancellor, the method of election, the date of election and the announcement of the elected Chancellor); and
 - b. Recommend to the Board and Senate on any issues which require consideration prior to the meeting of the Committee of Election (including an appropriate timetable for the receipt of nominations and conducting the election).
2. In addition to the recommendations below, the following documentation is appended to this report for information:
 - a. University of Manitoba Procedures for the Election of the Chancellor – 2009
 - b. Profile – Position of Chancellor at the University of Manitoba
 - c. Call for Nominations
 - d. Nomination form

Recommendations

THAT Senate approve the following:

1. That the nomination period for the election of the Chancellor be from November 5, 2009 to 4:00 pm. on November 26, 2009.
2. That the Committee of Election meet on Tuesday, December 8, 2009 at 3:30 p.m. to elect a Chancellor.

Respectfully submitted,
Mr. Terry Sargeant, Chair
ad hoc Committee of the Committee of Election
/jml

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

University of Manitoba Procedures for the Election of the Chancellor 2009

General

The Chancellor is the titular head of the University and confers all degrees. The Chancellor is also a member of the Board of Governors and the Senate. A profile of the qualities sought in a Chancellor is appended to this document as Appendix 1.

The Chancellor is elected by the Committee of Election for a three-year term. There is no limit on the number of terms a person may serve as Chancellor. The term for the next Chancellor will begin on January 1, 2010.

The Committee of Election is comprised all of the members of the Board of Governors and the members of the Senate. The Chair of the Board of Governors is the presiding officer. The University Secretary is the secretary. The sole function of the Committee of Election is to elect a Chancellor.

To facilitate the work of the Committee of Election, the Board of Governors and the Senate have established an ad hoc Committee to oversee the procedures for the election of the Chancellor.

Date of the Election

The meeting of the Committee of Election and the election of the Chancellor shall be held at 3:30 p.m. on Tuesday, December 8, 2009 in the Senate Chamber, Room E3-262 Engineering and Information Technology Complex.

Nominations

Nominations for the office of Chancellor shall open on Thursday, November 5, 2009, and shall close at 4:00 p.m. on Thursday, November 26, 2009.

Nominations may be made by any members of the following constituencies within the University of Manitoba:

- a) Members and assessors of the Board of Governors and the Senate;
- b) Students;
- c) Academic staff;
- d) Support staff; and
- e) Alumni

Nominations must be made on the prescribed form which is available at www.umanitoba.ca/governance/forms. Nomination forms must be signed by any five persons eligible to nominate and nomination forms must be received in the Office of the University Secretary no later than 4:00 p.m., Thursday, November 26, 2009. Any questions regarding the nomination process may be

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University of Manitoba Procedures for the Election of the Chancellor 2009

directed to the Mr. Jeff Leclerc, University Secretary, by phone (474-6167) or by email (jeff_leclerc@umanitoba.ca).

Nomination forms must be accompanied by the curriculum vitae of the person nominated as well as a short (two pages or less) biographical sketch of the nominee which will be provided to the Committee of Election.

Nominations from the floor on the date of the meeting of the Committee of Election shall not be permitted.

Nominators are permitted to nominate no more than one candidate each.

Eligibility

No person who is a member of the academic or administrative staff of any University or college, or the governing body of any University other than the University of Manitoba, is eligible to be Chancellor.

Candidates

The names of all candidates whose nominations have been properly endorsed and placed in nomination on or before 4:00 p.m. on November 26, 2009, will be included on the ballot.

The names of candidates shall remain confidential; the biographical sketches of the candidates shall be circulated at the meeting on the day of the election. In addition, members of the Committee of Election may peruse documentation in the Office of the University Secretary during regular business hours on December 4th and December 6th, 2009. Similar arrangements will be made for the Bannatyne campus. Notice of this opportunity shall be included in the notice of meeting of the Committee of Election.

Election

The election shall be held in a closed and confidential meeting of the Committee of Election, with the understanding that assessors to the Board and the Senate may be present, but may not vote.

The manner of voting shall be by secret ballot. The Chair of the Committee of Election shall cast a sealed ballot to be opened and counted in the event of a tie.

The first candidate to receive a simple majority (50% plus one vote) of the votes cast shall be declared elected as Chancellor. The number of candidates to be eliminated after each stage of balloting shall be determined by the ad hoc Committee following the close of nominations.

Approved, October 6, 2009 2

University of Manitoba Procedures for the Election of the Chancellor 2009

The University Secretary shall act as the Chief Returning Officer. Members of the Office of the University Secretary shall serve as scrutineers for the election.

The results of the election shall be released publicly by the Chair of the Committee of Election once the candidates have been notified of the results. Members of the Committee of Election are requested to keep the information confidential until the formal announcement has been made.

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Position of Chancellor – University of Manitoba

Relationship to the University

Ideally, the Chancellor will have an established relationship with the University. Preferably a graduate of the University, the Chancellor will demonstrate an unquestioned commitment to the University. He/she will exemplify and symbolize the University by his/her conduct and the standards he/she sets. The Chancellor will seek to understand and will be sensitive to the needs and concerns of all areas of the University, and will share the President's commitment to building a great University.

Relationship to the University's Communities

The Chancellor will have experience and contacts which add to those of the Chair and Vice-Chair of the Board of Governors, the President and other members of the Executive Team. The Chancellor will be an advisor to the President. He/she will be an individual who has a profile which will facilitate the administration's efforts to make the case for universities in government and other arenas. The Chancellor will add to the ability of the University's senior officers to represent and respond to the diverse interests found among the University's students, faculty, staff, alumni and friends.

Ceremonial Activities

The Chancellor will be comfortable with and adept at ceremony and generally familiar with protocol in university and government settings. The Chancellor confers degrees at all convocation ceremonies of the University. This year, there were seven ceremonies in May/June and three in October. In addition, the Chancellor is called upon to attend, to host, or to speak at a number of social events throughout the year.

Governance Activities

The Chancellor will have experience serving on governing Boards and will be an essential contributor to the good governance of the University. The Chancellor is a voting member of the Board of Governors and the Senate. The Chancellor Chairs the Chancellor's Committee, the Board Nominations Committee, the Senate Committee on Honorary Degrees and the Peter D. Curry Chancellor's Award Selection Committee. The Chancellor is also a member of the Board of Governors Executive and Governance, Finance, Administration and Human Resources, Management Resource and Compensation and Distinguished Service Award Committees.

Fundraising Activities

The Chancellor will be credible in fundraising campaigns and have connections and access to public and/or private funders. The Chancellor must be willing to support the development initiatives of the University when called upon. The Chancellor must have the respect of many of the corporate/foundation/special interest groups with which the University must cultivate and maintain relations.

Community Outreach

The Chancellor will be an articulate and effective communicator, comfortable in a wide variety of public and private settings and across a diverse range of audiences.

**CALL FOR NOMINATIONS:
CHANCELLOR, UNIVERSITY OF MANITOBA**

The Chancellor is the titular head of the University. The Chancellor confers all degrees and is a member of the Board of Governors and the Senate. The term of office of the Chancellor will commence on January 1, 2010.

Nominations for the Office of the Chancellor are requested from members and assessors of the Board of Governors and the Senate, Students, Academic Staff, and Alumni of The University of Manitoba. Nomination forms are available in the Office of the University Secretary, Room 312 Administration Building or online at www.umanitoba.ca/governance. Nomination forms must be signed by any five persons who are members of the aforementioned groups and must be received in the Office of the University Secretary no later than 4:00 p.m., Thursday, November 26, 2009.

Nominators may nominate only one person each. The following persons are not eligible to be Chancellor:

1. Members of the academic or administrative staff of any University or College;
2. Members of the governing body of any University other than the University of Manitoba;
3. Members of the governing body of any College.

The University of Manitoba Act provides for a Committee of Election composed of all members of the Board of Governors and all members of the Senate. The sole purpose of the Committee of Election is to elect a Chancellor of the University. The meeting of the Committee of Election will be held Tuesday, December 8, 2009.

DEADLINE FOR NOMINATIONS: THE FOLLOWING DOCUMENTS MUST BE RECEIVED IN THE OFFICE OF THE UNIVERSITY SECRETARY, 312 ADMINISTRATION BUILDING, FORT GARRY CAMPUS, NO LATER THAN 4:00 P.M., THURSDAY, NOVEMBER 26, 2009.

1. SIGNED NOMINATION FORM; AND
2. CURRICULUM VITAE OF PERSON NOMINATED
3. SHORT BIOGRAPHICAL SUMMARY (2 pages or less) OF PERSON NOMINATED FOR ELECTION AS CHANCELLOR

TO THE COMMITTEE OF ELECTION:

We, the undersigned members and/or assessors of the Board of Governors and/or of the Senate, and/or Students, and/or Academic Staff, and/or Support Staff, and/or Alumni of the University of Manitoba, hereby nominate _____ as a candidate for election to the Office of Chancellor of the University of Manitoba at the election to be held on Tuesday, December 8, 2009. We, the undersigned, give our assurance to the Committee of Election that the candidate has given his/her undertaking that he/she will serve if elected.

WITNESS OUR HANDS THIS _____ DAY OF _____ 2009.

