Senate
Senate Chamber
Room E3-262 Engineering Building
WEDNESDAY, June 25, 2008
1:30 p.m.
Regrets call 474-6892

AGENDA

V 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.

VI CONSIDERATION OF THE MINUTES OF THE MEETING OF MAY 14, 2008

VII BUSINESS ARISING FROM THE MINUTES

VIII REPORTS OF THE SENATE EXECUTIVE COMMITTEE AND THE SENATE PLANNING AND PRIORITIES COMMITTEE

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

c) **Academic Guide – CUSB M.Ed. English Language requirement** **Page 244**

d) **Academic Guide – instructions for Ph.D. Examiners** **Page 245**

e) **Designation of Master of Science (Kinesiology)** **Page 247**

X **ADDITIONAL BUSINESS**

XI **ADJOURNMENT**

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

/mb

Report of the Executive Committee of the Faculty of Graduate Studies from the meeting of May 9, 2008

Preamble:

The Executive Committee met on Friday, May 9, 2008 and made the following recommendation. There were no observations.

Recommendation:

1. **THAT the Faculty of Graduate Studies Executive Committee approve the Apr. 11/08 Programs and Planning report with respect to the course change and that it be recommended to Senate for approval.**

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

Preamble

The Programs and Planning Committee (PPC) of the Faculty of Graduate Studies has the responsibility of reviewing new programs, program changes, and course changes and makes recommendations to FGS Executive. PPC held a meeting on April 11, 2008 and made the following recommendations:

1. COURSE CHANGES

Kinesiology & Recreation Management

One (1) INTRODUCTION

PERS.7XXX	**Physical Activity, Health and Leisure: Physical Aspects**	+3
	"This course will include the presentation of research evidence-based current thought on physical activity, health and leisure. (Permission of course coordinator.)"	
Total Introductions		+3
NET Change in credit hours		*+3*

Observations

The course is being introduced to enhance the quality of the graduate program offerings in the Faculty of Kinesiology and Recreation Management. It can be tailored to both Master's and Ph.D. students in this and other faculties. This course will also be a means of tapping faculty expertise.

Report of the Programs and Planning Committee of the Faculty of Graduate Studies on course changes from its meeting on Apr. 11, 2008.

Recommendation 1.

The Programs and Planning Committee of the Faculty of Graduate Studies recommends that the Faculty Executive of Graduate Studies endorse the course introduction **PERS.7XXX *Physical Activity, Health and Leisure: Physical Aspects*** in the Faculty of Kinesiology & Recreation Management.

Report of the Executive Committee of the Faculty of Graduate Studies from the e-mail vote of May 14, 2008

Preamble:

The Executive Committee voted by e-mail on Wednesday, May 14, 2008 and made the following recommendation. There were no observations.

Recommendation:

1. **THAT the Faculty of Graduate Studies Executive Committee endorse the May 14/08 e-mail vote with respect to the revised course descriptions of the Faculty of Engineering, Asper School of Business, and Faculty of Medicine and that they be recommended to Senate for approval.**

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

1. Department of Electrical & Computer Engineering, Faculty of Engineering

One (1) INTRODUCTION

ECE.7XXX	**Advanced Electric Machines & Drives** *"Magnetically-coupled circuits, energy conversion principles, field generation in ac machines, windings and inductances, reference frame theory, dc machine and dc drives, scalar control of induction machines, vector control of induction machines, drives for special machines. (Pre-requisite ECE.3650 (ECE.4370 recommended) or permission of instructor.)"*	3
Total Introductions and net change in credit hours		+3

Observations

This course provides a modern approach to the analysis, modeling, simulation and design of electric machines and solid-state drives. Recent developments in hybrid and electric vehicles have opened up new avenues for the application of electric machines in the automotive industry.

2. Department of Accounting & Finance, Asper School of Business

Two (2) MODIFICATIONS

FIN.7230	**Seminar in Financial Intermediaries and Capital Markets** *"Formerly 9.723. Topics will include the major participants in the capital markets and their functions; the demand and supply of money and the structure of interest rates; recent developments and international factors in the*	3

capital markets. Prerequisite or concurrent requirement: FIN.6070 (or 009.607)."

ACC.6060	**Accounting 2** *"Formerly 9.606. The use of managerial accounting practices and reports in planning, budgeting, control, and decision making. Pre-requisite: ACC.6050 (or 9.605) or IDM.7720."*	3

No change in credit hours

Observations

Course modification FIN.7230 requires a prerequisite only (and no longer a concurrent requisite). Course ACC.6060 does not involve significant content changes.

3. Dept. of Electrical & Computer Engineering, Faculty of Engineering

One (1) INTRODUCTION

ECE.7XXX	**Queueing Systems for Telecommunications** *"Applied stochastic models for queueing systems; analysis of queuing models using matrix-analytic methods and also traditional transform-based approaches. Course will focus on applications; how to develop models that represent real communication network problems and how to analyze them. (Pre-requisite: Undergraduate Statistics course.)"*	3

Total Introductions and net change in credit hours	+3

Observations

Due to steady enrollment in the special topics course that covers the topics noted in the course description, a separate course has been requested.

4. **Faculty of Medicine**

Three (3) INTRODUCTIONS

IMED.7XXX **Microscopy, Optics, Imaging & Analysis in Health Research** **3**

"Theory and practice of modern microscopy, optics, molecular imaging, and analyses used in health research. Participants will gain in depth knowledge through seminars by local and external experts in the field and by hands-on laboratory work in preparing samples for imaging and analyses. Images will be acquired using equipment at the Genomic Centre for Cancer Research and Diagnosis at the Manitoba Institute of Cell Biology. Students will also participate in interactive tutorials and journal club. (Pre-requisite: Consent of the instructor.)"

IMED.7YYY **Advanced Molecular Imaging** **3**

"Seminar course in which students will learn about innovative methods and advanced analyses of molecular imaging in biomedical research including 2-dimentional and 3-dimensional fluorescent in situ hybridization, live-cell imaging, spectral imaging, and multi-colour imaging. Students will participate in hands-on laboratory exercises, interactive tutorials and journal club. (Pre-requisite: Consent of the instructor.)"

IMED.7ZZZ **Functional Genomics & Whole Genome Analyses** **3**

"Seminar course in which students will learn about functional genomics and approaches to whole genome analyses using array technologies. Course content will be delivered by local and external experts in the field. Students will participate in hands-on laboratory exercises with

micro-array platforms and computer-based data analyses, interactive tutorials and journal club. (Pre-requisite: Consent of the instructor.)"

Total Introductions and net change in credit hours	**+ 9**

Observations

These courses are intended to be generally available electives for all graduate students in the biomedical sciences. They have been developed in conjunction with the CIHR-funded program entitled "Innovative Technologies in Multidisciplinary Health Research Training."

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	term: May 1, 2008 – April 30, 2009
2. President of GSA	term: May 1, 2008 – April 30, 2009
3. Student Senator appointed by caucus of Student Senators	term: April 1, 2008 – March 31, 2008

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, 2008 – March 31, 2008

Procedures:

(a) Nominations for the position shall be provided by the Student Senate Caucus.

(b) Senators shall vote for no more than one candidate on the ballot provided.

(c) The candidate receiving the largest number of votes shall be elected.

(d) In the event of a tie, the question shall be resolved by another ballot involving those candidates who have tied.

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/vpresearch

MEMORANDUM

TO: Mr. Jeff Leclerc, University Secretary

FROM: Joanne C. Keselman, Vice-President (Research) and Chair, Senate Committee on University Research (SCUR)

DATE: March 17, 2008

SUBJECT: Notification to Senate on establishment of the Manitoba Group in Protein Structure and Function

COPIES: Dr. D. Jayas, Associate Vice-President (Research)
Dr. P. Cattini, Associate Vice President (Research)
Dr. Brian Mark, Assistant Professor, Microbiology and Biochemistry
Dr. Peter Loewen, Head, Department of Microbiology
Dr. Patrick Choy, Associate Dean of Medicine (Research), Faculty of Medicine
Dr. Dean Sandham, Dean of Medicine

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 Dean of Science has forwarded a recommendation for the establishment of the Manitoba Group in Protein Structure and Function 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 Manitoba Group in Protein Structure and Function.

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

JCK/nis

Attach.

UNIVERSITY OF MANITOBA

OFFICE OF THE VICE-PRESIDENT (RESEARCH)

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www.umanitoba.ca/vpresearch

Dean Mark Whitmore
251 Machray Hall
Faculty of Science
University of Manitoba

March 10, 2008

Dear Dean Whitmore:

I have had an opportunity to review the establishment proposal for the Manitoba Group in Protein Structure and Function Research Group, which notes your support as well as that of Dr. Peter Loewen, Head, Department of Microbiology and Dr. Dean Sandham, Dean, Faculty of Medicine. I am pleased to advise that it meets with my approval. Accordingly, I will notify the Senate Committee on University Research of my approval of this research group, and, in turn, will inform the Senate of the University.

By copy of this letter, I am extending my congratulations to Dr. Brian Mark and members of the research group. I look forward to learning of the research activities and achievements of the Manitoba Group in Protein Structure and Function Research Group.

Sincerely,

Joanne C. Keselman, Ph.D., Vice-President (Research)

JCK/nis

c.c. Dr. Brian Mark, Assistant Professor, Microbiology and Biochemistry
Dr. Peter Loewen, Head, Department of Microbiology
Dr. Patrick Choy, Associate Dean of Medicine (Research), Faculty of Medicine
Dr. Dean Sandham, Dean of Medicine

UNIVERSITY OF MANITOBA | Faculty of Science

Office of the Dean
239 Machray Hall
Winnipeg, Manitoba
Canada R3T 2N2
Telephone (204) 474-9348
Fax (204) 474-7618

February 25, 2008

Dr. Joanne Keselman
Vice-President (Research)
207 Administration Bldg.
University of Manitoba

Dear Dr. Keselman,

Please find attached a proposal to form a new University group: the **Manitoba Group in Protein Structure and Function**. This group will bring together the growing structural biology and protein chemistry community, fostering the sharing of ideas, new research findings and technical issues of common interest. Official group status will allow members to write unified CFI grant applications for future equipment and infrastructure needs, and provide the opportunity to participate in the CIHR Regional Partnership Program (RPP) to assist in securing ongoing CIHR research funding.

Dr. Brian Mark of the Department of Microbiology spearheads the effort as Director, and he has attracted an initial group of faculty members from both Science and Medicine (a letter of support from the Faculty of Medicine is attached). Initial members will include Dr. Peter Loewen (Microbiology), Dr. Joerg Stetefeld (Chemistry), Dr. Joe O'Neil (Chemistry), Dr. Harry Duckworth (Chemistry), Dr. John Wilkins (Internal Medicine / Immunology), Dr. Kevin Coombs (Medical Microbiology) and their laboratory staff. The group will function primarily through regular group meetings and a seminar series. A web page will also be brought on-line to promote the group and its activities.

Construction of our state-of-the-art protein X-ray crystallography facility commenced this month. In combination with our preexisting strengths in protein chemistry and structural biology, the new facility will allow the proposed group to thrive at University of Manitoba for years to come.

Sincerely,

Mark Whitmore
Dean,
Faculty of Science

Brian Mark
Assitant Professor,
Microbiology and Biochemistry

Peter Loewen
Head,
Dept. of Microbiology

enc.

cc: Dr. Patrick Choy, Associate Dean of Medicine (Research), Faculty of Medicine

UNIVERSITY OF MANITOBA | Faculty of Medicine

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

January 31, 2008

To: Dr. Joanne Keselman
Vice-President (Research)

From: Dr. Patrick Choy
Associate Dean of Medicine (Research)

Cc: Dr. J. Dean Sandham, Dean of Medicine
Dr. Mark Whitmore, Dean of Science

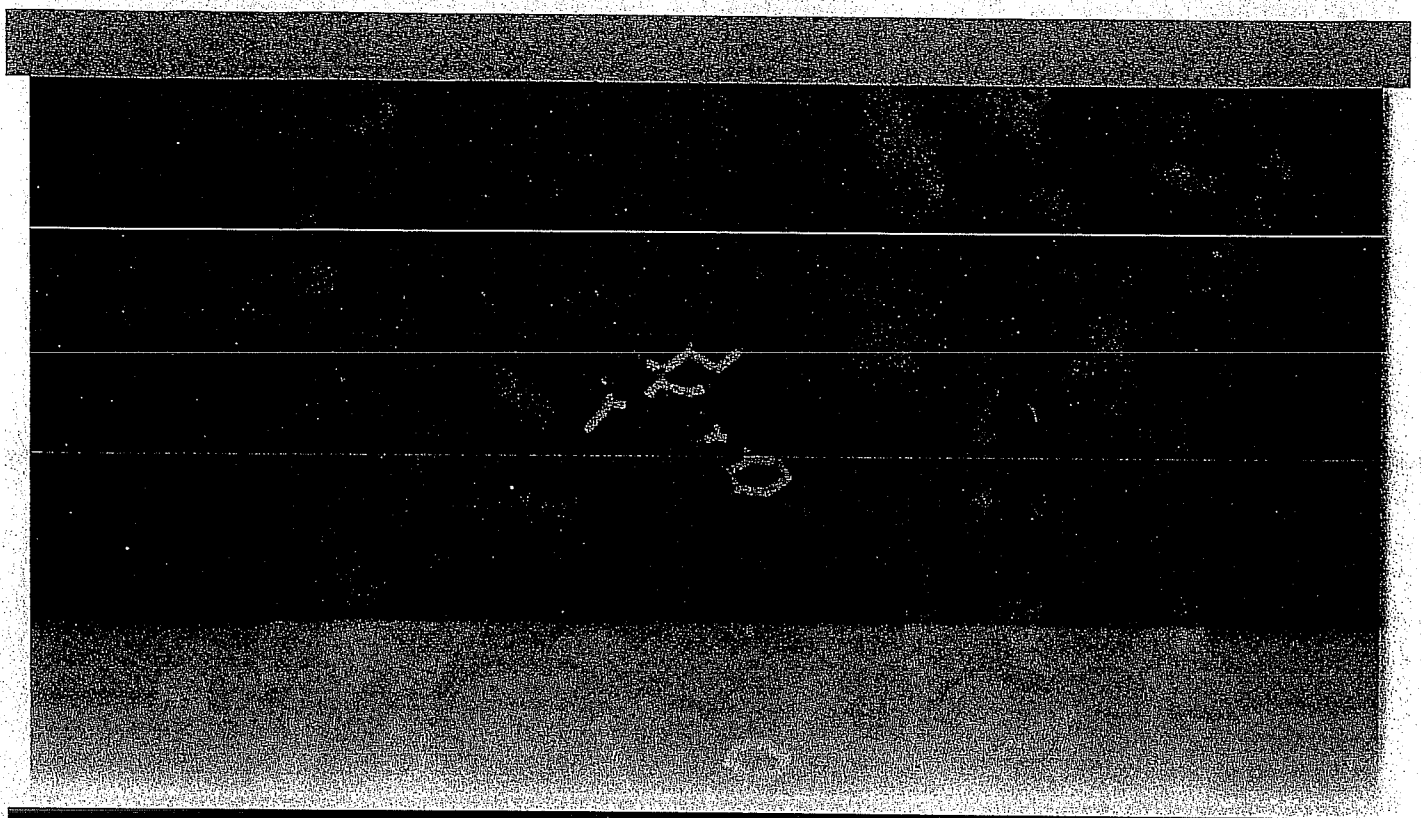
Re: Manitoba Group in Protein Structure and Function

On behalf of Dr. Dean Sandham, I wish to convey to you that the Faculty of Medicine strongly supports the formation of the Manitoba Group in Protein Structure and Function. This group is led by Dr. Brian Mark, and includes interested parties from both the Faculty of Medicine (Coombs and Wilkins) and the Faculty of Science (Loewen, O'Neil, Stetefeld).