SIGNED:

1.

Name [First and Last]
Please Print

Signature

Employee#/Student#/Alumni#

Member of

2.

Name [First and Last]
Please Print

Signature

Employee#/Student#/Alumni#

Member of

3.

Name [First and Last]
Please Print

Signature

Employee#/Student#/Alumni#

Member of

4.

Name [First and Last]
Please Print

Signature

Employee#/Student#/Alumni#

Member of

5.

Name [First and Last]
Please Print

Signature

Employee#/Student#/Alumni#

Member of

NOTES:

1. Nominators are permitted to nominate **no more than one** candidate each.
2. In the last column of the signature portion of this form, please indicate if you are a member of the Board of Governors, the Senate, the Faculty, the Student Body, the Support Staff or the Alumni of the University of Manitoba

This personal information is being collected under the authority of *The University of Manitoba Act*. It will be used to verify your eligibility to nominate a candidate for Chancellor. It is protected by the Protection of Privacy provisions of *The Freedom of Information and Protection of Privacy Act*. If you have any questions about the collection contact the FIPPA/PHIA Coordinator's Office (tel. 204-474-8339), University of Manitoba, 331 Elizabeth Dafoe Library, Winnipeg, MB, R3T 2N2.

October 1, 2009

Report of the Faculty Council of Graduate Studies on Program Change

Preamble:

1. The Faculty of Graduate Studies has responsibility for all matters relating to the submission of graduate course, curriculum and program changes, and new graduate programs. Recommendations for new programs or changes are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. The Faculty Council of Graduate Studies met on the above date to consider a program change from the Department of Philosophy.

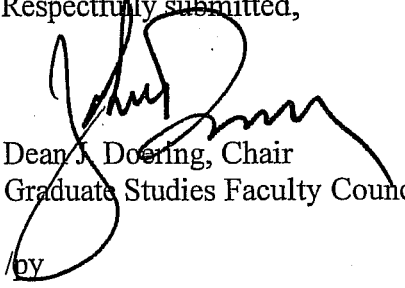
Observations:

1. The Department of Philosophy proposes to eliminate its comprehensive examination route in the Master of Arts Program and introduce two new routes; a coursework only route; and a coursework plus two research papers route. Please review:
 - Changes to the MA program in Philosophy (Attach. A)

Recommendations:

The Faculty Council of Graduate Studies endorses the program changes to the MA program in Philosophy and recommends that it be forwarded to Senate for approval.

Respectfully submitted,


Dean J. Doering, Chair
Graduate Studies Faculty Council

/s/

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

To: The Faculty of Graduate Studies

From: Rhonda Martens
Graduate Chair, Department of Philosophy

Re: Changes to the MA program in Philosophy

revised October 22, 2008

Attached are materials related to a series of changes we propose for our MA program.

Proposal:

The Department of Philosophy proposes to eliminate its comprehensive examination route in the MA program and introduce two new routes: a coursework only route; and a coursework plus two research papers route.

Background:

Our MA program underwent an external review in 2006. The reviewers observed that the requirement of three comprehensive exams for the non-thesis route is unusual in Canada. The Philosophy department met to discuss the possibility of eliminating the comprehensive exam route to obtaining an MA and passed a series of motions to change the MA program.

The proposed changes are as follows:

- Increase the number of credit hours required for the thesis route from 12 to 15 credit hours. This will bring our requirements more in line with other Philosophy Departments across Canada.
- Eliminate the comprehensive examination route to an MA degree and replace it with either coursework only or coursework plus two guided research papers.
- Require non-thesis students to take all courses at the 300 level or above. Previously non-thesis students were allowed to count 200 level courses towards their MA.

Previously, our MA program requirements read as follows:

There are 2 available options for completing the requirement for a Master's degree in Philosophy:

- a) 24 hours of credit in Philosophy, at least 12 hours of which is at the 700 level and none of which is below the 200 level, and the comprehensive examinations.¹
- b) 12 hours of credit in Philosophy, at least 6 hours of which is at the 700 level and none of which is below the 300 level, and a major thesis.

The Department will permit only very well qualified students to select option (b). A student who has selected option (b) shall obtain written consent from a faculty member in the Department to act as a thesis advisor.

The proposed MA requirements are as follows:

There are 3 available options for completing the requirement for a Master's degree in Philosophy:

- a) 24 hours of credit in Philosophy, at least 18 hours of which is at the 7000 level and none of which is below the 300 level.
- b) 18 hours of credit in Philosophy, at least 12 hours of which is at the 7000 level and none of which is below the 300 level, and two research papers.
- c) 15 hours of credit in Philosophy, at least 6 hours of which is at the 7000 level and none of which is below the 300 level, and a major thesis.

A student who has selected option (c) shall obtain written consent from a faculty member in the Department to act as a thesis advisor. A student who has selected option (b) shall obtain written consent from the faculty member(s) in the Department to act as the research paper advisor(s). All students must have his or her program approved by the MA committee.

The MA committee will ensure that the student (through previous and the MA program requirements) has a solid grounding in the following areas: history, Metaphysics/epistemology, ethics, and logic as well as ensuring that the student is well versed in the analytic method.

Rationale:

The graduate program in the Philosophy Department recently underwent external review. The reviewers observed that the comprehensive route did not benefit the students sufficiently and suggested that "The Department should re-visit the matter, possibly

¹ The comprehensive exams are listed as courses and make up some of the 24 hours required.

dropping the comprehensive examination route altogether..." (p. 12, *Graduate Program Review Report*). After comparing our MA program to other programs across Canada, we decided to drop the comprehensive examination route.

The following is a list of the non-thesis routes to MA degrees in Philosophy in other Canadian Universities. A number of universities did not offer a non-thesis route (e.g., Dalhousie, Queen's).

	Couework + comprehensive examination	Coursework only	Coursework + guided research paper(s)
Carleton			X
Concordia			X
Simon Fraser			X
UBC		X	
Guelph			X
Ottawa		X	
Toronto		X	
Waterloo		X	
Western Ontario	X (one comp)		
York	X (one comp)		

As can be seen from the table, very few universities require comprehensive examinations, and of the ones that do, they only require one comprehensive examination. Furthermore, the department has been concerned that not only does the comprehensive examination route slow students down, it also does not adequately develop research skills. Moreover, students are largely unsupervised as they prepare for the comprehensive exams, which has resulted in poor performances. The research papers, by contrast, will be developed from coursework material. The department believes that the education of the students will be improved by the proposed changes. Moreover, the proposed changes will not result in using more departmental resources because the committee workload for reviewing research papers will be about the same as that for reviewing comprehensive exams.

October 1, 2009

Report of the Faculty Council of Graduate Studies on Curriculum Change

Preamble:

1. The Faculty of Graduate Studies has responsibility for all matters relating to the submission of graduate course, curriculum and program changes, and new graduate programs. Recommendations for new programs or changes are submitted by the Faculty Council of Graduate Studies for the approval of Senate.
2. The Faculty Council of Graduate Studies met on the above date to consider a curriculum change from the Department of Psychology.

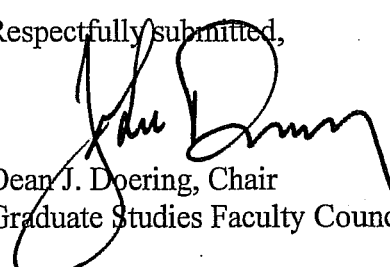
Observations:

1. The Department of Psychology proposes curriculum changes in the M.A. and Ph.D. programs. Please review:
 - Psychology Curriculum Changes; M.A. and Ph.D. Psychology (Attach. A)

Recommendations:

The Faculty Council of Graduate Studies endorses the curriculum changes to the M.A. and Ph.D. programs in Psychology and recommends that it be forwarded to Senate for approval.

Respectfully submitted,



Dean J. Doering, Chair
Graduate Studies Faculty Council

/py

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

Psychology Curriculum Changes (MA+PhD)

Attach-A

Current Clinical Training program requirements (approved by Psychology's Departmental Council January 24, 2008):

M.A.	Fall	Winter	Summer
YEAR 1	Quantitative Methods in Psychology 1 (PSYC 7200)	Assessment II: Behavioural Assessment (PSYC 8300)	Propose M.A. thesis
	Assessment I: Personality and Intellectual Assessment I (PSYC 8150)	Intervention I: Foundations of Evidence-Based Treatment (PSYC 7320)	
	Ethics and Professional Issues in Clinical Psychology (PSYC 7520)	Clinical Research Design (PSYC 7140)	
	Case Conceptualization and Communication 1 (PSYC 7260) (0 Cr. Hrs.)		
YEAR 2	Psychopathology and Diagnosis (PSYC 7290)	Intervention II: Empirically Supported Therapies (PSYC 8340/8400)	Defend M.A. Thesis Optional practicum (students are eligible to apply for this practicum only if the M.A. defense has been scheduled)
	Bases of Behaviour 1 (PSYC 7500)	Quantitative Methods in Psychology II (PSYC 7210)	
	PSC Practicum I	PSC Practicum II	
	Case Conceptualization and Communication 2 (PSYC 7270) (0 Cr. Hrs.)		

Ph.D.	Fall	Winter	Summer
YEAR 3	Assessment III : Personality and Intellectual Assessment II (PSYC 8160)	Bases of Behaviour 2 (PSYC 7510)	Candidacy exam Optional practicum
	Intervention III: Social and Community Intervention (PSYC 8100)	Program Evaluation & Consultation (PSYC 8110)	
	PSC Practicum III	Senior Practicum	
	Case Conceptualization and Communication 3 (PSYC 8080)		
YEAR 4	Clinical Supervision in Psychology (PSYC 8090)		Propose Ph.D. Thesis
	Senior Practicum		
YEAR 5	Senior Practicum		Data collection for Ph.D. Thesis completed (<i>strongly recommended</i>)
	Data collection (including ethics approval) must have begun in order to receive approval to apply for an internship position		
YEAR 6	Internship Defend Ph.D. Thesis		

Note: students may take up to two additional courses as part of their program after year 3.

The required courses indicated above are single courses for which all students in a cohort will register. In this way, regular course offerings and continuous flow through the program may be guaranteed. Some courses may be based on team-teaching with modules within each course taught by different faculty members.

Goals:

1. Put a program structure in place that will ensure that all students meet the required competencies as set out by APA and CPA.
2. Increase consistency of training across students at both the M.A.- and the Ph.D.- levels
3. Reduce time-to-completion
4. Provide students with a clear pathway to meeting program requirements from the outset.

Notes:

1. The M.A. Proposal Development and the Ph.D. Proposal Development courses are not indicated as these represent administrative requirements, not additional demands.
2. Students will complete three courses in statistics/methods at the M.A.-level. In recognition of this, a waiver will be given so that an additional methodology course is not required at the Ph.D.-level.
3. Two new courses (*Bases of Behaviour 1 & 2*) will be used to satisfy basic competencies and accreditation requirements in the following areas:
 - o Bases 1: Social & Multicultural, Lifespan Developmental, & Personality and Individual Differences
 - o Bases 2: Biological, Cognitive/Affective, History & SystemsThese will be team-taught courses with the specified topics covered by experts in the relevant fields. Syllabi for these courses would be vetted annually by the Director of the Clinical Training and the Associate Head (Graduate Programs) to ensure consistency with accreditation requirements. These courses will serve also as the ancillary courses for the M.A. and Ph.D. programs.
4. History & Systems will be dropped as a required course.
5. All students in 1st, 2nd, and 3rd years of the program will be required to register for Case Conceptualization and Communication (I, II, & III for the 1st, 2nd, & 3rd years, respectively). The class will meet bi-weekly from September through April. Students in years 1 and 2 will be required only to attend, and the course will be worth 0 credits (a pass/fail grade will be assigned). Students in year 3 will present individual cases throughout the year, and the course will be worth 3 credits (a pass/fail grade will be assigned).
6. Optional courses are left until after the 1st year of the Ph.D. program to ensure more uniform academic preparation for clinical students. This should both maximize use of faculty resources, and help ensure that all students meet all competencies.
7. A requirement that Ph.D. thesis data collection must have begun prior to applying for an internship will be instituted.
8. The new requirement, 'Clinical Supervision in Psychology' (PSYC 8090), is intended to provide senior Ph.D. students with guided experience in supervising junior students. A student will be assigned to assist the instructor of one of the PSC practica required of junior students. It is expected that the instructor, the senior student, and the junior student(s) will meet regularly, and that the instructor will provide a significant opportunity for the senior student to directly supervise the junior student(s).

Revised Clinical Training program requirements (approved by Psychology's Departmental Council January, 2009):

MA	FALL	WINTER	SUMMER
YEAR 1	Quantitative Methods in Psychology I (PSYC 7200)*	Assessment II: Personality and Intellectual Assessment II (PSYC 8160)	Propose MA Thesis
	Assessment I: Personality and Intellectual Assessment I (PSYC 8150)*	Ethics and Professional Issues in Clinical Psychology (PSYC 7520)	
	Intervention I: Foundations of Evidence-Based Treatment (PSYC 7320)	Clinical Research Design* (PSYC 7140)	
	Case Conceptualization and Communication 1 (PSYC 7260) MA Thesis Proposal Development (PSYC 7780)		
YEAR 2	Psychopathology and Diagnosis (PSYC 7290)*	Intervention II: Empirically supported therapies (PSYC 8340/8400)*	Defend MA Thesis Optional practicum (students are eligible to apply for this practicum only if the MA defense has been scheduled)
	Clinical Neuropsychology (PSYC 8230) OR a suitable alternative approved by the Director of Clinical Training and the Associate Head (Graduate)	Quantitative Methods in Psychology II (PSYC 7210)*	
	PSC Practicum I*	PSC Practicum II*	
	Case Conceptualization and Communication 2 (PSYC 7270)		

PhD	FALL	WINTER	SUMMER
YEAR 3	History and Systems of Psychology (PSYC 7280)	Person X Situation Interactionism (PSYC 7620) OR Psychology of Health and Aging (PSYC 7192) OR Social Psychology and Health (PSYC 7190) OR a suitable alternative approved by the Director of Clinical Training and the Associate Head (Graduate)	Candidacy exam on EPPP domains (but not the EPPP)
	Intervention III: Social and Community Intervention (PSYC 8100)*	Program Evaluation & Consultation (PSYC 8110)*	Optional practicum
	PSC Practicum III	Senior Practicum*	
	Case Conceptualization and Communication 3 (PSYC 8080) Ph.D. Thesis Proposal and Development (PSYC 7790)		
YEAR 4	Optional Clinical Course I	Optional Clinical Course II	Propose PhD Thesis
	Clinical Supervision in Psychology (PSYC 8090) (3 credits)*		
	Senior Practicum*		
YEAR 5	Senior Practicum*		Data collection for PhD Thesis completed (strongly recommended)
	Data collection must have begun prior to applying for an internship position (ethics approval must have been granted and data must have been collected from at least 1 participant)		
YEAR 6	Internship* Defend PhD Thesis		

NOTES:

1. Changes in the curriculum are highlighted in bold print.



UNIVERSITY
OF MANITOBA

OFFICE OF THE
VICE-PRESIDENT (RESEARCH)

207 Administration Building
Winnipeg, Manitoba
Canada R3T 2N2
Telephone (204) 474-6915
Fax (204) 474-7568
www.umanitoba.ca

MEMORANDUM

TO: Mr. Jeff Leclerc, University Secretary

FROM: Digvir Jayas, Vice-President (Research)
and Chair, Senate Committee on University Research

DATE: September 15, 2009

SUBJECT: Proposal to establish the Manitoba Institute for Materials

Attached is the proposal to establish the Manitoba Institute for Materials. According to the Policy on *Research Centres, Institutes, and Groups*, this proposal has been reviewed and approved by the Senate Committee on University Research.

The Manitoba Institute for Materials (MIM) will “create a paradigm shift of how both basic and applied materials science are carried out and applied at the University.” At this time, there are numerous researchers at the University studying materials. This Institute would encourage and foster more networking and collaboration among the researchers with diverse backgrounds. This would increase visibility of the research programs both internally and externally to the University.

The following existing research centres, groups, and networks would contribute to the Institute: The Crystallography Research Centre, The Aerospace Materials Engineering Facility, The Nuclear Magnetic Resonance Facility, The Surface Characterization Facility, The Composite Materials and Structures Group, The ISIS Canada Research network.

The Institute will initial be a virtual entity, but will eventually grow into a physical entity. Only select instrumentation that could be used across a broad spectrum of materials activities would be housed in the physical entity. Currently this equipment resides in Allen, E-1, E-3 and the Wallace buildings. It is expected that members will apply for Canada Foundation for Innovation and NSERC for funds which will assist in the expansion of the Institute. The Allen building basement could be renovated to be the central facility. This could be done though funding such as CFI or WD.

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

The proposal includes a 5-year budget for operations and renovations. Several Faculties and Departments as well as the Vice-President (Research) Office have committed funds for the 5-year plan. Members of the Institute have been successful in past applications to external funders (\$32M+ in the past five years, circa December 2006) and it is expected that they will continue to apply and be successful in obtaining funds.

Please note that along with this proposal, is the report from the Senate Committee on University Research, clarification notes from the proposer, and email clarification from the Vice-President (Research) regarding some comments from SCUR and the actual recommendation to Senate.

Please include this report and recommendation on the next Senate agenda. Please feel free to contact me should you require any further information.

Thank you.

DSJ/nis

Encl.

> Dear SCUR members:

>

> The following message is being forwarded to you on behalf of Dr.

> Digvir Jayas, Chair of the Senate Committee on University Research. **

> Please note the revised motion **

>

>

> During the March 12, 2009 of the SCUR a motion was passed for me to meet

> with the appropriate deans and discuss issues raised during the SCUR

> meeting in regard to the Composite Research Group (which currently

> exists in the Faculty of Engineering) and Manitoba Materials Institute

> (MIM) (proposed). I had reported at the May 21, 2009 SCUR meeting that I

> was not able to get the group together and therefore would report once

> the meeting had occurred. On June 4th, I met with Drs. Ruth, Halden,

> Whitmore and Caley to discuss the issues raised at the March 12, 2009

> meeting.