The objective of the Group is to study the relationship between structure and function of proteins, with the aim to explain how protein structure gives rise to its cellular function. The work will assist in the development of proteomics and systems biology. The rationale for the formation of this Group is articulated in the "Formation of the Manitoba Group in Protein Structure and Function" prepared by Dr. Brian Mark.

Tangible benefits for the formation of the research group include the ability to sponsor forums to discuss new research findings, technical issues, and promote the importance and contribution of structural biology research to the broader scientific community. Members of the group will be well positioned to write unified CFI grant applications for common equipment and infrastructure needs. The official status of the group will also provide the members with the opportunity to participate in the CIHR-RPP program.

It is clear that the formation of this Group will foster new research collaborations between our two faculties, and between the two campuses. Hence, the Faculty of Medicine supports the formation of this Group enthusiastically and without reservation.



Manitoba Group in Protein Structure and Function

Proposal Abstract

The Manitoba Group in Protein Structure and Function will bring together structural biologists and protein chemists from the faculties of Science and Medicine. Through regular meetings and seminars, participation in the group will foster the sharing of new ideas, research findings and technical issues of common interest. Official group status will allow members to write unified CFI grant applications for future equipment and infrastructure needs, and provide the opportunity to participate in the CIHR Regional Partnership Program (RPP) to assist in securing ongoing CIHR research funding. Initial membership includes Dr. Brian Mark (Microbiology), Dr. Peter Loewen (Microbiology), Dr. Joerg Stetefeld (Chemistry), Dr. Joe O'Neil (Chemistry), Dr. Harry Duckworth (Chemistry), Dr. John Wilkins (Internal Medicine/Immunology), Dr. Kevin Coombs (Medical Microbiology) and their laboratory staff.

The University of Manitoba

22 February 2008

Formation of The Manitoba Group in Protein Structure and Function

The University of Manitoba is currently establishing a presence in structural biology research. It is a rapidly developing and specialized field of research focused on the determination of the three dimensional structures of proteins and enzymes. Proteins and enzymes are the molecular machines within the cell that are responsible for the vast majority of biochemical tasks required for sustaining life. Using molecular biology and biophysical techniques, structural biologists visualize the atomic structure of these molecules to provide a unique understanding of how their three-dimensional structure and chemical composition defines their biological function within the living cell.

The Strategic Research Plan for the University of Manitoba describes protein chemistry as an area of strategic importance. Significant steps in the development of this research area have recently been fulfilled through the recruitment of two structural biologists to the University of Manitoba, and a recent award by the CFI to the University for a state-of-the-art protein X-ray crystallography facility. The new protein X-ray crystallography facility will be the first of its kind in the province of Manitoba and will be used extensively by the core group of structural biologists now present at the University. This facility expands upon and complement technologies currently present at the University for studying protein structure, such as the Nuclear Magnetic Resonance (NMR) Spectrometer and Circular Dichroism facilities in the Department of Chemistry. Protein X-ray crystallography and NMR spectroscopy are powerful but fundamentally different approaches for determining protein structure. The methods contribute complementary information about the physical properties of protein structure and together provide the required technology base to support an internationally competitive structural biology group.

With a core group of structural biologists now present at the University of Manitoba, and the necessary facilities now funded, it is a logical time to create an official group in structural biology at the University of Manitoba. As an official group, members will be well positioned to write unified CFI grant applications for common equipment and infrastructure needs. Official group status will also provide University of Manitoba structural biologists the opportunity to participate in the CIHR Regional Partnership Program (RPP) to assist in securing future CIHR research funding. Furthermore, attendance at regular meetings comprised of the staff and students of member laboratories will be expected, providing a forum to discuss new research findings, technical issues of common interest, and to promote structural biology research to the broader scientific community, as all will be welcome to attend.

Currently, structural biologists at the University of Manitoba are focused on structure-guided drug design initiatives aimed at attenuating antibiotic drug resistance, providing insight into the molecular basis of how organisms handle oxidative stress, understanding virus replication and assembly. NMR spectroscopy is being applied to the problem of membrane protein structure determination and the characterization of the structure and dynamics of the HIV-1 Tat protein. In addition, complimentary use of proteomics, transcriptomics and image analysis are being used to develop dynamic descriptions of the interactions of the immune system and signaling proteins.

Many researchers from of the university, biotechnology and government communities within Manitoba are aware of the new structural biology research capacity at the University and there is a growing interest in collaborating with the structural biologists we feel that such expertise and resources would be best served through the formation of an official research group, as outlined in university policy 1405, Research Centres, Institutes and Groups as detailed below.

Name of Group

Manitoba Group in Protein Structure and Function

Objectives & Rationale

One of the largest challenges facing modern life science researchers is to understand the function of the many thousands of proteins encoded within the genomes of organisms. The genomics era provided staggering technological advances in genome sequencing capabilities, and there are now many important organisms that have had their complete genome sequenced. To understand the complexities of the proteome that is encoded in the genomes of these organisms, new fields of science have emerged such as proteomics and systems biology. Given that protein function is ultimately defined by its molecular structure, structural biologists have become instrumental in the new postgenomics era by providing detailed information about the molecular structure of proteins and how protein structure gives rise to their cellular function.

Members of the proposed Manitoba group in protein structure and function are currently focused on the following research areas:

1. DRUG MECHANISMS AND RATIONAL DRUG DESIGN: Rational drug design is proving to be a very important outcome of structural biology. Knowledge of protein structures is being exploited in the design of molecules that bind to and modify protein function in ways beneficial to human and animal health.
2. UNDERSTANDING CATALYTIC MECHANISMS: Enzymes are proteins that catalyze virtually all cellular reactions. Knowledge of their molecular structures will provide insights into the catalytic mechanisms underlying life's processes.
3. STRUCTURE BIOLOGY OF SPECIAL PATHOGENS: As the frequency and ease of world travel increases so does the spread of deadly zoonotic viral pathogens. Understanding the biology these viruses is a major initiative of the Special Pathogens Program at the National Microbiology Laboratory in Winnipeg, and close collaborations are now underway to begin investigation the structural biology of the proteins encoded by these viruses in order to provide a basis for future structure-based antiviral drug design iniatives.
4. BIOPHARMACEUTICAL AND BIOTECHNOLOGY: The value of structural biology in defining the structure of commercially important biopharmaceutical proteins is rapidly being recognized in industry. A collaboration is already underway with Cangene Corporation to determine the structure of a protein they are developing as a pharaceutical agent.
5. HIV RESEARCH: HIV-1 Tat is a natively-unfolded protein essential to viral replication and implicated in AIDS-related dementia. The dynamics of the protein were determined using NMR spectroscopy and currently we arae studying changes in

its structure and dynamics arising from zinc binding and interactions with other proteins.

6. STRUCTURAL BIOLOGY OF MEMBRANE PROTEINS Membrane proteins constitute 30% of all proteins yet fewer than 5% of known protein structures belong to membrane proteins. Methods are being developed to study the structure, folding, and dynamics of the glycerol facilitator membrane protein by NMR spectroscopy.
7. PROTEOMICS and TRANSCRIPTOMICS: Deciphering the many thousands of protein-protein interactions occurring within a complex and dynamic proteome of an organism is a focus of the Manitoba Center for Systems Biology and Proteomics. Systems biology, proteomics and structural biology research work together to provide atomic scale insight into the complex signalling and metabolic function an an organisms proteome.

With construction of the University of Manitoba Protein X-ray crystallography facility scheduled for the summer of 2008, all components necessary for the formation of new research group specializing in protein structure and function are now available at the University. With expert faculty already in place, formation of a group will provide a mechanism to officially represent Structural Biology research at the University of Manitoba, educate local, national and international researchers about our capabilities in the field, and to allow University of Manitoba structural biologists to share new technological developments and scientific breakthroughs in the field as a collective through regular group meetings. Creation of a web site for the group will help disseminate information about our capabilities, equipment status, bookings, and procedures, and provide a source of information about group members and schedule for an annual structural biology seminar series.

Structural biology is a multidisciplinary field of science and the group will bring together University researchers from multiple departments within the faculties of Science and Medicine. There is excitement on both campuses regarding the new protein X-ray crystallography facility and researchers from both the Fort Garry and Bannatyne campuses will benefit from the new facility through collaborations with members of the group. Membership from both campuses is seen as a very positive for the University research community, as it brings together expertise from both campuses and will foster new collaborations between the campuses.

Formation of the Manitoba Group in Protein Structure and Function will strengthen future applications to the CFI for large group grants to purchase additional equipment for the group. Furthermore, official group status will provide University of Manitoba structural biologists the opportunity to participate in the CIHR Regional Partnership Program (RPP). Under the CIHR RPP, operating grant applications deemed to be of high scientific merit through peer review, but ranked below the funding cut-off in a regular CIHR competition, are eligible to receive funding if there is a partner to co-fund the proposal. In Manitoba, this partner is the Province of Manitoba through the Manitoba Health Research Council.

Constitution of the Research Group

a. Organizational Structure

For this research group to operate effectively, we need a mechanism by which individuals can interact to discuss ongoing and planned research. To do so, a **director (Dr. Brian L. Mark)**

will help facilitate such interaction and will report directly to the Dean of Science. To further enhance such interaction, meetings intended for the exchange of information will be organized and announced on a group web site at an interval that works the best for group members (typically a Journal Club style meeting twice a month during the academic session).

b. Conditions of membership

All members of the research group will have an appointment with the University of Manitoba, either as a faculty member, an adjunct professor appointment through the Faculty of Graduate Studies, or a nil-salaried academic appointment. All members will maintain active research programs within structural and functional biology.

b. Reporting procedures

Members of the research group will be asked to provide a written update on their research progress to date, as well as the presentation of an oral report at group meetings.

c. Mechanisms for review and assessment

An annual report will be compiled based upon information provided in writing and at group meetings. The Director of the research group will be responsible for producing a single document that outlines the research activity of this group, including current and planned research, research published in the last year, and grant support. This report will be submitted to the Dean of Science and the Vice President (Research).

Table 1. Proposed membership of the **Manitoba Group in Protein Structure and Function**. Note that this represents minimum numbers since additional new hires and other scientists and faculty may wish to join in the future.

UNIVERSITY OF MANITOBA FACULTY	
Faculty of Science	***Faculty of Medicine***
Department of Microbiology	***Manitoba Centre for Proteomics and Systems Biology***
Brian L. Mark (Director of the MGPSF)	John Wilkins
Peter C. Loewen (Head of Microbiology)	
(Microbiology will host the MGPSF)	
Department of Chemistry	***Medical Microbiology***
Joseph O'Neil	Kevin Coombs
Jörg Stetefeld	
Harry Duckworth	

Dr S. Cameron Jay

Dr S. Cameron ("Cam") Jay, Emeritus Professor of Entomology, died suddenly on 28 April 2008, at the age of 79 years.

Cam Jay was born at Lauder, Manitoba, and attended school in Hamilton, Ontario. In 1949, he graduated with the highest standing from Hamilton Normal School. For six years he taught school in Hamilton, and took evening courses at McMaster University, leading to a B.A. in English Literature, and the Director's award for highest standing. In 1955, he began a bachelor's degree in agricultural entomology at the University of Manitoba, and graduated in 1958 with the University Gold Medal for highest standing among B.S.A. graduates. Beginning with his M.Sc. degree (University of Toronto at Guelph), he focussed his academic interests on bees. He completed his Ph.D. (University of London) in 1961, based on research conducted at Rothamsted, England.

In 1961, Dr Jay took up a faculty position in the Department of Entomology, University of Manitoba, which he held until his retirement in 1991. From 1981–87, he was Head of the Department. He also served the University in numerous other capacities, and served two terms as a member of Senate. His first priority at the University of Manitoba was teaching. His lectures in "Introductory Entomology" provided such an exciting introduction to the world of insects that the course was a major source of students for the Department. He also taught courses on social insects. In 1980, he received the Olive Beatrice Stanton Award for excellence in teaching.

Dr Jay's research ranged from work on fundamental aspects of bee biology to studies directly applicable to beekeeping practice. His research provided a foundation for today's studies on utilization of bee brood by varroa mites, and the role of pheromones in the social structure of honey bee colonies. Applications of his research include optimization of honey bee colony establishment and transportation practices, methods of queen management, and procedures for wintering colonies of bees in prairie Canada. His studies in Canada, New Zealand and Australia, of how bees recognize their own hives, resulted in reduced labour inputs for honey producers, increased honey production, and lowered transmission rates of parasites and pathogens. His work on pollination of faba beans and canola with honey bees was economically important, and with research associates he developed pollination systems for the first commercial hybrid canola seed production fields in western Canada. He also worked on coconut pollination in Jamaica and kiwifruit pollination in New Zealand. Dr Jay's research programs helped establish a viable leafcutting bee and alfalfa seed production industry in Manitoba, and indirectly led to the commercial use of bumble bees for pollination of green house crops. Dr Jay published over 75 refereed articles, and numerous other items. He trained a total of 24 graduate students, many of whom went on to research positions with Universities or Agriculture and Agri-Food Canada, and extension positions with several provincial governments.