>

> The first issue deals with the Composite Research Group for which the

> Faculty of Engineering has submitted a proposal to SCUR to establish a

> Composite Research and Commercialization Centre (CRCC) (i.e., convert

> the Group to a Centre). A sub-committee (Dr. Wittenberg (Chair) and Drs.

> Doering and Stirling (Members) was established on March 12th, 2009 to

> review this submission. The concern during the March 12th meeting was

> around overlap between CRCC and MIM. The CRCC's focus is on the

> manufacturing of composites for various applications and the MIM has

> significant strengths for the characterization of materials from

> different sources. The CRCC members may use the MIM- managed instruments

> for understanding the properties of composites. Thus, CRCC is

> complementary to MIM with a very limited overlap to MIM and both could

> co-exist. The second issue dealt with the financial sustainability of

> the MIM and the hiring of a "Research Coordinator" for the MIM in place

> of administrative support. The financial plan for the MIM includes a

> provision of the user fees for instruments by the members of the MIM and

> other users from within and outside the University. With the growth of

> the MIM, this revenue is expected to increase significantly and should

> provide funds to support the MIM. Funding from the Faculties and Central

> sources is to provide administrative support to the Director. The

> research development is expected to be done by the Director and members

> of the MIM, therefore Deans Ruth, Halden, and Whitmore have indicated

> that at this stage we should move forward with the MIM, as proposed, and

> not hire a "Research Coordinator". Evaluation of the MIM would then

> occur after three years, as suggested by the sub-committee chaired by

> Dr. Trevan.

>

> Please let me know (with c.c. to gail_cornock@umanitoba.ca) by

> Wednesday, June 10, 2009 if you require more information or you are able

> to approve the motion as proposed by the sub-committee which is outlined

> below:

>
> *The sub-committee recommends to the Senate Committee on University
> Research (SCUR) that the proposal to establish a Manitoba Institute for
> Materials be passed to Senate for its approval.*

>
> With sincere thanks.

>
> Gail Cornock
> Assistant to the Vice-President (Research)
> University of Manitoba
> 207 Administration Building
> Winnipeg, Manitoba R3T 2N2
> Tel: 204-474-7859
> Fax: 204-474-7568

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> www.umanitoba.ca/research
> Bringing Research to Life
> Gail Cornock

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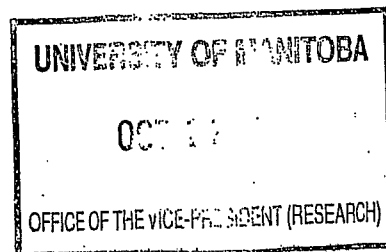
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UNIVERSITY
OF MANITOBA

Faculty of Science

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October 21, 2008

Dr. Joanne C. Keselman
Chair, Senate Committee on University Research
Room 207 Administration Building
University of Manitoba

Dear Joanne,

Attached please find a proposal to establish the Manitoba Institute for Materials as a Senate approved institute at the University of Manitoba. I have included the proposal following the University Policies and Procedures format, letters of financial commitment, letters of support and CVs for the initial membership.

Should you require further information, please let me know.

With thanks,

Mark Whitmore
Dean, Faculty of Science





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MEMORANDUM

DATE: March 5, 2009

TO: Dr. Digvir Jayas, Chair,
Senate Committee on University Research

FROM: Dr. Michael Trevan, Chair,
Sub-Committee Reviewing the Proposal to Establish a
Manitoba Institute for Materials (MIM)

SUBJECT: Recommendation to Senate

Preamble

The Faculty of Science forwarded to the Senate Committee on University Research (SCUR) a proposal to establish the Manitoba Institute for Materials (MIM).

The Policy on Research Centres, Institutes and Groups articulates procedures for the establishment of Research Centres at the University of Manitoba. Accordingly, a sub-committee of SCUR was struck to review the proposal to establish the Manitoba Institute for Materials. The sub-committee consisted of Dr. Michael Trevan, Dean, Faculty of Agricultural and Food Sciences; Dr. Roberta Woodgate, Associate Professor, Faculty of Nursing; Dr. Patricia Martens, Director, Manitoba Centre for Health Policy; and Mr. Suresh Neethirajan, Member, Graduate Students' Association. The sub-committee met on January 16, 2009.

Observations

The sub-committee reviewed the extensive documentation provided by the proponents of the Manitoba Institute for Materials. Following discussion by the sub-committee a written submission was made to the Dean of the Faculty of Science and Dr W Caley, Director of the MIM Initiative, requesting clarification on a number of issues (Appendix A). Following a detailed written response from Dr Caley (Appendix B), the sub-committee communicated to the Chair by email any remaining concerns that they had: these are summarized below.

The proposed Institute will draw together and co-ordinate the work of 6 existing research centres, networks or facilities involving some 37 university faculty across 7 departments drawn from 4 faculties, around the broad theme of research into materials. It has the worthwhile aim of creating a paradigm shift in how basic and applied materials research is carried out in the

university by explicitly fostering networking and collaboration between researchers from different backgrounds and disciplines, whilst supporting existing activities and promoting the research, and its value, to external stakeholders. This is a challenging and ambitious agenda. It is not possible to describe the proposed research with any degree of brevity: even given longevity it would not be fully possible because a major point of the Manitoba Institute for Materials is to stimulate new avenues or research investigation or application.

The management model was the issue of main concern for the sub-committee. Whilst there is a clear description of the four main operational committees (Steering, Management, Facilities Management, and Educational Initiatives), little attention is paid in the documentation as to how the relationship between the Manitoba Institute for Materials and the existing centres and networks will be nurtured and facilitated. The sub-committee requested further information on this aspect (Appendix A), but was not fully convinced by the answer (Appendix B). Our conclusion was that these were relationships that might be difficult to capture on paper, and would undoubtedly, no matter what was written down, depend on commonsense and goodwill to operate effectively. The issues here range from details such as who, in which body, will be responsible for submitting or signing off on research grants, to broader issues of promotion and publicity of research outputs. It remains our contention that unless careful attention is paid to this aspect of the functioning of the Manitoba Institute for Materials it will be less than successful in achieving its aims.

The final concern of the sub-committee was that the level of administrative support to be provided to the Director was inadequate and inappropriate. We were unanimously of the view that a full-time research coordinator is essential for the successful establishment and development of the Manitoba Institute for Materials, particularly given its complexity and size. This view is based on other experience within the university, of the building of complex multidisciplinary research teams.

Recommendation

The sub-committee recommends to the Senate Committee on University Research (SCUR) that the proposal to establish a Manitoba Institute for Materials be passed to Senate for its approval on condition that the support provided to the Director is upgraded. It is also recommended that the period of approval be limited in the first instance to 3 years at which point the nature of the Manitoba Institute for Materials working relationships with its constituent centres, networks and facilities be reviewed.

Attachments

- Appendix A
- Appendix B

Request by SCUR sub-committee for further information

The sub-committee of SCUR, Michael Trevan (chair), Pat Martens, Roberta Woodgate and Suresh Neethirajan met on Friday 16th January to review the proposal for the formation of the Manitoba Institute of Materials. Whilst broadly supportive of the concept of the Institute the sub-committee would be grateful for a response to the following issues before it completes its review. We are asking for this in written form because we feel that your responses might be usefully included within the rest of the application "package".

The application (p 3) describes the Institute as a virtual body that will co-ordinate existing research activities across the university. The sub-committee agreed that this could indeed be a very useful function that would be the major "added value" that the Institute would contribute to the broad spectrum of existing materials based research in the university. However, by page 10 it is proposed that the Institute, its equipment and laboratories could be housed in 200 to 760 sq.m. of the Allen building basement, which makes the Institute seem more real than virtual. We would be grateful therefore if you could clarify whether it is intended that the Institute's primary function is to co-ordinate and help grow the research and HQP education functions of its individual members and groups (i.e. the virtual institute concept) or to be a real functional research laboratory/facility in its own right. It might be that it is intended that the Institute will move over time from virtual to real, but this is not clear. If this is the intention then it could have significant consequences for our second issue (q.v.).

The Institute is described as coordinating "the research of...existing research centres, groups or networks" but we can find no information on how in practice the relationship between these existing bodies and the MIM is to be managed. For example, will these other bodies be affiliated to the MIM; will they make reference to the MIM in publications or grant or equipment applications; will new equipment or facilities belong to MIM or to those groups/centres/individual collaborators who have most need of it? If over time the MIM moves from being virtual to real, what effect will this have over the nature of those relationships?

Our third issue was again related to the role of the MIM intention to "enhance the functionality of all researchers and research groups by way of providing a new multidisciplinary environment..." Experience elsewhere in the university suggests that this requires a proactive approach utilizing rather more, and different, resources than this proposal contains. To be specific we would be more convinced that MIM would achieve this very worthwhile aim if it were to employ a full-time research development coordinator to work alongside the Director, rather than a part-time administrative assistant. Your reflection on this issue would be most welcome.

Lastly, we note the detailed description of the various committees and levels of membership through which the MIM intends to operate. However, none of these bodies

contains any representation from outside the university from industry or government. In the light of this we would be grateful if you could explain how the MIM intends to garner the input and advice of its external partners and stakeholders.

In conclusion may I repeat that the sub-committee sees great value in what you are trying to achieve with the MIM, particularly highlighting to external stakeholders the breadth and depth of materials research at the university, and in stimulating research through facilitating multidisciplinary collaborations across the various internal boundaries. Any clarity that you can add to the issues we have raised will be of great help in moving our deliberations forward.

Michael Trevan
Monday, January 19, 2009

Michael Trevan
Chair, Sub-committee of SCUR

Re: Response to issues related to the proposal for the formation of the Manitoba Institute for Materials

Dear Michael

Thank you for reviewing the MIM proposal and offering the opportunity to respond to several issues. My response is below.

Issue 1. The intent is both. Initially it will be virtual but eventually it will become a physical entity. The major function is indeed to coordinate and help grow the research and HQP education functions of individual members and groups involved in materials-related activities at the university. However, to enhance the visibility of the MIM the proposal includes renovation of space that would serve as a visible portal for materials research activities at the university. This would also serve as the liaison between internal and external activities. Therefore the intent is to house only selected instrumentation that is user friendly across a broad spectrum of materials activities, primarily in the area of materials microstructural characterization, along with a modest sample preparation area. Individuals or groups, internal or external, could then access the broader university materials community to pursue their materials needs (the virtual part) via both a dedicated web-site and assistance from MIM members and personnel.

Issue 2. With reference to my response to Issue 1, there is the expectation that some new microstructural instrumentation will be situated in the Institute to offer services of a general nature. The relationship between MIM and other centres/groups is envisaged as being collaborative. The MIM will evolve from providing, for example, a compilation of existing equipment, user fees and policy procedures to a harmonized university approach to such policies and procedures. The "coordination" part is intended to ensure that the various centres/groups are both aware of each other's activities and of the availability of accessible instrumentation infrastructure. Many individuals from these other units provided cvs in support of the proposed MIM knowing that as members of the new institute they will have an opportunity to participate in a broad spectrum of materials activities including a dedicated seminar series, visiting researchers and opportunities for enhanced graduate student interactions. However, their organizations will not be managed by the MIM. Rather, when appropriate, it is expected that the MIM will lead collaborative grant/equipment applications, especially in the area of securing infrastructure funding. The decision on whether or not to house infrastructure belonging to an individual or group under the umbrella of the MIM will be left to them, as long as such infrastructure is compatible with services and space available in the MIM.

Issue 3. The part-time administrative assistant position was suggested as a way to assist the Director in establishing the Institute in its formative year(s). There is no doubt that the position will evolve into a full-time research development coordinator to proactively promote the MIM.

Issue 4. Page 5, section 3(b)(ii) does include external collaborators as Associate Members. However, perhaps a more appropriate response to the question is that although not specifically noted in the proposal, once established, the MIM intends to appoint an advisory board. This will be made up from external stakeholders and partners, for example membership from the local NSERC office, the aerospace sector/MARCC, the local consulting community, ISIS Canada, Province/WED, Hydro, Composite Innovation Centre. Initial discussions have already been held with several of these organizations. In addition, individuals from these and other external groups will be invited to participate in the seminar series. This latter involvement will facilitate direct communication between external stakeholders and the university researchers and research students.

In conclusion, thank you for the opportunity to respond. Should you have any other questions or require further clarification please let me know.

Bill Caley
Friday January 23, 2008.

Proposal to establish the

Manitoba Institute for Materials

as a Senate approved Institute of the University of Manitoba

October 10, 2008

Proponent: Materials Research Initiative Working Group

Dr. Digvir Jayas, Associate VP Research

Dr. Norman Halden, Dean, Clayton H. Riddell Faculty of Environment, Earth and Resources

Dr. Douglas Ruth, Dean, Faculty of Engineering

Dr. Mark Whitmore, Dean, Faculty of Science

Dr. William Caley, Director, University of Manitoba Materials Initiative

Document author: William Caley

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email: caleywf@cc.umanitoba.ca

1. Name of Research Centre/Institute.

Manitoba Institute for Materials

2. Description and Justification

2 (a) Mission and Objectives

Mission - To create an internationally recognized research and educational environment that facilitates collaboration and innovative research in materials at the University of Manitoba.

Objectives

1. Facilitate multidisciplinary materials research at the University, and provide advice on its, and associated infrastructure's, further development
2. Encourage the exchange of knowledge and expertise among researchers
3. Increase visibility of materials research occurring at the University
4. Secure multiuser, broadly accessible infrastructure for materials research
5. Coordinate and create major funding proposals
6. Help to maintain the research readiness of multiuser research infrastructure
7. Establish a multidisciplinary educational environment
8. Represent the interests of the entire materials research community
9. Serve as an interface to government and industry
10. Facilitate the development of discoveries and the transfer of knowledge and IP related to materials research outside the University, working closely with the University's Technology Transfer Office.

Rationale - Materials research is the foundation of technology, and increasingly the foundation of our understanding of the environment, biology and health care. The impact of advanced materials envelops every aspect of the modern world. Breakthroughs resulting in new technologies invariably trace their origins to two things: 1) fundamental

research in the basic properties of matter, and 2) research aimed at manipulating properties (e.g. structural, chemical, electrical, magnetic, optical) by controlling the structure (both electronic and geometric) via interactions at the atomic and molecular level, often in ways that do not otherwise occur in nature. Indeed, nearly every materials research program has an ultimate objective either of designing metamaterials with novel and controlled properties or of developing a better understanding of naturally-occurring minerals and materials and their relationship to the constantly changing environment.

The Manitoba Institute for Materials will create a paradigm shift of how both basic and applied materials science are carried out and applied at the University. There is a large number of materials researchers at the University who are actively pursuing topics in the fundamental science of complex materials. What is needed is a mechanism to explicitly foster networking and collaboration between researchers with different backgrounds and from diverse disciplines, as well as to maintain, build and enhance the research capabilities of the University's materials scientists. Their research programs would also benefit considerably through increased visibility, both within the University and beyond. The large pool of expertise in materials could then be used much more effectively to propel the applied research programs to new levels of innovation and excellence, thus capitalizing on this know-how and becoming a potent economic driver for Manitoba industries. The Institute will also stimulate the research and training environment within the University by organizing a regular seminar series and by bringing in visiting scientists for discussions, seminars, and longer term stays. Finally, the Institute will provide a platform for leveraging grant applications of members for equipment and personnel to enhance the research at the University.

Initially, the MIM will be a virtual institute that will coordinate the research of the following existing research centres, groups or networks including:

- The Crystallography Research Centre
- The Aerospace Materials Engineering Facility
- The Nuclear Magnetic Resonance Facility
- The Surface Characterization Facility
- The Composite Materials and Structures Group
- The ISIS Canada Research Network (www.isiscanada.com).

World-class materials research is also being performed in smaller groups, laboratories and facilities across the campus. The Manitoba Institute for Materials will be unique in that it intends to enhance the functionality of all researchers and research groups by way of providing a new multidisciplinary environment that bridges the gap between research areas. The institute will assist in recruiting world-class researchers to the University.

2 (b) Scope of activities envisioned

The Institute has identified a number of multidisciplinary research themes (Appendix A), initially to build collaborations. These include areas ranging from electronic materials to spin glasses, from nanostructures to polymers and soft biomaterials, from complex structured metamaterials to Superalloys, from composite material systems and intelligent

sensing to high performance computing materials research, from magnetic materials to photonic and phononic microsystems, and from MEMS and NEMS to minerals as well as to research related to the environment. The generic focus areas that are envisioned will be dynamic in the sense that they are expected to evolve and change as the materials science and engineering field grows, and research activities at the University develop. The Institute's activities will have the following components:

- The Institute will promote outreach to industry and government organisations to solve emergent problems.
- The Institute will provide a unique recruitment tool to attract students and faculty to the University.
- The Institute will encourage co-supervision of students across departmental and Faculty boundaries.
- The Institute will provide a support structure that allows members to pursue the infrastructure needed to facilitate world-class research in complex materials as well as to apply for research funds from provincial, national and international sources.
- The Institute will provide a forum for strategic planning regarding materials research including infrastructure development and sustainability with such advice being provided to Faculties and the University Administration.
- The Institute will establish and maintain a web site that indicates the scope of research interests, capabilities and activities at the University. This site will serve as a database of expertise and instrumentation relevant to materials research. It will also promote and advertise research in the science of materials at the University, highlighting its activities and strengths.
- An annual report summarizing the activities and research interests of the Institute and its members will be assembled and distributed.

2 (c) Research benefits and opportunities likely to result from the establishment of the Institute

The issues to be discussed in this section have been largely addressed previously in sections 2(a) and 2(b).

Briefly, there are at present some clear multidisciplinary collaborations occurring between members within a department, across departmental boundaries and across Faculty boundaries. In recent years collaborative efforts in the form of collective proposals to CFI and NSERC for equipment and infrastructure funding have formed the basis for the need for a more structured approach to materials research at the university.

3. Constitution

3(a) Organisational structure/roles and responsibilities of committees

The Manitoba Institute for Materials will have the following structure. As the initiative progresses across Faculty and Department lines, the committees will be adjusted as appropriate to be inclusive.