Dr Jay offered numerous courses for commercial beekeepers, and for 29 years, taught a course for hobby beekeepers. In summer, he was frequently called upon to advise individual beekeepers to help solve their problems. He spent 15 months leading a C.I.D.A. apiculture development project in Kenya, and radically changed and improved apiculture in Kenya through the introduction of the moveable frame hive. For his extension activities, he was recognised through a University of Manitoba Outreach Award. His contribution to the beekeeping industry was recognized by numerous awards, including the Bee Hive Award of the Manitoba Beekeepers' Association, Honorary Life Membership in the Manitoba Alfalfa Seed Producers' Association, the J.I. Hambleton Award of the Eastern Apicultural Society of North America and the Fred Rathje Memorial Award for outstanding contributions to the Canadian Bee Industry. His achievements were also recognized by the University of Manitoba Alumni Association through a Jubilee Award. In 1999, an Award of Excellence for "Outstanding contributions to Canadian Beekeeping Development" was conferred on him at the international beekeeping conference, Apimondia,.

Cam Jay had a quirky sense of humour and an outlook on life which was a tonic to all around him. He was devoted to Doreen, his wife of 56 years, to their three daughters and son, and to his grandchildren. He marked his 30th, 40th and 50th wedding anniversaries by renting a road-side bill-board proclaiming his love for Doreen. He loved the outdoors, and shared canoeing, hiking, snowshoe or ski expeditions with generations of boy scouts. He operated a tree farm for many years. During retirement, he volunteered with the Canadian Cancer Society, the Winnipeg Christmas Cheer Board, and Habitat for Humanity. His passion was flying. For 35 years he flew a 1949 monoplane that he rebuilt from a written-off wreck. More recently, he acquired an open-cockpit biplane which he flew from southern Ontario to Winnipeg — an epic journey lasting almost 3 weeks.

To honour these accomplishments, the Department of Entomology has established the Dr S. Cameron Jay Memorial Scholarship to be awarded to a graduate student doing research in apiculture, pollination biology or the study of social insects.

SCHEDULE OF MEETINGS AND AGENDA MAILINGS
SENATE AND SENATE EXECUTIVE COMMITTEE

June 2008 to December 2009

Date for Items to the Secretary	Agenda to the Executive Committee	Executive Committee Meetings	Agenda to Senate Members	Senate Meetings
May 29, 2008	June 5, 2008	June 11, 2008	June 19, 2008	June 25, 2008
August 7, 2008	August 14, 2008	August 20, 2008	August 28, 2008	Sept. 3, 2008
September 4, 2008	September 11, 2008	September 17, 2008	September 25, 2008	October 1, 2008
October 9, 2008	October 16, 2008	October 22, 2008	October 30, 2008	November 5, 2008
November 6, 2008	November 13, 2008	November 19, 2008	November 27, 2008	December 3, 2008
November 27, 2008	December 4, 2008	December 12, 2008	December 19, 2008	January 7, 2009
January 8, 2009	January 15, 2009	January 21, 2009	January 29, 2009	February 4, 2009
January 29, 2009	February 5, 2009	February 11, 2009	February 26, 2009	March 4, 2009
March 5, 2009	March 12, 2009	March 18, 2009	March 26, 2009	April 1, 2009
April 16, 2009	April 23, 2009	April 29, 2009	May 7, 2009	May 13, 2009
May 28, 2009	June 4, 2009	June 10, 2009	June 18, 2009	June 24, 2009
August 13, 2009	August 20, 2009	August 26, 2009	September 3, 2009	September 9, 2009
September 10, 2009	September 17, 2009	September 23, 2009	October 1, 2009	October 7, 2009
October 8, 2009	October 15, 2009	October 21, 2009	October 29, 2009	November 4, 2009
November 5, 2009	November 12, 2009	November 18, 2009	November 26, 2009	December 2, 2009

1. Senate meets the last week of June so that a meeting in July is not required.
2. Senate meets the second Wednesday in May to consider the list of graduands for Senate approval.
3. Senate meetings are held in the Senate Chambers, Room E3-262 Engineering Building at 1:30.
4. Senate Executive meetings are held in 307 Tier Building at 1:30.

REPORT OF THE SENATE COMMITTEE ON AWARDS – PART A

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 May 13, 2008, the Senate Committee on Awards approved twelve new offers and seven amended offers, and the withdrawal of two offers, as set out in Appendix A of the *Report of the Senate Committee on Awards*.

Recommendations

On behalf of Senate, the Senate Committee on Awards recommends that the Board of Governors approve twelve new offers and seven amended offers, and the withdrawal of two offers, as set out in Appendix A of the *Report of the Senate Committee on Awards – Part A* (dated May 13, 2008). These award decisions comply with the published guidelines of November 3, 1999, and are reported to Senate for information.

Respectfully submitted,

Dr. Rick Baydack
Chair, Senate Committee on Awards

Appendix A

MEETING OF THE SENATE COMMITTEE ON AWARDS
May 13, 2008

1. NEW OFFERS

B.A. Baryla Geography Graduate Student Travel Award

An endowment fund of $10,000 has been established at the University of Manitoba by Mr. B.A. Baryla (B.Sc./62). The fund will be used to support Geography graduate student travel in the Department of Environment and Geography. The available annual interest from the fund will be used to offer one travel award to a student who:

(1) is enrolled full-time in the Faculty of Graduate Studies in either the Master of Arts (Geography) or the Ph.D. (Geography) program delivered by the Department of Environment and Geography;

(2) will be attending a professional meeting or conference in order to present the results of his/her research (poster or oral presentation).

Candidates will be required to submit an abstract of their presentation and a copy of their registration with details of the meeting, including the date and location. The deadline to submit an application is January 15. The recipient will be selected by February 1. Funding must be used within the 12 month period following the date that the award recipient is announced. Recipients graduating within the 12 month period following the date of the award offer must use the funding no later than six months from the date of convocation.

Selection of the recipient will be based on the quality of the abstract submitted and proposed research to be presented and the potential value of the meeting to the student's development.

To receive a disbursement from the award fund, the award recipient must submit receipts for travel, registration, hotel and/or food expenses (based on current UM *per diem* rates). Expenses will be reimbursed up to the maximum value of the recipient's award.

The selection committee will be named by the Dean of the Faculty of Graduate Studies (or designate) and will include the Head of the Department of Environment and Geography (or designate).

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

CD Howe Foundation Fellowships in Creative Writing and Oral Culture

The CD Howe Foundation has contributed $250,000 to establish an endowment fund at the University of Manitoba in support of the Centre for Creative Writing and Oral Culture. The Manitoba Scholarship and Bursary Initiative has made a contribution to the fund. The fund will be used to support students doing creative writing research projects and/or critical studies in oral culture. The available annual interest from the fund will be used to offer two fellowships of equal value to graduate students who:

(1) are enrolled full-time in the Faculty of Graduate Studies, in a Masters or Doctoral degree program;

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

(3) are conducting thesis research in Creative Writing (producing an original work of literature) or on the critical study of oral cultures.

Students with lived experience of indigenous and other oral cultures are particularly encouraged to apply.

Candidates will be required to submit an application that will consist of a description of their proposed or ongoing research (maximum 500 words), a current academic transcript(s), and two academic letters of reference from professors at a post-secondary institution. The award is not automatically renewable but previous recipients may reapply. Applications will be solicited in December, with a submission deadline in January. The recipients will be announced by March.

Candidates will be assessed as follows: record of academic achievement (30%), research statement (40%), letters of reference (30%).

Recipients may hold the CD Howe Foundation Fellowships in Creative Writing and Oral Culture concurrently with any other awards, consistent with policies in the Faculty of Graduate Studies.

The selection committee will be named by the Dean of the Faculty of Graduate Studies (or designate) and will include the Dean of the Faculty of Arts (or designate), and the Director of the Centre for Creative Writing and Oral Culture.

Berdie and Irvin Cohen Scholarship in Medicine

Through an anonymous donation, an endowment fund has been established at the University of Manitoba in memory of Berdie and Irvin Cohen. The Manitoba Scholarship and Bursary Initiative has made a contribution to the fund. One scholarship, valued at $5,000, will be offered biennially to a student who:

(1) has been admitted to the first year of the Undergraduate Medical Education degree program in the Faculty of Medicine at the University of Manitoba;

(2) is one of the ten highest ranked candidates as identified by the Admissions Committee under the leadership of the Associate Dean (Undergraduate Medical Education).

Final selection will be made at the discretion of the selection committee.

Upon completion of their first year of the Undergraduate Medical Education Program, recipients of the Scholarship are asked to provide the donor with an introspective assessment of their first year of study in the Faculty of Medicine. Recipients might comment upon particular experiences that led to a decision to study medicine, their goals and objectives upon graduating from the program, and whether these or any of their preconceptions about medicine have changed through the course of the first year of study. A list of specific questions that might be addressed in the assessment will be made available to recipients and is included in the administrative file for this award.

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

Human Anatomy and Cell Science Merit Award

The Department of Human Anatomy and Cell Science provides an annual allocation from the Anatomical Research Fund (Fund 628018) to offer one or more matching prizes to graduate students who:

(1) are enrolled in the Faculty of Graduate Studies at the University of Manitoba, in either the M.Sc. or the Ph.D. in Human Anatomy and Cell Science;

(2) have presented an award winning poster at (a) the CIHR Manitoba Graduate Student Research Poster Competition or (b) the CIHR National Student Research Poster Competition.

The selection committee will have the discretion to determine the number and value of individual awards offered annually.

The selection committee will be named by the Dean of the Faculty of Graduate Studies (or designate) and will include the Head of the Department of Human Anatomy and Cell Science (or designate).

International Centre for Students Exchange Awards

The International Centre for Students (ICS) and the Office of the Vice-President (Academic) and Provost provide funds, through the International Student Fund, to offer travel awards to University of Manitoba students who will participate in an approved exchange program. One or more awards, with a minimum value of $500, will be offered to undergraduate students who:

(1) are registered in any Faculty or School at the University of Manitoba excepting University 1 and the Faculty of Graduate Studies;

(2) normally will have completed at least 30 credit hours of study at the University of Manitoba;

(3) have been accepted into the ICS Student Exchange Program or another exchange program approved by the selection committee;

(4) will be registered full-time at a host institution outside of Canada for the duration of their exchange in the academic session in which the award is tenable;

(5) have obtained, or will be obtaining, an approved Letter of Permission for the courses to be completed while on exchange to demonstrate that the courses will be credited toward their degree program;

(6) have demonstrated that they require financial assistance in order to participate in the ICS Student Exchange Program or approved exchange program.

Preference may be given to students who have been accepted into the ICS Student Exchange Program and will be attending a University of Manitoba exchange partner institution. Preference may be given to those candidates who have demonstrated greater need for financial assistance.

The selection committee will have the discretion to determine the number and value of awards offered each year.

Candidates will be required to submit an application form that includes a budget of costs related to their participation in the ICS Student Exchange Program, or approved exchange program, and identifies other awards and/or grants that they have either applied for or obtained for their time on exchange that are equal to, or greater than, $500.

The selection committee will be named by, and will include, the Director of the International Centre for Students as chair.

Manrex Medication Delivery Bursary

Manrex Ltd., a Canadian Company specializing in medication delivery systems, offers an annual award at the University of Manitoba. One bursary valued at $1,000 will be offered to an undergraduate student who:

(1) is enrolled full-time in the fourth year of study in the Faculty of Pharmacy;

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

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

(4) provides a letter of intent explaining how he/she would best serve geriatric patients.

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

Manrex Medication Delivery Nursing Bursary

Manrex Ltd., a Canadian Company specializing in medication delivery systems, offers an annual award for Nursing students at the University of Manitoba. One bursary valued at $1,000 will be offered to an undergraduate student who:

(1) is enrolled full-time in the fourth year of study in the Faculty of Nursing;

(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;

(4) provides a letter of intent explaining how he/she would best serve geriatric patients.

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

Medicine Class of 1967 Bursary

The Medicine Class of 1967 has established an endowment fund ($71,286) at the University of Manitoba to offer bursaries for students in the Faculty of Medicine. The available annual interest from the fund will be used to offer one or more bursaries to students who:

(1) are enrolled full-time in any year of study in the Undergraduate Medical Education Program in the Faculty of Medicine and are in good standing;

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

The selection committee will have the discretion to determine the number and value of bursaries offered each year.

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

Medicine Class of 1982 Bursary

The Medicine Class of 1982 has established an endowment fund ($50,000) at the University of Manitoba to offer bursaries for students in the Faculty of Medicine. The Manitoba Scholarship and Bursary Initiative has made a contribution to the fund. The available annual income from the fund will be used to offer one or more bursaries to students who:

(3) are enrolled full-time in any year of study in the Undergraduate Medical Education Program in the Faculty of Medicine and are in good standing;

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

The selection committee will have the discretion to determine the number and value of bursaries offered each year.

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

Gutie and Misha Newman Bursary in Nursing

Dr. Misha Newman (M.D./53) and Mrs. Gutie Newman have established an endowment fund at the University of Manitoba, with an initial gift of $7,200. The Manitoba Scholarship and Bursary Initiative has made a contribution to this fund. The available annual interest from the fund will be used to offer one bursary to an undergraduate student who:

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

(2) has achieved a minimum cumulative grade point average of 2.5;

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

The selection committee shall be the Promotions and Awards Committee of the Faculty of Nursing.

P. John Procter Entomology Bursary

In memory of their father, Mr. (Percy) John Procter (M.Sc./61), Colleen Sliman and Peter Procter have established an endowment fund of $12,500 at the University of Manitoba to support graduate students in the Department of Entomology. The available annual interest from the fund will be used to offer one bursary to a student who:

(1) is enrolled full-time in the Faculty of Graduate Studies in the M.Sc. in Entomology;

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

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

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

Ranger Insurance Athletic Awards

Ranger Insurance provides an annual gift of $2,000 to offer scholarships for members of the University of Manitoba Bison Football team and the Track and Field Team. The Manitoba Scholarship and Bursary Initiative has made a contribution to the Award. Two scholarships, valued at $2,000 each, will be offered to undergraduate students who:

(1) are enrolled full-time in any Faculty or School at the University of Manitoba;

(2) are continuing students who have achieved a minimum grade point average of 2.0 on a minimum of 18 credit hours in their previous year of study at the University of Manitoba or

(3) are entering students with a minimum average of 80 percent, or equivalent, on those high school courses used for admission to the University, or upon successful completion of 18 credit hours with a minimum GPA of 2.0;

(4) have demonstrated athletic ability in the designated sport as determined by the selection committee;

(5) have demonstrated involvement in community service activities.

One of the two scholarships will be offered to a member of the Bison Football team and one will be offered to a member of the Track and Field Team.

The selection committee will be named by the Dean of the Faculty of Kinesiology and Recreation Management.

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

2. Amendments

Berdie and Irvin Cohen Award in Peace and Conflict Studies

At the request of the Faculty of Arts, the annual deadline to submit an application for the *Berdie and Irvin Cohen Award in Peace and Conflict Studies* has been changed from: October 31st to: January 31st. The date by which the recipient will be announced has been revised from: December 15th to: March 15th.

Dr. Diane Biehl Bursary in Post Graduate Medical Education

At the request of the Faculty of Medicine, a number of amendments have been made to the terms of reference for the *Dr. Diane Biehl Bursary in Post Graduate Medical Education*:

- The type of award has been converted from: a bursary to: a scholarship. It has not been possible to offer the award since it was established in 2006. Given that students in the Postgraduate Medical Education Program receive a salary in their clinical roles, these students do not qualify for bursary assistance according to the standard criteria used by the University to assess financial need.
- It follows that a requirement that candidates demonstrate financial need on the standard University of Manitoba bursary application form has been deleted and
- the name of the award has been changed to the *Dr. Diane Biehl Research Award in Postgraduate Medical Education*.
- A number of editorial changes have been made.

Matthew Frost Award in Recreation Management and Community Development

At the request of the Faculty of Kinesiology and Recreation Management, the terms of reference for the *Matthew Frost Award in Recreation Management and Community Development* have been revised to open the award to students who are accepted to do an internship within Bison Sports. Previously, the Award was open to students accepted into an internship program offered by the Manitoba Moose, another professional sports franchise, or Sport Manitoba.

- In the third paragraph, criterion (3) was revised to read:

  [will be offered] to a student who has been accepted into an internship of at least three months duration offered by Sport Manitoba, Bison Sports, or any other equivalent internship and who, in the opinion of the Dean, shows greatest promise in pursuing a career in sport management.

GSA Innovation, Stewardship, and Excellence Awards

The terms of reference for the *GSA Innovation, Stewardship, and Excellence Awards* have been amended at the request of the Graduate Students' Association.

- The name of the award has been changed to the *Graduate Students' Association Awards*.
- The following sentence has been added to the opening paragraph, to describe the purpose of the Awards: "The Awards are designed to recognize the important contributions graduate students make to society through scholarship and community involvement."
- The number and value of awards offered to Master's students has been changed from: one award with a value of $20,000 to: two awards valued at $12,000 each.
- The value of the award offered to a Doctoral student has decreased from: $20,000 to: $16,000.
- The number of awards offered to part-time graduate students has been increased from: one award with a value of $5,000 to: two awards valued at $5,000 each.
- For each of these awards (for Master's students, Doctoral students, and part-time graduate students), criterion (3) has been revised
  - from: "[who] has demonstrated evidence of innovative ideas, stewardship of community, and excellence in their program of study,"
  - to: "[who has/who have] contributed to society through scholarship and community."
- Ensuing changes were made to the documentation that candidates must submit as part of their application. In particular, students will now be required to submit a letter to demonstrate how, through their dedication to scholarship and community, they have bridged academic

theory and social practice in order to better serve our local, national, and/or international community.

- A statement was added to indicate that recipients of the Awards will be invited to present on their academic and community contributions at the Graduate Students' Association Seminar Series.
- Numerous editorial changes have been made.

GSA Innovation, Stewardship, and Excellence Bursary

The terms of reference for the *GSA Innovation, Stewardship, and Excellence Bursary* have been amended at the request of the Graduate Students' Association.

- The name of the award has been changed to the *Graduate Students' Association Bursaries.*
- In past years, a total of four bursaries valued at $5,000 each have been offered to graduate students. The revised terms specify that, "[once] the Graduate Students' Association Awards have been offered, any of the available annual income remaining will be used to offer bursaries valued at $5,000 each." (NB The Graduate Students' Association Awards and the Graduate Students' Association Bursaries supported by the income from the same endowment fund.)
- A statement has been added to indicate that the selection committee will have the discretion to determine the number of bursaries offered each year.
- A number of editorial changes have been made.

Aron Katz Memorial Bursary

A number of amendments have been made to the terms of reference for the *Aron Katz Memorial Bursary.*

- With the agreement of the donor, the trust fund that has supported this award has been converted to an endowment fund. The opening paragraph of the terms has been revised to reflect the change.
- At the request of the donor, the value of the bursary has been changed from: $650 to: "a value equal to the available annual interest from the fund or $1,000, whichever is less."
- Membership of the selection committee, which was formerly named by the Senate of the University, has been amended. The selection committee will now be named by the Dean of the Faculty of Medicine (or designate).
- Several editorial changes have been made.

Manitoba Government Prize in Education

Two amendments have been made to the terms of reference for the *Manitoba Government Prize in Education.*

- The name of the award has been changed to the *Manitoba Government Prizes in Education.*
- At the request of the donor, the value of the prize offered to the graduating student who has achieved the highest standing in the After-Degree Bachelor of Education Program has been increased from: $100 to: $250. The value of the prize for the graduating student who has achieved the highest standing in the Post Baccalaureate Diploma in Education will remain at $100.

- A statement has been added to identify the Academic Standing Committee of the Faculty of Education as the selection committee for the Prizes.
- Several editorial changes have been made.

3. Withdrawals

Loriann Sawatsky Women's Volleyball Scholarship

Michelle Sawatsky Women's Volleyball Scholarship

The *Loriann Sawatsky Women's Volleyball Scholarship* and the *Michelle Sawatsky Women's Volleyball Scholarship* have been withdrawn at the request of the Faculty of Kinesiology and Recreation Management. The annually funded awards have not been offered for a number of years.

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)

Observation

In an electronic poll conducted between May 23 and May 26, 2008, the Senate Committee on Awards approved one new offer, as set out in Appendix A of the *Report of the Senate Committee on Awards* (dated May 26, 2008).

Recommendation

On behalf of Senate, the Senate Committee on Awards recommends that the Board of Governors approve one new offer, as set out in Appendix A of the *Report of the Senate Committee on Awards* (dated May 26, 2008). This award decision complies with the published guidelines of November 3, 1999, and is reported to Senate for information.

Respectfully submitted,

Dr. Rick Baydack
Chair, Senate Committee on Awards

Appendix A

MEETING OF THE SENATE COMMITTEE ON AWARDS
May 28, 2008

1. NEW OFFER

Purohit Bursary in Pharmacy

Mr. Bachu Purohit has established an endowment fund at the University of Manitoba, with an initial gift of ($2,000), to offer bursaries for students in the Faculty of Pharmacy. The Manitoba Scholarship and Bursary Initiative has made a contribution to this fund. The available annual income will be used to offer one bursary to a student who:

(1) is enrolled full-time in the third year of study in the Faculty of Pharmacy;

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

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

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

☐Council On Post-Secondary Education

STATEMENT OF INTENT

Institution: University of Manitoba
Program Overview

☐Program Name: PhD in Food Science

☐Credential to be offered: Doctor of Philosophy

☐Does the program require accreditation from a licensing group? ☐ YES X NO
If yes, name group

☐Length of the program: 3-4 X Years ☐ Months ☐ Semesters

☐Proposed program start date: 01/09/2009 (D/M/Y)

☐Which department(s) within the institution will have responsibility for the program?
Department of Food Science

☐As compared to other programs your institution will be proposing, the priority of this program is:

☐Is this a new program? X YES ☐ NO

☐Is this a revision of an existing program: ☐ YES X NO

☐Will the program be available to part-time students? X YES ☐ NO

☐Will this program have a cooperative education component? ☐ YES X NO

☐Will the program contain an option to assess the prior learning of students, to grant credit for the skills/knowledge already present? ☐ YES X NO
Provide Details

☐Will there be distance delivery options? ☐ YES X NO

☐Will this program be delivered jointly with another institution? ☐ YES X NO

☐Are similar programs offered in Manitoba or other jurisdictions? ☐ YES X NO

☐What articulation, block transfer or credit transfer arrangements will you be looking at developing for this program?

Specific Program Information

1. **Program Description**

□Describe the program and its objectives:

The Department of Food Science is one of the largest in Canada. Currently there are 22 M.Sc. students under the supervision of 9 faculty members. In addition, these faculty members supervise 7 PhD students in the Interdepartmental PhD in Foods and Nutritional Sciences program. On a per capita basis, the Department is one of the University's strongest departments for attracting tri-Council research funding, and access to this nationally-competitive credential of excellence enables these students to be supported.

The current Interdepartmental PhD program which administers food science PhD students is not, as its name implies, a truly interdepartmental program. The Interdepartmental Ph.D. program was established when the critical mass for a Ph.D. in Food Science was absent from the departments participating in this program - the Departments of Animal Science, Plant Science, Food Science and Foods and Nutrition. The Department of Plant Science has since withdrawn as the program did not attract their students, and although Animal Science continues to be part of the program, only a small percentage of their Ph.D. students choose this option. Therefore, to consolidate the PhD and MSc graduate programs within the Food Science department into one administrative structure, this proposal for a separate Food Science Ph.D. program is being submitted. In conjunction with this submission, the Department of Human Nutritional Sciences is submitting a proposal to establish their own PhD program, with the intention of phasing out their participation in the current Interdepartmental program. The Department of Food Science will work with the other two departments in the Interdepartmental program to ensure a smooth transition for current PhD students, and explicit details of this will be mapped out in the full proposal.

It is anticipated that Canada's need for food science professionals with advanced degrees will be maintained at current or increased numbers. Therefore, to meet this need, this request for a PhD program in Food Science has been submitted. We expect that graduates from this program will continue to significantly contribute to research and development in the ever-growing field of food safety, nutrition, food processing and understanding of the nature of value-added food materials and how food properties can be manipulated in order to enhance human health.

Hence the objective of the proposed program is to train highly qualified individuals in food science in line with the mission and vision of the Department of Food Science:

> The mission of the Department of Food Science is to aspire to excellence in implementing education, research and outreach programs designed to foster knowledge and understanding of the composition, processing, quality and safety of foods to ensure a wholesome, high quality and sustainable food supply. Food Science is the study of food and food components in relation to their utilization and safety through use of the basic biological, chemical and physical sciences. Accordingly, research is directed to understanding the processing, functional quality, and safety of foods, so that the resulting knowledge may be applied to the education and training of students so that they will provide technical information and assistance to the food industry, to consumers and to government policy-makers.

□Provide an overview of the content to be taught in this program:

The objective of the program is to continue to provide a focused research training program in the

area of food science. Research will explore the role that basic biological, chemical and physical processes play in the delivery of wellness from foods. Courses offered address topics in food processing, food safety, proteins, carbohydrates, lipids, cereal science and the properties of food materials. Topics related to food research include cereal science, dairy science, functional foods, value-added processing, understanding food materials and food safety.

2. **Enrollment**

□What is the program's initial projected enrollment? 3

□What is the projected enrollment for the 2nd and 3rd years?

It is expected to increase enrollment by 2-3 students/year up to approximately 12 students with the current number of faculty. As new faculty is hired, the capacity to train more students (both domestic and international) will increase.

□Describe the expected student profile?

- Students transferring in from the MSc program in the same Department.
- Students with MSc degrees in related programs in the University of Manitoba, other Manitoba institutions, Canadian universities and international programs.

3. **Labour Market Information**

□What labour market need is the program expected to meet?

This program will meet the market need of training highly qualified personnel who will teach the science associated with foods, conduct research in food sciences, train other researchers, and serve as senior advisors and consultants for industry and government in food-related matters. There is a sizeable market need for doctoral graduates in food science by companies such as food manufacturers who want to develop nutritionally acceptable foods or produce foods for disease prevention, but who require expert knowledge from qualified individuals on how to accomplish this without impairing consumer acceptability of the foods.

□Are there currently jobs in Manitoba in this field? X YES □ NO

If yes, where (geographic location and industry)?

University research and teaching, Government policy, extension and research, Food Manufacturing, Health Food Product and Pharmaceutical companies, Agri-food industry, etc.

□What is the future job forecast for individuals with this education/training/credential?

In the next ten years the most exciting developments in the science of food will come from a better understanding of diet, genes and food-related wellness and disease. Therefore, the challenge for scientists in the Department of Food Science and our partners in the Department of Human Nutritional Sciences is to better understand the physics and chemistry of complex biological systems so that we can address humanity's needs arising from this new knowledge. However, this knowledge must be mindful that in foods taste governs acceptability, and thus, a comprehensive

understanding of the retention and enhancement of food quality and food safety through efficient food processing strategies is essential for translating nutritional research findings into real consumer choices. Society's demand for highly qualified graduates with such skills will assuredly grow.

□How does this program fit with Manitoba's stated economic, social and other priorities?

Manitoba has enormous agriculture-based wealth. The future development of this sustainable resource will require the creativity and innovation of highly-qualified graduates such as those from this program. For example, the province has made the development of functional foods and nutraceuticals a priority. The presence of this program is essential to maintain the province's leadership in the understanding and development of value-added safe food products that will mitigate diet-related social concerns.

□What agencies, groups, institutions will be consulted regarding development of the program?

1) Departments of Human Nutritional Sciences, Biosystems Engineering and Animal Science at the University of Manitoba; 2) Richardson Centre for Functional Foods and Nutraceuticals; 3) Canadian Centre for Agri-Food Research in Medicine, Agriculture and Agri-Food Canada, Canadian Grain Commission.

4. Financial Information

Details to be supplied in full program proposal.

Submitted by:

Dr. John (Jay) Doering
Name (print)

Dean (Graduate Studies)
Position

Signature

21 Apr '08
Date

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☐Council On Post-Secondary Education

STATEMENT OF INTENT

Institution: University of Manitoba
Program Overview

☐Program Name: PhD in Human Nutritional Sciences

☐Credential to be offered: Doctor of Philosophy

☐Does the program require accreditation from a licensing group? ☐ YES X NO
If yes, name group

☐Length of the program: 3 X Years ☐ Months ☐ Semesters

☐Proposed program start date: 01/09/2009 (D/M/Y)

☐Which department(s) within the institution will have responsibility for the program?
Department of Human Nutritional Sciences (HNS)

☐As compared to other programs your institution will be proposing, the priority of this program is:

☐Is this a new program? X YES ☐ NO

☐Is this a revision of an existing program: ☐ YES X NO

☐Will the program be available to part-time students? X YES ☐ NO

☐Will this program have a cooperative education component? ☐ YES X NO

☐Will the program contain an option to assess the prior learning of students, to grant credit for the skills/knowledge already present? ☐ YES X NO
Provide Details

☐Will there be distance delivery options? ☐ YES X NO

☐Will this program be delivered jointly with another institution? ☐ YES X NO

☐Are similar programs offered in Manitoba or other jurisdictions? ☐ YES X NO

☐What articulation, block transfer or credit transfer arrangements will you be looking at developing for this program?