(i) A Director (with secretarial support as appropriate) reporting to the Vice President Research or designate.

(ii) A Steering Committee consisting of the Vice President Research or designate, the Deans of the Faculties of Science, Engineering and the Clayton H. Riddell Faculty of Environment, Earth and Resources or their designates, and the Director. This is the University committee responsible for the overall fiscal operation of the Institute.

(iii) A Management Committee consisting of the Director and representatives from each participating Faculty. This committee promotes and provides direction for the activities of the Institute at the University. It also facilitates industrial and other external interactions as well as the addition of new Members, Associate Members, Student Members and Visitors to the Institute. Committee members are appointed based on nominations from Members and approved by the Steering Committee. The Management Committee is also advisory to the Director.

(iv) A Facilities Management Committee with membership from each unit with instrumentation involved in the initiative. This committee is responsible for management of materials facilities, preparation and upkeep of a web-site that will list facilities, contact personnel and charge-out rates, as well as identification of upcoming funding opportunities. Committee members are appointed based on nominations from Members and approved by the Management Committee.

(v) An Educational Initiatives Committee with three members from the overall membership of the Institute. This committee will provide leadership in promoting interdisciplinary courses, both graduate and undergraduate, in science and engineering at the University and pursue opportunities for external funding as appropriate (e.g. NSERC CREATE Program). Committee members are appointed on nominations from Members and approved by the Management Committee.

3(b) Categories of membership and the criteria of each of these categories

(i) Members: Faculty of the University (including Adjunct Professors) that form the member groups (listed in this document) will be the initial Members. Only Members can become part of the committee structure of the Institute.

(ii) Associate Members: These include all postdoctoral fellows and research associates that are supervised by Members, in addition to long term visitors to the Institute and other

external collaborators such as individuals with positions in industry or government as appropriate.

(iii) Student Members: Graduate and undergraduate students supervised by Members.

(iv) Visitors: Researchers that visit the Institute for short periods of time, normally less than twelve months.

3(c) Procedures whereby appointments will be made for each membership category
Members will be appointed based on nominations made by Members and approved by the Management Committee.

Associate Members will be added to the Institute roster through their affiliation with Members

Student Members will be part of the Institute through their supervisors who are Members of the Institute.

Visitors will be approved through their work affiliation with Members of the Institute.

3(d) The privileges and responsibilities of membership.

Members will have the responsibility of performing and publishing cutting edge, world-class research in premier peer-reviewed journals.

Members will perform, if and as appropriate, multidisciplinary experimental and theoretical research.

Members will foster links with other researchers in the Institute as well as outside the Institute. Members will cultivate associations with Industry and Government Laboratories.

Members will attend regular (duly constituted) meetings.

Members will have the privilege of accessing equipment that is a part of the distributed infrastructure associated with the Institute, subject to infrastructure access policies.

Members are responsible for encouraging interactions between students.

Members will co-supervise undergraduate and graduate students as well as postdoctoral fellows where it is appropriate.

Members are required to explicitly name the Institute, and Institute funding if applicable, in any work that arises from the Institute's environment and resources. For example, in a peer-reviewed publication, the member's contact information would include the affiliation with the Institute. This will provide one of the primary mechanisms that will increase the visibility of the Institute and the University.

4. Management

4(a) Reporting

The Manitoba Institute for Materials will report to the Vice President (Research) of the University (or designate) through the Director.

5. Proposed Initial Membership

The following is not intended to be exclusive. Rather, it is a listing of those who have indicated an interest in the proposed Institute to date.

Chemistry

Dr. M. Bieringer

Dr. M. Freund²

Dr. T. Hegmann

Dr. S. Kroeker

Dr. H. G. Schreckenbach

Civil Engineering

Dr. A. Mufti^{1,2,3}

Dr. D. Polyzois^{1,2}

Dr. N. Rattanawangcharoen²

Dr. A. Shalaby²

Dr. D. Svecova^{1,2}

Dr. A. Woodbury

← Ehab El Salakawy

Electrical and Computer Engineering

Dr. D. Buchanan

Dr. D. Oliver

Dr. C. Shafai

Dr. D. Thomson

Food Science

Dr. M. Scanlon

Dr. H. Sapirstein

Geological Sciences

Dr. M. Fayek

Dr. N. Halden

Dr. F. Hawthorne

Mechanical and Manufacturing Engineering

Dr. N. Bassim

Dr. J. Cahoon

Dr. W. Caley
Dr. M. Chaturvedi
Dr. R. Jayaraman²
Dr. O. A. Ojo²
Dr. N. Richards
Dr. Q. Wang

Physics and Astronomy

Dr. S. Cadogan
Dr. C.-M. Hu
Dr. J. Page
Dr. R. M. Roshko
Dr. B. W. Southern
Dr. J. Vail
Dr. J. van Lierop
Dr. M. Whitmore
Dr. G. Williams

¹ Member of ISIS Canada

² Member of the Composite Materials and Structures Research Group

³ President of ISIS Canada

6. Physical Resources

6(a)(i) Available research facilities, current strengths and weaknesses

Materials related instrumentation and equipment infrastructure is distributed and resides primarily in Allen, E-1, E-3 and Wallace buildings as well as elsewhere in the University. The major weakness is a lack of coordination between materials researchers together with the rising infrastructure costs accentuated by the decentralised nature of materials research at the University.

6(a)(ii) Library Statement for the Proposed Manitoba Institute of Materials

Prepared by
Marie Speare, Bibliographer for Chemistry, Sciences and Technology Library

The Manitoba Institute of Materials is being proposed to bring together researchers from various departments and faculties at the University of Manitoba who are currently engaged in materials science research. The University of Manitoba Libraries has developed collections to support existing courses and research activities within the individual departments involved. The primary collections related to materials science are held in the Sciences and Technology Library and Engineering Library. Collections in textiles and biomaterials are also located in the Elizabeth Dafoe Library and the Neil John Maclean Health Sciences Library, respectively.

Over the last five years the Libraries has been improving the monograph and journal collections in the area of materials science. Over \$19,000 has been allocated for one-time purchases to improve the monograph collections that support the Canada Research Chairs engaged in materials science research. The journal collection for materials science research has also improved with the addition of several journals since 2001. Examples include: *Journal of Applied Physics*, *Chemistry of Materials*, *Materials Science and Engineering R: Reports*, *Journal of Materials Chemistry*, *Journal of Applied Crystallography*, *Physics and Chemistry of Minerals*, *Structure and Bonding*.

The University of Manitoba Libraries has a good collection of high impact journals in the subject area. ISI's 2006 *Journal Citation Reports* was used to assess its current strength. The Libraries subscribe to 87% of the journals with ISI impact factors greater than 1¹ in subject areas related to materials science and 90% of the journals with impact factors greater than 2. A total of 166 materials science journals with impact factors greater than 1 are available. (See Appendix B for details.) An additional 117 lower impact journals in these subjects are also available. Some journals that fall outside of the subjects selected for this assessment, such as journals in the area of inorganic and solid state chemistry, would provide additional support. Several of the journals in the collection are only accessible in electronic format with backfiles for approximately the last 10 years.

Although the journal collection in the area of materials science is strong, there are some higher impact journals that are unavailable. Examples include: *MRS Bulletin*, *Journal of Materials Research*, *Journal of Nanoscience & Nanotechnology*, *Journal of Vacuum Science Technology A*, *Journal of Vacuum Science Technology B*, *Current Nanoscience*, *Electrochemical and Solid State Letters* and *Journal of the Electrochemical Society*. It is also anticipated that a new journal, *Nature Nanotechnology*, will become increasingly important for materials science research. New baseline funds of \$10,948 would be necessary to subscribe to these titles. At this time, articles from these journals will have to be requested from the Libraries' free Document Delivery service which now offers a post to Web feature that provides desktop delivery for journal articles.

The Libraries subscribes to several databases that index the material science literature. The following databases are available to the University of Manitoba community:

- Compendex
- GeoRef
- Metadex
- SciFinder Scholar
- Inspec
- Web of Science
- Scopus

¹ The journal impact factor is the average number of times articles from the journal published in the past two years have been cited in the current year.

The Libraries also provides access to RefWorks, a web-based bibliography and database manager. RefWorks has several features that facilitate sharing of references with colleagues including sharing accounts, creating read-only accounts or using RefShare to share folders with colleagues.

The University of Manitoba Libraries currently has the resources to support the research areas proposed for the Manitoba Institute of Materials. Ongoing additional funding would, however, add depth to the journal collection.

6(b) Future requirements

To provide a world-class training environment in the science of materials, a goal of MIM is to become a nation-wide synthesis and characterization facility for materials. To complement the current equipment resources, members intend to apply for Canada Foundation for Innovation (CFI) funds. Successful applications to agencies such as CFI and NSERC (e.g. MRS; RTI) will provide the necessary monies for expansion and operation of equipment, infrastructure and facilities.