None

Specific Program Information

1. **Program Description**

□Describe the program and its objectives:

The Department of Human Nutritional Sciences (HNS) is one of the largest of its kind in Canada. Currently there are 20 M.Sc. students under the supervision of 13 faculty members. In addition, these faculty members supervise 1 PhD students in an Interdisciplinary PhD program, 9 in the Interdepartmental PhD in Foods and Nutritional Sciences program and in 1 student in the Applied Health Sciences Ph.D program.

For those students interested in the basic metabolic and social science aspects of human nutrition in health promotion and disease prevention, the current Interdepartmental PhD program is no longer the most optimal program. The Interdepartmental Ph.D. program was established when the critical mass for Ph.D. in Foods and Nutritional Sciences was not present in any of the four departments participating in this program - the Departments of Animal Science, Plant Science, Food Science and Foods and Nutrition. In addition, the previous focus of these departments has been foods oriented and the focus of the Interdepartmental Ph.D. was on improving agricultural products in Manitoba. The Departments of Animal Science and Plant Science have since developed separate Ph.D. programs. In conjunction with this application, the Department of Food Science also is submitting a proposal to establish a PhD program, with the intention of phasing out the current Interdepartmental program.

In the graduate program review conducted this year a strong recommendation was made to institute a PhD program in the Department (HNS). It was observed that in the Department of HNS, particularly over the past ten years, the critical mass of research intense staff in the Department has increased and the research focus has evolved into investigations that are better suited to doctoral training. In addition to strengthening the food-related aspect, there is currently a significant focus on nutrition in health and disease, both from a basic metabolic approach and an applied social sciences approach. The department is growing fast and so is the need for nutritional professionals. Our graduates will significantly contribute to research and development in the ever-growing field of nutrition and human health.

Hence the objective the proposed program is to train highly trained individuals in the nutritional sciences in line with the mission and vision of the Department of Human Nutritional Sciences:

The mission of the Department of Human Nutritional Sciences is to be one of the leading organizations in promoting human health and quality of life through generation of advanced knowledge and training of tomorrow's leaders in nutrition. The sciences of Human Nutrition integrate concepts in metabolism, food and community nutrition, with subject areas ranging from the roles of food and nutrients at the cellular and molecular levels to interactions with behaviours of the human population.
The vision of the Department of Human Nutritional Sciences is to be a department that makes

outstanding contributions to the health and well-being of individuals and populations through its innovation and leadership in research and advanced education in the area of nutrition, food and health.

☐Provide an overview of the content to be taught in this program:

The objective of the program is to provide a focused research training program in the area of Human Nutrition. Research in nutrition will explore the role of foods and nutrition in basic biological processes and in health. Courses offered address topics in molecular nutrition, phytochemicals, proteins, carbohydrates, lipids, vitamins, minerals and trace elements, and community nutrition. Topics related to food research include nutraceuticals, functional foods, flavour chemistry and sensory properties of foods.

2. **Enrollment**

☐What is the program's initial projected enrollment? 3

☐What is the projected enrollment for the 2nd and 3rd years?

It is expected to increase enrollment by 2-4 students/year up to approximately 15 students with the current number of faculty. As new faculty is hired, the capacity to train more students (both domestic and international) will increase.

☐Describe the expected student profile?

- Students transferring in from the MSc program in the same Department.
- Students with MSc degrees in related programs in the University of Manitoba, other Manitoba institutions, Canadian institutions and international programs.

3. **Labour Market Information**

☐What labour market need is the program expected to meet?

This program is designed for individuals who will teach in human nutritional sciences, train other researchers, design and execute major research projects, and serve as senior advisors and consultants in health, social or economic policy and planning. There also is a great demand for PhD's in HNS by health and food industries who want to develop nutritionally acceptable and attractive foods or produce foods for disease prevention.

☐Are there currently jobs in Manitoba in this field? X YES ☐ NO

If yes, where (geographic location and industry)?

University research and teaching, Government policy, extension and research, Food Processing, Health Food Product and Pharmaceutical companies, agri-food industry, weight management businesses, hospitals and other care-provider facilities, etc.

□What is the future job forecast for individuals with this education/training/credential?

As medical costs continue to climb and countries are forced to examine alternatives to costly health care, preventative measures and nutritional interventions are becoming increasingly desirable alternatives. Hence, a highly qualified individual in human nutritional sciences will be in increasing demand as time goes on. Also, as the nutraceutical industry continues to expand, the need for individuals trained in assessing the nutritional, safety, consumer and policy issues will continue to increase in both the private and public sector. Human Nutrition is a well-recognized field of study receiving attention from public, health professionals and industries.

□How does this program fit with Manitoba's stated economic, social and other priorities?

The province has made the development of functional foods and nutraceuticals a priority. The presence of this program will enhance the province's leadership in the area of preventative medicine, as related to nutrition in health and disease.

□What agencies, groups, institutions will be consulted regarding development of the program?

1) Departments of Food Science and Animal Science at the University of Manitoba; 2) Richardson Centre for Functional Foods and Nutraceuticals; 3) Canadian Centre for Agri-Food Research in Medicine; 4) Applied Health Sciences program at The University of Manitoba.

4. Financial Information

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Details to be supplied in full program proposal.

Submitted by:

Dr. John (Jay) Doering
Name (print)

Dean (Graduate Studies)
Position

Signature

21 Apr '05
Date

APPENDIX "A"

UNIVERSITY
OF MANITOBA

SUBMISSION
TO
THE BOARD OF GOVERNORS
OF
THE UNIVERSITY OF MANITOBA

EXECUTIVE SUMMARY - GFT REFORM PROJECT

Presented by: The Faculty of Medicine June 18, 2008

"GFT" stands for "Geographic Full-Time Equivalent Position". These are the physicians who have an academic appointment with the University, as well as a medical staff appointment at a health authority. They provide the majority of medical education and research for the University.

GFT's are retained in a cumbersome system, which does not provide an attractive environment conducive to the recruitment and retention of the best academic physicians. The current system is marked by confusing governance, unclear liabilities, and financial disincentives to do teaching and research.

The proposed reforms are intended to make the University more attractive, in an intense competition for human resources. The key recommendations are:

1. Formation of a Joint Operating Division between the University and WRHA;
2. Creation of standardized physician contracts; and
3. Provision for implementation of an Alternative Funding Plan.

The Faculty of Medicine considers quick action on the GFT Reform Project to be of critical importance to the health of medical education, research and clinical care in Manitoba.

UNIVERSITY
OF MANITOBA

SUBMISSION
TO
THE BOARD OF GOVERNORS

GFT REFORM PROJECT

Presented by: The Faculty of Medicine

Dr. Dean Sandham
Faculty of Medicine, Dean

Mr. Gregory L. Juliano
Office of Legal Counsel

June 18, 2008

BACKGROUND

What is a GFT?

"GFT" stands for a "Geographic Full-Time Equivalent Position".

These are the physicians who have an academic appointment with the University, as well as a staff appointment at a health authority. There are almost 500 individuals in this category.

The vast majority of GFT's are located within the Winnipeg Regional Health Authority ("WRHA") system. Smaller numbers work within other health authorities, such as CancerCare Manitoba and Diagnostic Services of Manitoba.

What does a GFT do?

GFT's are academics, but also practicing physicians. Their duties normally include some combination of:

- Teaching
- Research
- Clinical Duties
- Administrative Duties

From the University's perspective, we count on GFT's to perform the vast majority of clinical medical education and clinical medical research.

How are GFT's retained?

By the University of Manitoba:

- GFT's are employees of the University
- GFT's receive a relatively small salary for the teaching, research and administrative duties they perform for the University
- GFT's have their own pension plan, administered by the University
- GFT's have other benefits through the University (and UMG)

By WRHA:

- GFT's are (normally) independent contractors to the WRHA
- GFT's receive a sum from the WRHA, primarily to compensate for clinical duties
- GFT's are also permitted to bill Manitoba Health, on a fee-for-service basis. This generally comprises the majority of the GFT's income

Other "quirks" about GFT's

GFT's are (most often) required to pay a "tithe" to their Department. This charge is in recognition of the fact that GFT's are provided a place to practice medicine, without the usual overhead expenses. The amount and method of calculation differs across Departments. The tithe is spent by Departments on items which are not covered in other ways by the University or WRHA.

GFT's often use the services of the University Medical Group ("UMG") to bill and collect fee-for-service money from Manitoba Health. In spite of the name, UMG is an unincorporated association of doctors which has an important but informal relationship to the University. GFT's are not unionized, but UMG operates as an advocacy group on their behalf.

NEED FOR REFORM

Why do we need reform?

There is intense competition for human resources in the medical community.

The current system does not provide an attractive environment which is conducive to the recruitment and retention of the best academic physicians.

Failure to address this situation will result in a declining standard of medical education, research, clinical care, and even put the accreditation of the Faculty of Medicine at risk.

Specific Problems

Cumbersome Recruitment:

- The recruitment of new GFT's requires dozens of different contracts, agreements, and approvals.
- New recruits wait months for all their approvals. This can result in:
  - interference with immigration requirements;
  - academic appointments being made by the Board of Governors, after the new recruit has already commenced work;
  - inability to pay the new recruit on time.
- New recruits view the system as a disorganized mess.

Financial Disincentives:

- Income derived from the University is only a small percentage of a GFT's total earnings.
- Fee-for-service clinical work comprises the majority of GFT's earnings, thereby providing a perverse incentive to the performance of academic duties.

- The result is a negative impact on medical education and research.

Confusing Governance:

- Despite the continuum of duties, the accountabilities of GFT's are artificially divided between the University and WRHA.
- It is difficult to make clear distinctions between clinical, teaching and research assignments. These functions overlap, making accountability unclear.

Poor Resource Allocation:

- Most GFT's are required to pay a tithe to their Department.
- The tithe system differs between Departments, and has become a very confusing patchwork. It creates a sense that the Departments operate in an unfair and arbitrary manner.
- Rules are highly variable regarding how the tithe money should be spent.

Unclear Liabilities:

- There is no clear and coordinated process to resolve conflicts with GFT's. Unilateral action by either the WRHA or the University creates confusion and unclear rights and liabilities.
- Benefit concepts like "vacation" or "disability insurance" are difficult to apply to GFT's, making the University's rights and liabilities unclear.
- The important, but informal, relationship of the University to UMG is legally unclear, and auditors are concerned the University could be responsible for the actions of an entity over which it has no control.

HISTORY

Work to Date

The problems with the GFT system have been recognized for some time, but all previous attempts at reform have been a limited patchwork of temporary fixes.

February 2007 - Report on "The Working Environment of Academic (GFT) Physicians" by Dr. John Wade and Dr. John Horne. The Report, commissioned jointly by the University and WRHA, identified problems within the current system, and surveyed some of the attempted fixes implemented in other jurisdictions.

March 2007 - Retreat in Gimli, known as the "Gimli Advance". Stakeholders from across the medical community were invited, and a broad consensus was formed regarding the need for change. It was agreed that a Working Group should be formed.

May 2007 to Present - Working Group established. This large committee has representatives from a broad range of stakeholders. It has engaged in strategic level planning of reforms.

September 2007 - Audit Services Report stressing the need for reforms to promote clarity and efficiency, as well as to protect against potential liabilities.

November 2007 to March 2008 - Sub-Working Group established. A more focused and smaller committee was struck to come to specific and detailed recommendations regarding reforms.

March 2008 - Report of the Sub-Working Group. This report forms the basis of the recommendations for reform currently being considered.

REFORM PROPOSAL

Nature of Reforms

The recommendations suggest that the reforms could meet their goals by implementing three key changes:

1. the formation of a Joint Operating Division.
2. creation of standardized academic physician contracts.
3. providing a structure which allows for the implementation of an Alternative Funding Plan ("AFP") in those Departments wishing to participate.

Joint Operating Division

Legal Status:

- The University and WRHA will enter into an agreement to establish a Joint Operating Division, tentatively called the "Joint Medical Staff Division".
- This will not be a separate legal entity, but it is intended to give GFT's the impression of working for a unified academic health centre.

Functions:

- The Division will coordinate most human resources functions, including GFT recruitment, contract negotiations, obtaining of appointments and privileges, performance appraisals and enforcement of contractual terms.
- This will result in a central office, which can efficiently navigate the two bureaucracies, yet provide a single face for this joint effort.

Governance:

- The Division will be overseen by a Director, accountable to the Dean of Medicine and the CEO of WRHA.
- The Director will be assisted by an Operational Steering Committee. The Committee will have its own terms of reference. The Committee will have an advisory function and will include significant representation from Department Heads.

Staff and Finance:

- University and WRHA support staff assigned to the Division will be co-located in the same office space, but will (at least initially) maintain their status as employees of their former institution.
- The costs of operating the Division will be shared between the University and WRHA.

Physician Contracts

What does the contract do?

- GFT's will be retained by the Division as independent contractors.
- GFT's will no longer have an employment relationship with the University.
- Formal external legal opinions confirm that this change in status is supportable under Canada Revenue Agency rules.

What does the contract not do?

- It does not impair the academic freedom of the GFT's.
- It does not impair the authority of the University Senate over the academic functions of the GFT's.

- It does not result in adverse tax consequences for the GFT's.
- It is not intended to change overall earnings and should be revenue neutral to the GFT's.

Terminology:

- The term "GFT" is not well understood, and it is recommended that clear and descriptive terminology be adopted for the physicians retained under the new system.
- Options being considered include "academic physician", "physician scholar" or "academic clinician".

Payment:

- Physicians would be paid a lump sum by the Division for all services (other than fee-for-service billings).
- Physicians would not be aware of the portion of their compensation provided by the University vs WRHA.
- Physicians would have detailed job descriptions, and be required to fulfill specific responsibilities and provide certain deliverables.

Academic Appointment:

- The physicians will become "nil-appointed" faculty, but otherwise retain their title and rank. All appointments would be contingent on a continued contractual relationship with the Division.
- A change in terminology from "nil-appointed" will be pursued, and a description which better recognizes the important contributions of the physicians will be sought.

Accountabilities:

- The primary accountability of these physicians will be contractual, to the Division, through its director.
- Other University accountabilities will be contractually implemented, including to Department Heads and the Dean and Associate Deans of Medicine (all of whom will retain their status as employees of the University).

Research:

- The University has a Master Affiliation Agreement with WRHA, as well as a Subsidiary Agreement on Research.
- Amendments would be made to ensure that physicians under the new system are brought into this regime. All the necessary principles governing the sharing of intellectual property are already established.

Benefits:

- The University and WRHA are willing to assist in providing information on alternatives available for the pension and benefits which will be lost as a result of the physicians' changed status.
- Such benefits would become the sole responsibility of the physicians.
- Options include the physicians forming a new group for insurance benefits, perhaps administered through UMG.

Tithe Reform:

- The "tithe" will be replaced with an "overhead" charge.
- The concept of charging overhead supports the status of these physicians as independent contractors.
- The reforms will provide an opportunity to standardize the patchwork system across Departments, and develop guidelines for spending the funds. It may allow some money to flow to the Dean's office.

Funding - Alternative Funding Plan

AFP Characteristics:

- An AFP is intended to deal with the financial disincentives for physicians to perform teaching, research, and administrative duties.
- It replaces some or all of fee-for-service billings with block funding.
- Across other jurisdictions, there is variation in the exact nature of the AFP. An AFP can be implemented across all Departments, or be limited to certain participants.

Government Role:

- Although the other reforms could stand on their own, discussions with government regarding an AFP will be initiated.
- It is hoped that the government will recognize the benefits to all parties, including the clarity of roles, enhanced governance, and improvements to the recruitment and retention of the best academic physicians.

The Future

The Medical Community:

- The general support of the medical community, and particularly the Manitoba Medical Association, is very important.
- A communication policy of full, open and timely disclosure and consultation will be pursued as these changes are implemented.

Expanding Scope:

- The initial intention is to bring most of the typical existing GFT's, working with the WRHA, into the new system.
- Senior administrators (Deans, Department Heads) will remain employees of the University.
- This initial experiment may provide a general model to expand the endeavor to other health authorities and other professions.

APPROVALS

Board of Governors:

- Due to the scope and broad implications of these reforms, the Faculty of Medicine is seeking the approval of the Board of the general concept of the proposed GFT reforms.
- Specific approval of individual agreements is not required. The University's Master Affiliation Agreement with WRHA provides that the President (or designate) may execute any subsidiary agreement.

Senate:

- It is important that Senate be well informed of the proposal.
- The only issue for Senate to formally consider (at a later date) is changes to its own by-law to ensure that the reforms do not severely impact clinical faculty representation on Senate. Changing GFT's from employees to independent contractors could have this unintended consequence. This issue will be addressed through the Senate Committee on Rules & Procedures over the coming months.
- Senate sets its own rules regarding its composition. Section 27(1) of *The University of Manitoba Act* says:

  > Each faculty council and each school council shall annually elect such number of persons to be members of senate as the senate has determined the faculty council or school council is entitled to so elect.

- The subsidiary agreement with WRHA creating the Division will preserve the Senate's authority and the academic freedom of the University's faculty.

CONCLUSION

The GFT Reform Project is of critical importance to the health of medical education, research and clinical care in Manitoba. These reforms will create the attractive working environment necessary to recruit and retain the best physician scholars, and help ensure the continued success and relevance of the Faculty of Medicine.

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PRESIDENT'S REPORT: June 25, 2008

My last report to Senate was submitted for its meeting on May 14, 2008. Part A of this report is organized into sections on General, Academic, Research, Administrative, and External matters. Part B contains a list of significant external engagements during the time period of this report.

I. GENERAL

1. Canadian Cereal Research and Innovation Laboratory

In my November 2007 Report, I referred to the Independent Panel of Experts established by the Federal Government (Treasury Board) to consider options for what is now referred to as "inter-sectoral partnerships for non-regulatory federal laboratories". The four member panel was chaired by Dr. Arnold Naimark, President Emeritus of the University of Manitoba. The panel was asked to receive proposals and to identify up to five laboratories that could be considered as candidates for new partnerships.

I was delighted with the announcement on June 5, 2008, not only that the Federal Government, released the report of the Independent Panel containing five proposals that merited consideration, but also that it identified as one of two proposals it will pursue, one submitted by the University of Manitoba and its potential partners. The proposal is for the establishment of a Centre of Excellence for Grain Crops, likely at Smartpark. The first step, according to the government report is to "engage partners to better understand how partnering arrangements could be operationalized".

Our partners in the proposal are: Cereal Research Centre of Agriculture and Agri-Food Canada, some components of the Grain Research Laboratory of the Canadian Grain Commission, the Canadian International Grains Institute, the Canadian Malting Barley Technical Centre, the Province of Manitoba and the Canadian Wheat Board. Under the proposal, the Centre will integrate the management of personnel, physical infrastructure, and intellectual property to foster innovation and competitiveness along the full value chain of grain crops from basic discovery of traits and cultivars to international marketing efforts. While there is much work to do before a final decision is made, the approval to proceed is indeed a significant step. (The other proposal approved was for the Natural Resources Canada's Geosciences Laboratory in Ottawa in which the University of Ottawa is a partner.)

The proposal has been under discussion and development for some time and I express my appreciation for the efforts of so many in moving the proposal along to this stage. This includes our partners, and colleagues within the University. For the latter, I single out three individuals who have spent considerable time on the proposal: John Alho, Associate Vice-President (External), Dr. Digvir Jayas, Associate Vice-President (Research) and Alan Simms, Associate Vice-President (Administration).

2. Killam Prize

In each of my reports I give recognition to faculty members who have been honoured by receiving prestigious awards (see Section III Research Matters). This time I want to highlight "up front," the outstanding achievement of Dr. Frank Hawthorne, Distinguished Professor of Geological Sciences, Canada Research Chair in Crystallography and Mineralogy, Officer of the Order of Canada, and a Foreign Member of the Russian Academy of Sciences. Dr. Hawthorne was selected as a winner of the 2008 Canada Council Killam Prize in the Natural Sciences in recognition of his distinguished contributions to his discipline throughout his career. Dr. Hawthorne is one of the world's foremost Earth scientists who has brought an arsenal of experimental and theoretical techniques to bear on what were previously intractable problems in the areas of mineralogy, crystallography, and geochemistry. The Killam Prize (there are five) is Canada's most distinguished annual award for outstanding career achievements in engineering, natural sciences, humanities, social sciences and health sciences and carries with it a $100,000 award.

3. The Generosity of Others

The unparalleled generosity of Marcel A. Desautels has been widely publicized. His $20 million gift to the University for the Marcel A. Desautels Faculty of Music will, in the words of Dean Edmund Dawe, be "transformational" for the Faculty. Revenue from a $10 million endowment fund will support a variety of new initiatives including the establishment of undergraduate and graduate student awards and the provision of funds for scholarly works. The remaining $10 million will facilitate the renovation of the east wing and auditorium of Taché Hall, which will be the new home of the faculty.

I expressed our appreciation to Dr. Desautels for his historical and unprecedented gift. His generosity towards the University of Manitoba mirrors the desire of so many donors - individuals, foundations and organizations - to support our university and what it represents. The sheer numbers since 1996 tell the story:

- $396,941,140 has been contributed including $237 million from more than 36,000 donors to the Building on Strengths Campaign, launched with a commitment by the Province of $50 million;
- 173,971 gifts;
- more than $86 million for student awards with 902 new student awards established;
- Trust and Endowment funds have grown 298% from $92 million to $366 million;
- $117 million in gifts directed to capital funds and equipment.

4. Awards of Excellence: Support Staff

This is the third year that Awards of Excellence honoured the contributions and achievements of support staff. Their work is vital to the University and these awards formally recognize those whose contributions are outstanding. There are four awards:

- The President's Award recognizes the exceptional contributions of support staff during their careers at the University. The award consists of a certificate of recognition and a financial prize, both of which are presented at Convocation.

- The Leadership Award recognizes support staff members who lead effective teams to achieve results.

- The Service Award recognizes support staff members who have exhibited a high level of initiative, dedication and co-operation in the service to students, faculty, staff and the general public.

- The Team Excellence Award recognizes a team or working group that has performed an outstanding service for the benefit of students, University departments, or the general public.

The following awards were presented this year:

The President's Award

- **Dallas Legare**, Department of Pharmacology, has been an active mentor to and supporter of junior technologists, graduate students and visiting scientists. His leadership skills, work ethic, problem-solving capabilities, technical and analytical skills inspire and motivate colleagues and students alike. Under his guidance and management, the laboratory in which Dallas Legare works as operations manager is one of the few which one can carry out studies in compliance with the good laboratory practices required for preclinical trials. Over the course of his career Mr. Legare's contributions to facilitate the work of the laboratory has been so extensive that he has co-authored over 40 publications in peer reviewed journals and has presented his research at a number of national and international meetings and conferences. He has helped educate and train numerous highly skilled individuals who have gone on to promote the excellent reputation of the University of Manitoba in laboratories across Canada and the world.

The Leadership Award

- **Ellen Cianflone**, Payroll Services, led the payroll team as it rolled out the new "VIP" administrative system to the University. As the payroll department transitioned from IMS

to VIP, she was instrumental as a change agent in getting the payroll staff to embrace this new system, as well as gaining general acceptance for the system by providing outstanding user support. By successfully building the confidence of the payroll staff, with genuine and heart-felt support, she led the team through what was a very strenuous time.

Service Awards

- **Irene Hamel**, office manager in the Faculty of Engineering, provides exceptional service for the students, and staff. She welcomes all who walk through her door, treats each individual with respect, and listens attentively to all issues brought before her.

- **Marianne Harnish**, administrative assistant in the Department of English, Film, and Theatre has provided outstanding service. Her handling of her administrative responsibilities is unfailingly professional, resourceful, efficient, proactive, and she is endlessly patient and good humoured.

- **Janina Huzarski**, is a utility caretaker in University College. She is an exemplary member of the university community who on a daily basis goes above and beyond. She has a cheerful nature that makes her a pleasure to work with. All her work is completed to the highest standard.

- **John Rohs**, facilities manager at the Libraries, provides consistently high-quality service. His passion for his work and compassion for his co-workers, combined with a positive attitude, a unique sense of humour, and a great deal of common sense, have contributed to his continuing success in providing exceptional service.

- **Maria Tepper**, is an administrative assistant in the Faculty of Law and to the Asper Chair in International Business and Trade Law. She is constantly acting proactively and reaching out to clients rather than waiting to be asked to assist.

Team Award Winners

- **The Aurora Student Implementation team** - The implementation of the "Aurora Student" system was an enormous accomplishment. The members of this team were drawn from across the university community to introduce change for far-reaching impact culturally and technically. Beyond the technical challenges were those related to introducing cultural and systemic changes into the university community. The previous system was very elaborate, as it had been developed over many years, mirroring complex rules that varied from one faculty to the other, while permitting each faculty to provide the outcomes (e.g., grade point averages) that Senate required. With this project an effort was made to standardize the processes through which units reached a desired end, as well as to help University members learn how to use the system effectively. Adapting to

methods that differ from those one knows is always difficult, and a great deal of sensitivity and dedication was required to manage the change.

- **Bison Recreation Services** - The Bison Recreation Services Team is responsible for all of the University's recreation and active living services and programs. This team has shown amazing dedication to enriching the quality of life of participants. Over 2.7 million visits occur annually to use the team's services. Programs are constantly refined and developed to inspire and challenge participants to become more active in ways that are engaging and exciting.

5. A Postscript

I began writing these reports in 1996 when I assumed the position of President and Vice-Chancellor. I am proud of my university for many reasons but one that I mention most often is its commitment to accessibility, as I summarized in my remarks to the Community Gala Dinner held on May 21:

> *"I have often said that no other institution in this country can claim the legacy that is the University of Manitoba's - a legacy set by the gift of a Métis man, both Cree and Scottish in his ancestry, Alexander Kennedy Isbister - who both said and ensured with his funds that The University of Manitoba should have scholarships and prizes available to all who merited them, regardless of sex, race, creed or nationality. It is worth noting that this was said and done 125 years ago in 1883, in contrast to the situation that prevailed elsewhere as late as 1968, the year in which I earned my first degree from the University of Toronto, at a time when women were still ineligible for Rhodes Scholarships because they were women!"*
>
> *"The notion that good minds reside in all sectors of humanity and all should have a chance to learn is what sets apart the University of Manitoba historically from other great universities of Canada. Here what matters is that one has the capacity to learn, and to want to learn - because learning is precious. Education provides the opportunity that opens up the world for everyone, regardless if they are the first generation to go to university or are drawn from the 4th or 5th generation to be so fortunate. Knowledge is power. Our parents knew this, our ancestors knew this, and this is the reason why obtaining an education remains so desirable around the world. Education serves as the most powerful mechanism for bringing socioeconomic and sociocultural changes anywhere and everywhere; that is the reason why individual governments either make it available to all who have the capacity to benefit by it, or restrict it to a privileged few."*

I express my thanks to members of the Board of Governors and Senate; recipients of these reports, for the enormous privilege given to me to lead and guide the University of Manitoba over the past 12 years.

II. ACADEMIC MATTERS

Faculty of Agricultural and Food Sciences

- Dr. Don Flaten, Soil Science, was named Teacher of the Year by the 2008 Degree graduates. The award is in recognition for extraordinary dedication to undergraduate teaching, commitment to students and innovative teaching methods.

- Dr. Ranjan Sri Ranjan, Biosystems Engineering, was recently recognized with a Mentor Award for outstanding service mentoring secondary school students participating in the Sanofi-Aventis BioTalent Challenge, an annual science competition intended to raise awareness among students, educators and the public about the emerging science of biotechnology.

- Dr. Prabal Ghosh, a postdoctoral fellow in Biosystems Engineering, has received the "FY2008 Japan Society for the Promotion of Science Postdoctoral Fellowship (Short-Term) for North American and European Researchers" to work in Japan at the Mie University, Tsu. Dr. Ghosh will work there on intelligent agriculture.

Faculty of Architecture

- Environmental Design students Vanessa Jukes and Justin Neufeld have won First Prize, and Stacey Auld and Allyson Bissky Second Prize, from the Canadian Construction Research Board, Manitoba Chapter, for their Landscape Architecture ED 3/Civil Engineering Interchange Capstone Project. Their studio instructor was Prof. Dietmar Straub.

- Michael Klassen, a recent Landscape Architecture graduate, has won the 2008 Electronic Theses & Dissertation Award from the Networked Digital Library Theses & Dissertations Organization (NDLTD). The award will be presented at the conference in Aberdeen in June.

Faculty of Arts

- Dr. Alison Calder, English, Film, and Theatre, was awarded the inaugural Aqua Books Landsdowne Prize for Poetry and the Eileen McTavish Sykes Award for best first book by a Manitoba author, for her poetry collection entitled, *Wolf Tree,* at the Manitoba Book Awards.