A central facility, as part of the overall infrastructure, would be highly beneficial. One potential opportunity is for the MIM to apply for funding such as CFI and WD to renovate the basement of the Allen building (760 m² in total) to house some of the Institute and its equipment and laboratories. Tentative plans are being explored. Initially, Phase I renovation could include 200 m² to house new microstructural instrumentation as well as a seminar room and office space to serve as a visible portal for the Institute. Subsequent renovations for the remaining 560 m² could be for newly-acquired groups of characterisation instrumentation intended to provide a suite of complementary materials characterisation capabilities to serve both internal and external clients.

7. Financial Resources

The Manitoba Institute for Materials intends to be an Institute geared towards providing a world-class training and research environment for the science of materials. The Institute's basic mandates can be initiated with much of the existing infrastructure. However, for the Institute to be a successful enterprise, funds will be required both to sustain the maintenance and infrastructure presently at the University and to establish a multidisciplinary Institute. This Institute should also have a physical location within which materials research can be conducted; as well, the location should function as a portal that will be viewed by the outside community as a node for such research activities locally, regionally, nationally and internationally. The proposed budget is for each of the first five years and is intended to address needs to establish the Institute. However, concurrently the Members will also collaborate to secure new equipment and infrastructure funding from, for example, CFI, and NSERC (e.g. MRS) with a view to provide long-term fiscal support for the multidisciplinary materials sector of research at the University of Manitoba. A proposed budget for each of the first five years is given below in Budget A. In addition, Departmental, Faculty and Institutional commitments

for the further development and maintenance of materials infrastructure at the University (each of the first five years) are given in Budget B and proposed non-university sources of funding in Budget C.

(A) Annual Operating Budget (each of five years)

<u>Revenue</u>	<u>Amount/year</u>
Science	\$11,800
Environment	\$7,600
Engineering	\$7,600
Central Funds	\$27,000
Physics and Astronomy	\$2,000
Chemistry	\$2,000
Food Science	\$2,000
Electrical and Computer	\$2,000
Mechanical and Manufacturing	\$2,000
Civil Engineering	\$2,000
Total	\$66,000

<u>Expenses</u>	
Administrative support (part time)	\$37,000
Miscellaneous operating expenses (web-site, supplies, travel)	\$12,000
Annual meeting	\$3,000
Seminar program	\$5,000
Public relations	\$1,000
Teaching buyout for Director	\$8,000
Total	\$66,000

(B) Commitments for Further Development and Maintenance of Materials Infrastructure (each of five years)

It is expected that the new Institute will serve the entire University materials research community, especially considering the broad scope and nature of "materials" activities.

Therefore, the proposed Institute will be a model for interdisciplinary research that the University can showcase to the external community.

Although specific plans for future renovations are tentative, the proponents have developed a budget which is notionally based on a Phase 1 renovation of 200 m². All or part of this could be in the Allen Building basement, or it could be distributed. Based on discussions with Physical Plant personnel (e.g. Mr. Al Griffiths/Prof. Rudy Schilling, Jan. 25, 2008) the renovation cost would be up to \$400 per square foot, range depending on services needed and, for the Allen Building, whether or not there is a requirement for a second exit (safety/code). Therefore we estimated the cost for Phase I renovations to be \$800 K - \$1 M. Several funding sources (e.g. WD, Province, indirect costs) will be explored to complete these renovations. Pending the outcome of the 2008 CFI applications, the University may renovate a central area or several areas depending on services required for instrumentation (see Budget (C)).

Proposed budget (each of five years). Proposed non-university sources of funding are given in Budget (C).

Revenue	
Science	\$50,000
Engineering	\$25,000
Environment, Earth, Resources	\$15,000
University + Physical Plant	\$90,000
User Fees	\$75,000*
Total	\$255,000
Expenses	
Renovations	\$205,000
Laboratory manager	\$50,000
Total	\$255,000

*Estimate based on average of \$75/h x 10h/wk x 2 instruments

(C) Proposed Non-University Funding Sources (e.g. CFI/WD)

The funds secured will depend upon the institutional support in (B) and the opportunities available. To date a significant level of success has been achieved by various members of the University materials research community (\$32M+ in the past five years, circa December 2006). The intent is to build on these successes and be in a position to capitalise on present/future opportunities. Two sources are proposed as follows:

(a) **CFI.** Section 3.2, CFI Call for Proposals, Feb. 15, 2008 states "Construction and renovations essential for housing the infrastructure effectively are also considered eligible". Assuming two materials-related proposals for the present (2009) competition and a minimum of \$10M for both (CFI contribution \$4M) leaves considerable room for matching the institutional contribution in Budget (B).

(b) WD. The recent (January, 2008) support of infrastructure for composites research by WD, largely for manufacturing/macrosopic investigations provides an opportunity for parallel applied microscopic capabilities. Ongoing discussions with the Composites Innovation Centre (S. McKay) suggest that there is a potential for the proposed Manitoba Institute for Materials to provide microcharacterisation support for composites research. Based on these discussions, it is the intent of the proponent of the Institute to approach WD for infrastructure funding upon approval of the Institute.

8. Statements of Support and Commitment

8(a) Letters of support

- (i) A. Mufti, ISIS
- (ii) S. McKay, Composites Innovation Centre
- (iii) R. Ludwick, Manitoba Hydro
- (iv) R. Jayaraman, Composite Materials and Structures Research Group
- (v) K. Boucher, Standard Aero
- (vi) W. Tennesey, TestLabs International
- (vii) D'Arcy Phillips, MAHRCC

8(b) Letters of commitment

- (i) V.-P. Research
- (ii) Dean of Science
- (iii) Dean of Engineering
- (iv) Dean of Environment, Earth, Resources
- (v) Head of Chemistry
- (vi) Head of Civil Engineering
- (vii) Head of Electrical and Computer Engineering
- (viii) Head of Food Science
- (ix) Head of Mechanical and Manufacturing Engineering
- (x) Head of Physics and Astronomy

APPENDIX A

Suggested Research Areas of Interest

- **Complex crystalline materials and nanostructures**

From prescription drugs to cookware to computer chips, many materials that are used every day are made of crystals that possess special properties. The properties of any material are largely determined by how its atoms are arranged. For crystalline materials, the atomic arrangement, as well as the arrangement of crystals themselves, are basic to their physical behaviour. Many modern synthetic materials have intentionally tailored atomic or crystal arrangements. Knowing how atoms are arranged in new compounds is fundamental to understanding how to tailor materials chemically and physically to get the desired properties (e.g. for use in new electronic devices). This interdisciplinary thrust area brings together researchers who wish to understand the fundamental behaviour of technologically important materials, such as catalysts, ionic conductors, superconductors, alloys, ceramics, cements, magnets, and radioactive waste forms.

Examples of ongoing research: *Magnetic, electronic and transport properties of materials, nanostructures, superalloys, complex minerals, phononic crystals*

Potential participants: *Bieringer, Cadogan, Chakraborty, Chaturvedi, Hawthorne, Hegmann, Hu, Kroeker, Page, Roshko, Southern, van Lierop, Wang, Williams.*

- **Composite material systems**

The need to develop light but strong materials to improve on fuel efficiencies in transportation and to improve the performance of engineering structures explicitly requires a good foundation in materials science research. The University can point to success stories in the application of this science, such as the Composites Innovation Centre (CIC) at Smartpark, the ISIS Canada Research Network and the Composite Materials and Structures Research Group. Continued innovation in composites, including those developed from biological materials, will require sound fundamental research to understand the role of structure and bonding at various length scales in dictating the limits of performance as density is decreased. A key question in the adoption of composites from renewable resources is what processing strategies can be devised to compensate for deficiencies in raw material properties (due to natural variability) so that performance targets for bio-composites can be consistently met.

Examples of ongoing research: *Aerospace composite materials, intelligent sensing for innovative civil engineering structures, fiber reinforced polymer materials, fabrics, composites generated from biological materials, oil seed resins, "breathable" and "smart" textiles and wound dressings.*

Potential participants: Jayaraman; Members of the proposed Composites Research and Commercialization Centre, El-Salakawy, McNeill, Mufti, Members of Composite Innovation Centre, Polyzois, Svecova, Dental Science researchers.

- **High Performance Computing (HPC) materials research**

The rapid advances of massively parallel computing, coupled with equally impressive developments in theoretical analysis, have generated an extraordinary growth in our ability to model and predict the behaviour of materials and to visualize the results. As a result, computational science is entering a new era that promises to revolutionize our understanding of materials, expanding our knowledge beyond that of idealized systems to touch the real materials that enrich our lives. HPC embraces all aspects of equipment, people, data, software and access capabilities and is essential to the needs of researchers in all disciplines. HPC facilities provide the researcher community with opportunities for inter-institutional and multi-disciplinary collaboration, facilitating research and innovation that would otherwise be impossible.

Examples of ongoing research: Computational chemistry, physics, fluid dynamics and electromagnetics: magnetic materials, biomaterials, spintronics, polymers, soft matter, composite materials, microwave imaging

Potential participants: Alfa, Bibeau, Bridges, Chakraborty, Cullen, Dietrich, Gough, Kroeker, LoVetri, McLeod, Okhmatovski, Ormiston, Rattanawangcharoen, Rasmussen, Schrechenbach, Shah, Snelgrove, Soliman, Southern, van Lierop, Whitmore, Woodbury

- **MEMS and NEMS**

Nanosystems technologies (NST's) are making possible the construction of complex systems that possess the benefits of high integration of multi-disciplinary technologies and small size. NST's include microelectronics, micro-fluidics, micro-electro-mechanical systems (MEMS), nano-electro-mechanical systems (NEMS) and photonics. Several technologies are often combined on a single nanosystem device, enabling the production of powerful devices. Microsystem devices are already greatly impacting our lives, and over the next decades, NST's will impact our world as much as microelectronics has done over the last 30 years.

The expected impact of NST has resulted in nanotechnology being identified as a strategic area by governments worldwide. The investment by government organizations in 2003 was over \$2.5 billion US. Canada is reacting to this opportunity by investing in several NST research facilities, including the Nano-Systems laboratory at the University of Manitoba. The Nano-Systems Fabrication Laboratory (NSFL) was established to support the nanotechnology efforts of University of Manitoba researchers and Manitoba

industry. It is the only facility in Manitoba, and one of only a handful in Canada, capable of micro/nano-scale manufacturing.

Examples of ongoing research: MEMS for next generation smart adaptive antennas for vehicle systems and telecommunications, Nano-probe instruments for in-situ IC testing and material science, Molecular Junctions, low dimensional junctions, Micro-sensors for electric and magnetic field sensing, Sensors for structural health monitoring for Civil Engineering, Investigation of nano-system fabrication technologies, Micro-pressure sensors for human hearing studies, Micro-tweezer systems, Micro-fluidics for thermal cooling, energy storage, and bio-sensors, Ultra thin films for nanoelectronics and bio-sensors, Large deflection micro-mirrors for optical switching, microfluidics, microresonators, sensors, and Biomems.

Potential participants: Bridges, Buchanan, Freund, Oliver, Shafai, Thomson, Wang,

- **Photonic and Phononic interactions with materials**

The interaction of photons and phonons with matter allows materials to be probed over a wide range of length and time scales, providing vital information for understanding their basic properties. Phonons are also one of the elementary excitations of materials, so that their interaction with other excitations (electrons, magnetic moments...) is also of fundamental importance. This multidisciplinary research area involves material properties that include (i) single atoms and molecules (excitation, ionization, probing, manipulation), (ii) complex molecular systems (biological, pharmaceutical, chemical - including distributed optical fibre sensing), (iii) nanostructures (quantum dots, nanofabrication, nanomachines, surface structures), (iv) microscopic interactions (optical tweezers, cell interactions, linear and non-linear photoacoustic interactions), and (v) millimeter and larger scale systems (ultrasonic and acoustic interactions in mesoscopic materials). The common themes that emerge from the complementarity of the many different approaches involved (optical and ultrasonic imaging, time-resolved measurements, fluorescence detection, spectroscopy, multi-photon and phonon spectroscopy, polarization detection, studies of non-linear processes, and intensity and phase measurements) form the basis from which new collaborations and scientific breakthroughs may be expected.

Examples of ongoing research: Imaging of complex materials, scattering and absorption in complex materials, mesoscopic wave phenomena, surface acoustic wave devices, X-ray scattering and diffraction, NMR and Mössbauer spectroscopies, photon and phonon correlation spectroscopies

Potential participants: Cadogan, Chakraborty, Hawthorne, Hegmann, Kroeker, Oliver, O'Neil, Page, Scanlon, van Lierop, Wang,

- **Soft and disordered materials; liquid and solid crystals**

The study of soft materials - such as complex fluids, macromolecules, particulate suspensions, porous materials, foodstuffs and biological materials - is a rapidly growing area that encompasses both new scientific discoveries and diverse practical applications.

Many of these materials are mesoscopic, having internal structures on length scales between atomic dimensions and bulk that determine their properties. There is a natural synergy with disordered hard materials, whether disorder is inherent at the atomic scale as in crystalline solids, glasses and complex minerals, or at larger scales as in assemblies of nanoparticles. The study of solid materials underlies much current and emerging technology involving optical, electronic and spintronic phenomena. This interdisciplinary thrust area brings together researchers from a wide range of disciplines who share an interest in unraveling the many scientific challenges associated with the complexity of these materials and exploring their imaginative and exciting uses.

Examples of ongoing research: Glasses, nanoparticles and spin glasses, polymer and biomaterials, mesoscopic materials, materials for nuclear waste immobilization, optical, electronic and spintronic properties of ionic and semiconducting crystals, complex minerals, protein structure, tissue and cellular structure, viral architectures, textiles

Potential participants: Bassim, Bieringer, Cadogan, Chakraborty, Duckworth, Fulcher, Kroeker, Hawthorne, Hegmann, O'Neil, Page, Peeling, Roshko, Saperstein, Scanlon, Schrechenbach, Sherriff, Southern, Vail, Whitmore, Williams

- **Surfaces, interfaces and ultrathin films**

The performance of many of the key materials that play a critical role in today's technology are dominated by the structure and chemistry of their interfaces. The properties of these interfaces are controlled by layers that can be as little as a few atoms or molecules thick. Our ability to understand the physics and chemistry of interfaces and, in turn, manipulate their properties will ultimately determine the direction of future developments in fields ranging from biotechnology to electronics. This interdisciplinary area will bring together researchers focused on the characterization and production of interfaces, both within materials as well as at surfaces, and it will stimulate development of the understanding and methodologies required to create the next generation of advanced materials and devices.

Examples of ongoing research: Electronic and magnetic materials, polymer structures, superalloys, environmental crystallization, liquid crystals

Potential participants: Bridges, Buchanan, Chaturvedi, Freund, Hawthorne, Hegmann, Oliver, Perreault, Southern, Thomson, van Lierop, Wang, Whitmore

- **Complex natural systems**

There is a pressing need to increase our knowledge on how and to what extent waters, minerals and life interact. Many environmental and industrial processes are traceable using isotopes, isotopic ratios and trace elements, as such anthropogenic forcing can be distinguished from natural background. Work can be done to improve ore beneficiation, reduce energy costs and design new sequestration strategies. Ultimately the economic impact is the mitigation of environmental impact before the damage is done and the monitoring of global change.

Examples of ongoing research: Use of light and heavy isotopes and trace elements to monitor exchanges between the Earth's crust, the hydrosphere and the biosphere, characterization and quantification of the distribution of trace elements in zoned minerals, crystal chemistry and structural crystallography; Use of isotope and trace element fractionation to understanding ore genesis and contaminant dispersal

Potential participants: Fayek, Halden, Hawthorne, Wang, Bekker

APPENDIX B
Checking Results from ISI's
2006 Journal Citation Reports

ISI Category	% Journals at U of M (Impact Factor > 2)			% Journals at U of M (Impact Factor > 1)		
	Percentage Held	Total Checked	Total Held	Percentage Held	Total Checked	Total Held
Applied Physics	86%	21	18	80%	45	36
Condensed Matter Physics	85%	13	11	95%	38	36
Materials Science, Biomaterials	100%	5	5	90%	10	9
Materials Science, Ceramics	n/a	n/a	n/a	71%	7	5
Materials Science, Composites	100%	1	1	100%	5	5
Materials Science, Characterization and Testing	n/a	n/a	n/a	100%	3 ²	3
Materials Science, Coatings and Films	0%	1	0	63%	8	5
Materials Science, Multidisciplinary	86%	37	32	86%	86	74
Materials Science, Textiles	n/a	n/a	n/a	100%	2	2
Polymer Science	87%	15	13	84%	37	31
Nanoscience and Nanotechnology	86%	14	12	81%	21	17
Total (duplicate titles removed)	90%	78	70	86%	193	166

² Progress in crystal growth and characterization of materials listed as being available in count above – still double checking with ER

SENATE MOTION ON THE TARGET POVERTY DAY OF ACTION FOR NOVEMBER 5TH 2009

WHEREAS the University of Manitoba Senate acknowledges the role of students in increasing government funding and other support for post-secondary education;

AND WHEREAS the UMSU has declared a Day of Action on November 5th, 2009 to raise public awareness about the chronic underfunding of post-secondary education and to demand the Federal and Provincial governments provide sufficient funding to have an affordable, high-quality post-secondary educational system;

AND WHEREAS this year's Day of Action is being held in conjunction with the Winnipeg chapter of Make Poverty History as part of the Target Poverty campaign intended to reduce and eventually eliminate poverty in the Province of Manitoba;

BE IT RESOLVED THAT SENATE ACKNOWLEDGE November 5th, 2009 as the Day of Action, and that all academic staff shall be made aware of this fact; and

BE IT FURTHER RESOLVED THAT Senate affirm the importance of the Target Poverty issue and that students, faculty and staff be encouraged to participate in the Day of Action, as they are able to do so;

BE IT FURTHER RESOLVED THAT Senate encourages colleagues, when possible, to accommodate the absence of students participating in the Day of Action on November 5th, 2009;

BE IT FURTHER RESOLVED THAT the Senate endorse activities to increase awareness of the need for the Federal and Provincial governments provide sufficient funding to have an affordable, high-quality education at the post-secondary level, and that all members of the university community be encouraged to participate in these events; and

BE IT FURTHER RESOLVED THAT the Senate acknowledges that an affordable, high-quality post-secondary education system works to reduce and eliminate poverty.