- Dr. Esyllt Jones, History, was awarded the Margaret McWilliams Award for Scholarly History by the Manitoba Historical Association and the Manitoba Day Award 2008 from the Association for Manitoba Archives for her book, *Influenza 1918: Disease, Death and Struggle in Winnipeg.*

Books

- Elizabeth Comack, Sociology, *Out There/In Here: Masculinity, Violence and Prisoning.* Winnipeg: Fernwood Publishing (2008).

- Raymond Currie, Sociology, *Sociology Secure and Uncertain: A Father's Story,* Winnipeg: Anderson House Press (2008).

Faculty of Education

- Campus Life Manitoba student Danny Malcolmson received a gold level Duke of Edinburgh's Award from Prince Edward on June 3rd. Danny is one of the first special needs students in the province to receive a gold level honour.

- Dean Emeritus Dr. Romulo Magsino will be inducted into the Order of Manitoba in recognition of his contribution to the province as an educator and a leader in the Filipino-Canadian community.

- John Brock, an alumnus and former Faculty member will be inducted into the Order of Manitoba in recognition of his continued devotion to the field of education, and his attention to special education.

- Melanie Gertley, an M.Ed student is one of 10 teachers from across Canada to receive one of the *Prime Minister's Awards for Teaching Excellence and Excellence in Early Childhood Education.* These awards honour talented and caring teachers whose contributions to the lives of individual Canadians and to Canada as a whole are priceless.

Faculty of Engineering

- The Society of Automotive Engineers (SAE) Mini Baja team placed 25th out of a field of 118 teams from Canada, the US, Mexico and Korea in the Mid West Mini Baja competition. There were 7 Canadian teams at this competition and the Baja team ranked 3rd.

Faculty of Law

- Professor Roland Penner received two awards for his recently published memoir, *A Glowing Dream*: A Carol Shields Winnipeg Book Award from the Manitoba Writer's Guild and a 2007 Margaret McWilliams award from the Manitoba Historical Society.

Faculty of Nursing

- The College of Registered Nurses of Manitoba recently awarded Dr. Christine Athea, Dr. Diana Clarke, and Verna Pangman, 2008 Excellence in Professional Nursing awards, and to Dr. Judith Scanlan, the Outstanding Achievement award.

Faculty of Pharmacy

- Daryl Fediuk, Pharmacy Graduate Student, received the Association of Faculties of Pharmacy of Canada (AFPC) Graduate Research Poster Award for his abstract "Tissue Deposition of Repellent DEET and Sunscreen Oxybenzone in Rats." Daryl will be presenting these research results in a poster at the AACP-AFPC Annual Conference in Chicago, IL. His graduate advisor is Dr. Xiaochen Gu.

- Christine Leong, Pharmacy Student, received the Merck-Frosst 2008 National Summer Student Research Award to attend the Canadian Society of Hospital Pharmacists Conference in Banff. At the conference she will present the results of her 2007 summer research project, "An Interim Analysis: Nasal Colonization of Staphylococcus aureus in Relapsing Remitting Multiple Sclerosis Patients". Her research advisor is Dr. Mike Namaka.

Faculty of Science

- The Newfoundland provincial government (Department of Environment and Conservation) is supporting a program to train some of its employees on the identification of lichens. They have asked Dr. Michele Piercey-Normore, Biological Sciences, to provide the training. This request for a training session in lichens is the result of an ongoing controversial issue in the province, where the presence of an endangered lichen has caused logging and forest harvesting to come to a halt in some of the older forests on the island. The issue has become a social issue since it affects the livelihoods of many families, and has been the topic of newspaper articles for several years.

- Dr. George Gratzer, Mathematics has submitted his 231st mathematical paper for publication. Since 2002, he has published 33 papers and five books. His LaTeX book on mathematical typesetting appeared as the fourth edition in 2007. It is on the Springer Verlag bestseller list and it is quite often the #1 book of this topic on amazon.com.

- Dr. Richard Sparling, Microbiology, was invited to participate in a grant peer review panel for the US Department of Energy in Washington May 29-30 2008. The grant application solicitation was for: "Systems Biology, Model organism development, and Enzyme Discovery for Biological Hydrogen Production". He was the only non-American on the review panel.

III. RESEARCH MATTERS

Honours and Distinctions

- Dr. John Loxley, Economics, has been awarded the 2008 Canadian Association of University Teachers (CAUT) Distinguished Academic Award, CAUT's highest honour. He is being recognized for excellence in academic life and for contributing noticeably to the lives of his students, institution, field of study, and community.

- Six University of Manitoba researchers have received 2007 Rh Awards in recognition of their outstanding research accomplishments.

  The Rh Awards were established in 1973 by the Winnipeg Rh Institute, now the Winnipeg Rh Institute Foundation. These honours are given to researchers who are in the early stages of their research careers and who display exceptional innovation, leadership and promise in their respective fields.

  One award is normally made in each of the areas of applied sciences, health sciences, humanities, interdisciplinary studies, natural sciences and social sciences. Each winner receives $10,000 for future research.

The 2007 Rh Award recipients are:

- Health Sciences: Dr. Xiao-Jian Yao, Medical Microbiology, for his research on the functions of viral and cellular proteins that facilitate the nuclear entry and replication of HIV and the development of new anti-HIV approach based on host innate antiviral machinery. The ultimate goal of his research is to develop new and effective antiviral strategies against HIV infection.

- Humanities: Dr. Roisin Cossar, History, for her research on the social history of religious culture on the Italian peninsula during the thirteenth and fourteenth centuries. Her work aims to expand the traditional focus of social history on kinship networks and economic activities to include the religious activities of men and women of varying social status.

- Interdisciplinary: Dr. Brian Lewthwaite, Curriculum, Teaching and Learning, for his research in the area of science curriculum and education. His research has naturally evolved into related areas of research: science curriculum reform, factors affecting science program implementation, chemistry teacher development, Aboriginal teacher development in science, creativity in science teaching, factors influencing science pedagogy, and models of science teacher education.

- Natural Sciences: Dr. Jason Fiege, Physics and Astronomy, for his research in the area of computational astrophysics, demonstrated by applications of "Ferret", a powerful genetic algorithm code for optimization, modelling and visualization, to various areas in

astrophysics and other disciplines. Dr. Fiege is developing innovative new software and algorithms to explore the structure of dark matter in the universe, the interstellar medium in other galaxies, the geometry of magnetic fields in star forming regions within our own Galaxy, and improved treatment plans for cancer therapy in collaboration with researchers at CancerCare Manitoba.

- Social Sciences: Dr. Susan Frohlick, Anthropology, for her research on globalization and gender with a special focus on tourism. Her research analyzes the construction of representations, identities, and social relations among tourists and local populations from the perspective of local and global cultures and individual subjects and agency.

- Social Sciences: Dr. Jason Leboe, Psychology, for his research in the area of memory and perception. He has used an "heuristic" analysis of human memory in his investigations of how people perform simple perceptual judgements. His research also helps provide guidance on what types of learning experiences will help subsequent completion of a task.

- Three University of Manitoba faculty members and one student received YMCA-YWCA Women of Distinction Awards at the 32nd Awards Gala held on May 7. Each year, the awards recognize women who have made outstanding contributions to Winnipeg, Manitoba, Canada and the world.

The awardees include:

- Dr. Kelley Beaverfod, Architecture, was honoured in the Business and Professions category. Dr. Beaverford is the founder of Architects Without Borders (AWB), an organization focused on developing humanitarian-friendly buildings while simultaneously creating socially empowering environments. AWB is currently involved in 25 projects in 10 countries.

- Dr. Rayleen Deluca, Psychology, was honoured in the Health and Wellness category. Dr. Deluca has become internationally recognized for her pioneering research and treatment approaches in child abuse. She is the first woman to hold the position of Director of Clinical Training in the Clinical Psychology Graduate Program. She has been active in dozens of community organizations focusing on raising awareness of the tragedy of violence and abuse against women and children – and on finding solutions.

- Dr. Karin Wittenberg, Agricultural and Food Sciences, was honoured in the Research and Innovation category. Dr. Wittenberg is recognized as an international expert in cattle production systems, focusing on animal nutrition and greenhouse gas emissions. She is the first female head of the University's Department of Animal Science, and she is the second woman in the history of the Faculty to hold the position of Associate Dean of Research. Dr. Wittenberg spearheaded the development of the National Centre for Livestock and the Environment after attracting the University's largest-ever Canada

Foundation for Innovation grant, $8.8 million, to enable its construction.

- Ms. Jane Polak-Scowcroft, student in Computer and Electrical Engineering, was honoured as the Young Woman of Distinction. She was chosen this year as one of Canada's Most Powerful Women: Top 100, in the Future Leaders category. She has been an integral member of the Manitoba Chapter of Engineers without Borders, a member of the University of Manitoba Engineering Society, the University of Manitoba Students' Union Council and Engineering Endowment Fund Advisory Council.

The Canadian Academy of Engineering comprises a small number of distinguished engineers from all disciplines who have undertaken to serve the country and profession in matters of broad concern.

- Dr. Doug Ruth, Dean of the Faculty of Engineering, was named Fellow of the Canadian Academy of Engineering. The academy has close ties with a number of similar prestigious academies throughout the world, via its membership in the International Council of Academies of Engineering and Technological Sciences.

Appointments

- Dr. Joanne Keselman, Vice-President (Research) and Professor of Psychology, was appointed to the Social Sciences and Humanities Research Council of Canada (SSHRC). Dr. Keselman previously served as Vice-President of the Natural Sciences and Engineering Research Council of Canada (NSERC).

Grants Received

National Science and Engineering Research Council (NSERC) of Canada

a) NSERC Five-Year Group Grants:

- Dr. Digvir Jayas, Biosystems Engineering, has received $188,750 for the project, "Mathematical Modelling of Stored-grain Ecosystems."

b) NSERC Subatomic Physics - Group and Individual Grants:

- Dr. Kumar Sharma, Physics and Astronomy, has received a three-year Subatomic physics - Group Grant of $600,000 for the project, "Mass Measurements Among Stable and Unstable Nuclei Using the Canadian Penning Trap Mass Spectrometer."

- Dr. Peter Blunden, Physics and Astronomy, has received a five-year Subatomic physics - Individual Grant of $225,000 for the project, "Electroweak Interactions and Relativistic Many-body Problems."

c) NSERC 5-year Discovery - Individual Grants:

- Dr. Alfredo Camacho, Geological Sciences, has received $90,000 for the project, "Origin and Character of Deep-seated Veins From Convergent Margins."

- Dr. Andrew Frederiksen, Geological Sciences, has received $140,000 for the project, "Seismic Imaging of Crust-mantle Interaction."

- Dr. Andrew Goertzen, Radiology, has received a one-year Research tools & instruments (RTI) Grant of $79,182 for the project, "High Sensitivity Detectors for Positron Emission Tomography."

- Dr. Arkadij Major, Electrical & Computer Engineering, has received a five-year Discovery - Individual Grant of $114,150 for the project, "Development and Application of Ultrafast Optical Tools for Biophotonics and Photonics."

- Dr. Athula Rajapakse, Electrical & Computer Engineering, has received $100,000 for the project, "Protection and Coordinated Control of Microgrids."

- Dr. Bingchen Wang, Mechanical & Manufacturing Engineering, has received $114,250 for the project, "Novel Subgrid-scale Modelling for Large-eddy Simulation of Turbulent Flow Dispersion in Urban Environments."

- Dr. Claudio Stasolla, Plant Science, has received $205,900 for the project, "Regulation of Embryo Development in Culture."

- Dr. Dana Schroeder, Biological Sciences, has received $170,900 for the project, "Ddb1 Complexes in Arabidopsis Visible and Uv Light Response."

- Dr. Daniel Mann, Biosystems Engineering, has received $85,000 for the project, "Evaluation of Semi-autonomous Agricultural Vehicles from a Human Factors Perspective."

- Dr. David Kuhn, Mechanical & Manufacturing Engineering, has received $105,850 for the project, "Characterization and Simulation of Particle Distribution Adjacent to Moving Particle Beds and Rough Surfaces."

- Dr. Dirk Weihrauch, Biological Sciences, has received a $160,000 for the project, "Molecular Physiology of Ammonia Excretion in Aquatic Invertebrates: Mechanism, Regulation and the Specific Role of Rhesus-like Ammonia Transporters."

- Dr. Douglas Buchanan, Electrical & Computer Engineering, has received $131,560 for the project, "Characterization of Nanoscale Materials and Devices for CMOS, Biomedical, Microfluidic and Lab-on-chip Applications."

- Dr. Ermias Kebreab, Animal Science, has received $136,000 for the project, "Modeling Nutrient Utilization in Ruminants."

- Dr. Frank Schweizer, Chemistry, has received a five-year Discovery - Individual Grant of $210,000 for the project, "Synthetic and Structural Studies on Hydroxyproline-rich Glycopeptides."

- Dr. Gilbert Kirouac, Oral Biology, has received $89,680 for the project, "Orexin Regulation of the Midline Thalamus."

- Dr. Harry Duckworth, Chemistry, has received $200,000 for the project, "Allosteric Citrate Synthase."

- Dr. Hassan Soliman, Mechanical & Manufacturing Engineering, has received $178,750 for the project, "Research on the Fluid Dynamics and Heat Transfer of Single and Multiphase Systems."

- Dr. Ioan Ciric, Electrical & Computer Engineering, has received $195,000 for the project, "Applied Electromagnetics; Applied Numerical Analysis."

- Dr. James Teller, Geological Sciences, has received $210,000 for the project, "The Lake Agassiz-younger Dryas-et Connection."

- Dr. Jason Leboe, Psychology, has received $92,180 for the project, "Memory-based Origins of Cognitive Control."

- Dr. Johan Van Lierop, Physics and Astronomy, has received $130,480 for the project, "Magnetism in Reduced Dimensions: Nanoparticles, Thin Films and Quantum Spin Systems."

- Dr. John Doering, Civil Engineering, has received $115,000 for the project, "Frazil Ice Processes Modeling."

- Dr. John Brewster, Statistics, has received $70,000 for the project, "Design and Analysis of Industrial Experiments."

- Dr. John Michael (Sean) Cadogan, Physics and Astronomy, has received $174,455 for the project, "Hyperfine Studies of Rare Earth Magnetism."

- Dr. Mario Bieringer, Chemistry, has received $150,000 for the project, "Exploring Solid State Reaction Pathways with In-situ Methods."

- Dr. Mario Tenuta, Soil Science, has received $130,000 for the project, "Multiple Benefits of Greenhouse Gas Reduction Through Inclusion of Perennials in Cropping Systems."

- Dr. Mark Abrahams, Biological Sciences, has received $142,825 for the project,

"Predator-prey Interactions in Aquatic Communities."

- Dr. Michael Domaratzki, Computer Science, has received $105,000 for the project, "Tools and Formal Models for Biological Research."

- Dr. Nariman Sepehri, Mechanical & Manufacturing Engineering, has received $135,000 for the project, "Controller Design, Analysis and Diagnosis in Fluid Power Systems: Challenges in Fundamentals and Applications."

- Dr. Nazim Cicek, Biosystems Engineering, has received $110,000 for the project, "Removal and Fate of Endocrine Disrupting Substances in Membrane Bioreactors."

- Dr. Pourang Irani, Computer Science, has received $125,000 for the project, "Navigation Interfaces."

- Dr. Pradeepa Yahampath, Electrical & Computer Engineering, has received $97,455 for the project, "Distributed Coding and Signal Processing for Wireless Sensor Networks and Ad-hoc Networks."

- Dr. Randall Jamieson, Psychology, has received $84,680 for the project, "A Unified Account of Learning, Memory, and Categorization."

- Dr. Robert Roughley, Entomology, has received $83,725 for the project, "Classification, Biodiversity and Biogeography of Insects."

- Dr. Sam Kam-Pun Kung, Immunology, has received $175,000 for the project, "Molecular Mechanism Underlying Natural Killer Cell Differentiation and Target Acquisition."

- Dr. Samar Safi-Harb, Physics and Astronomy, has received $186,515 for the project, "The Physics of Supernova Remnants."

- Dr. Saumendranat Mandal, Statistics, has received $70,000 for the project, "Constrained Optimization with Applications in Optimal Design, Adaptive Design and Statistical Inference."

- Dr. Tarek Elmekkawy, Mechanical & Manufacturing Engineering, has received $85,000 for the project, "Rescheduling Optimization of Manufacturing Systems in a Dynamic Environment."

- Dr. Todd Mondor, Psychology, has received $143,665 for the project, "Auditory Perception & Action."

- Dr. Vladimir Yurkov, Microbiology, has received $175,000 for the project, "Microbial Aerobic Anoxygenic Photosynthesis and Heavy Metal Transformations."

- Dr. William Kocay, Computer Science, has received $60,000 for the project, "Computational Graph Theory and Geometry."

- Dr. William Fry, Biological Sciences, has received $158,750 for the project, "Regulation of Energy Homeostasis: A Dynamic Role for the Subfornical Organ in the Mammalian Central Nervous System."

- Dr. Xikui Wang, Statistics, has received $70,000 for the project, "Statistical Design and Analysis of Response Adaptive Clinical Trials."

- Dr. Sabine Hombach-Klonisch, Human Anatomy and Cell Science, has received $100,000 for the project, "Biological Impact of Xenobiotics in the Female Reproductive Tract."

d) NSERC Four-Year Discovery - Individual Grants:

- Dr. Olanrewaju Akanbi Ojo, Mechanical & Manufacturing Engineering, has received $96,240 for the project, "Advanced Joining of High Temperature Structural Intermetallics."

e) NSERC Three-Year Discovery - Individual Grants:

- Dr. David Levin, Biosystems Engineering, has received $72,180 for the project, "Bioengineering for 3rd Generation Biofuels."

- Dr. Jason Fiege, Physics and Astronomy, has received $55,956 for the project, "Applications of An Advanced Genetic Algorithm to Gravitational Lens Systems, Galactic Hi Disks, & Star Formation."

- Dr. John Cahoon, Mechanical & Manufacturing Engineering, has received $63,510 for the project, "Liquid Metals: Diffusion and Solidification."

- Dr. Mahesh Chaturvedi, Mechanical & Manufacturing Engineering, has received $95,280 for the project, "A Study of Pre and Post Weld Treatments on Integrity, Microstructure and Mechanical Properties of Superalloy Welds."

- Dr. Oleg Krokhine, Internal Medicine, has received $109,800 for the project, "Novel, Proteomics-Derived Approach to Peptide Retention Prediction on RP HPLC for Improved Protein Identification."

f) NSERC Two-Year Discovery - Individual Grants:

- Dr. Dean Jin, Computer Science, has received $30,000 for the project, "Software System

Analysis and Composition for Integration and Interoperability."

- Dr. Erwin Huebner, Biological Sciences, has received $64,000 for the project, "Female Germ Cell Development and Differentiation."

- Dr. George Tabisz, Physics and Astronomy, has received $38,220 for the project, "Multiphoton Optical Rotatory Dispersion: Moyal Quantum Mechanics and Spectral Line Broadening."

g) NSERC One-Year Discovery - Individual Grants:

- Dr. Grant Pierce, Physiology, has received $20,000 for the project, "The Effects of Mechanical Stress on Nuclear Protein Import in An Altered Cellular Environment."

- Dr. Harold Aukema, Human Nutritional Sciences, has received $35,000 for the project, "Effect of Diet and Disease on Renal Eicosanoid Formation in the Kidney."

- Dr. Nipon Rattanawangcharoen, Civil Engineering, has received $20,000 for the project, "Determination of Linear and Nonlinear Viscoelastic Properties."

h) NSERC One-year Research Tools and Instruments (RTI) Grants:

- Dr. Andrey Bekker, Geological Sciences, has received $83,853 for the project, "Acquisition of Elemental Analyzer System and Balance for C, N, and S Content and Isotope Analyses."

- Dr. Arkadij Major, Electrical & Computer Engineering, has received$150,000 for the project, "Research Equipment for Development of Nonlinear Laser Microscopy and Spectroscopy."

- Dr. Daniel Mann, Biosystems Engineering, has received $52,800 for the project, "Computer Vision System for Tracking Head and Eye Movement."

- Dr. Genyi Li, Plant Science, has received $56,824 for the project, "A Plant Tissue Culture Chamber for Several Research Programs in Plant Science."

- Dr. John Michael (Sean) Cadogan, Physics and Astronomy, has received $73,000 for the project, "Heat Capacity Upgrade for Ppms."

- Dr. Madjid Birouk, Mechanical & Manufacturing Engineering, has received $26,653 for the project, "Transceiver for Measuring Spatial Correlations in Turbulent Flow."

- Dr. Michele Piercey-Normore, Biological Sciences, has received $23,200 for the project,

"Cryptogamic Facility for Molecules, Morphology, and Natural Product Chemistry."

- Dr. Qiong Wu, Mechanical & Manufacturing Engineering, has received $45,429 for the project, "Instrumentation for A Bipedal Locomotion Test Facility."

- Dr. Rotimi Aluko, Human Nutritional Sciences, has received $87,797 for the project, "Preparative HPLC System for Food and Nutrition Research."

- Dr. Susan Arntfield, Food Science, has received $64,820 for the project, "Differential Scanning Calorimeter for Evaluation of Food Structures."

- Dr. William Fry, Biological Sciences, has received $84,150 for the project, "A Patch Clamp Set-up Thermocycler for Polymerase Chain Reaction: Tools for Understanding Neuronal Excitability and Gene Expression."

Social Sciences and Humanities Research Council (SSHRC) of Canada

a) SSHRC Three-Year Standard Research Grants:

- Dr. Dawne McCance, Religion, has received $45,287 for the project, "Life After Derrida."

- Dr. Debra Parkes, Law, has received $87,004 for the project, "Prisoners' Rights in Punitive Times: Investigating Prison Complaint and Inspection Systems."

- Dr. Fikret Berkes, Natural Resources Institute, has received $112,800 for the project, "Governance, Local Knowledge and Livelihoods in Community-based Conservation."

- Dr. Janice Forsyth, Kinesiology & Recreation Management, has received $91,533 for the project, "Changing the Face of Canadian Sport: Understanding the Experiences of Tom Longboat Award Recipients, 1951-1998."

- Dr. Kent Fowler, Anthropology, has received $122,100 for the project, "Materializing Identity: The Influence of Social Networks on Pottery Production and the Expression of Zulu Identity in Southeast Africa."

- Dr. Krista Uggerslev, Business Administration, has received $82,619 for the project, "Applicant Attraction Across the Stages of the Recruitment Process."

- Dr. Myroslav Shkandrij, German and Slavic Studies, has received $37,739 for the project, "Literary Myth and National/identity in Eastern Europe."

- Dr. Tina Chen, History, has received $55,000 for the project, "War, Transnational

Metropoles and the Political Economy of the Personal: Overseas Chinese Migration from Rangoon to Kunming, Chongqing, and Calcutta, 1932-1947."

b) SSHRC Management, Business and Finance Grants:

- Dr. Hikmet Gunay, Economics, has received a SSHRC three-year Management, Business and Finance - Research Grant of $69,600 for the project, "Beliefs and Learning in Initial Public Offerings and Bank-runs."

- Dr. Fang Wan, Marketing, has received a SSHRC one-year Management, Business and Finance - International Opportunities Fund (IOF) Grant of $73,850 for the project, "A Configurational Perspective of Branding Capabilities Development in Emerging Economies: An Empirical Study of Chinese Mobile Phone and Insurance Industry."

- Dr. Paul Earl, Supply Chain Management, has received a SSHRC one-year Management, Business and Finance - Research Development Initiatives (RDI) Grant of $39,845 for the project, "Changing Values and the Disappearance of the Large Grain Cooperatives in Canada: The Broader Implications."

c) SSHRC - Other Grants:

- Dr. John Sinclair, Natural Resources Institute, has received a one year Community-University Research Alliances (CURA) Grant of $20,000 for the project, "Tunnel Island Research Forum: A Cross Cultural Community Learning Platform for Resource Sharing."

- Dr. Christine Van Winkle, Kinesiology & Recreation Management, has received a SSHRC one-year Image, Text, Sound and Technology (ITST) Grant of $26,128 for the project, "Designing Interpretive Guided, Audio and Audio-video Tours: The Use of Advance Organizers to Enhance Meaningful Learning Transfer."

- Dr. Kathryn Levine, Social Work, has received a SSHRC one-year Homelessness and Diversity Issues in Canada Grant of $43,065 for the project, "Disability, Housing Options and Homelessness."

The Canadian Institutes of Health Research (CIHR) Grants

- Dr. Keith Fowke, Medical Microbiology, has received a three-year grant of $332,046 for his project, "Assessment of the Functional Mechanisms Driving Immune Quiescence and Infection Resilience Observed in HIV Resistant Sex Workers."

- Dr. Frank Plummer, Medical Microbiology, has received a three-year grant of $360,750 for his project, "Variant Epitope Specificity and Immunodominance of Effector and Memory CD8+ T Cells in Acute and Chronic HIV Infection."

- Dr. Maureen Heaman, Nursing, has received, through McMaster University, a three-year grant of $39,915 for her project, "Quality of Prenatal Care Questionnaire: Instrument Development and Testing."

- Dr. Allen Becker, Pediatrics, has received, through McMaster University, a five-year grant of $90,000 for his project, "Canadian Birth Cohort: Indoor Air and Development of Asthma."

Related Initiatives

- On April 22, Christine Melnick, Minister of Water Stewardship announced $1.25 million in funding for the establishment of a new research chair in Water Quality, on behalf of the Province of Manitoba. The Minister also included in the announcement that this funding is a "key building block in the establishment of a watershed research institute at the University of Manitoba."

- On April 29, Jim Rondeau, Minister of Science, Technology, Energy and Mines announced an increase to the budget of the Manitoba Health Research Council (MHRC), bringing their budget to $6 million.

- On April 29, Minister Rondeau also announced funding of $1.8 million for three biotechnology collaboration projects with the Government of South Australia. Manitoba's share of the $900,000 of funding comes from the International Collaboration Fund that is designed to support research and development with other jurisdictions. The other $900,000 of the funding comes from the South Australian government. The three projects, each receiving $600,000 in funding, are headed by:

    - Dr. Robert Hill and Dr. Fawzi Razem, Plant Science, who will be studying the complex problems associated with canola crop improvement for new markets and climate change in collaboration with the Innovative Plant and Food Division of the South Australia Research and Development Institute (SARDI).

    - Dr. Curtis Rempel, Richardson Centre for Functional Foods and Nutraceuticals who will be evaluating bioactive lipids and proteins found in dairy products targeting prevention and management of diabetes, cardiovascular disease, and obesity - a cluster of disorders associated with metabolic syndrome. This project is

being conducted in collaboration with scientists at the University of South Australia, The University of Adelaide, SARDI and the Centre for Agri-Health in Research & Medicine, St. Boniface General Hospital.

- Dr. John Wilkins, Manitoba Centre for Proteomics and Systems Biology who will be researching how cellular diseases, such as cancer and arthritis, get into human cells and what triggers them to spread. This is a joint venture with the School of Molecular and Biomedical Science, University of Adelaide.

IV. ADMINISTRATIVE MATTERS

Vice-President (Administration)

- Campus Beautification Day - the 11th annual Campus Beautification Day took place on May 22, 2008. Approximately 1500 staff, students, faculty and retirees participated by planting flowers and trees, pulling weeds, raking, sweeping and picking up litter. There was a tree planting ceremony at the Fort Garry Campus in honour of Dr. Emőke Szathmáry. She was instrumental in the initiation of Campus Beautification Day and has been an active Campus Beautification Day participant ever since.

Ancillary Services

- Aramark Campus Food Services hosted a Catering Open House on April 28 to introduce the new classic fare catering menu with approximately 200 people in attendance. A University of Manitoba Food Services video, filmed by students, was posted on YouTube so parents, students or interested people can have a snapshot of services offered. University of Manitoba Food Services also hosted a luncheon for the Canadian Association of Food Service Professionals. The group was impressed with the operation at the University of Manitoba.

Financial Services

- Revenue, Capital and General Accounting started using JUMP to display a message to students logging into the system. The message communicates information regarding the coming summer fee payment deadline. It is a highly visible message that hopefully will promote timely fee payments.

- In January a process was initiated whereby Financial Services pre-purchased flight passes from Air Canada. The passes were depleted in less than four months with an average saving of $310 per round trip bringing a total saving of almost $140,000. A larger block

has been purchased for the next seven months.

- The UMSU Health and Dental Plan will be managed differently for fall 2008. The new process will save UMSU the cost of issuing approximately 10,000 refund cheques and will save the Registrar from processing manual adjustments on fee accounts. It will result in more accurate account balances for Revenue Capital and General Accounting to manage and provide much better service to students.

Human Resources

- As a follow-up to the November 2007 Fire Drills, additional exercises were arranged for the week of May 12-16, focusing on the poor performers.

- A University-wide staff web-based survey has been finalized, posted on the Environmental Health and Safety website and advertised. The purpose of this survey is to acquire feedback from all staff on safety and health issues, in order to identify program improvements and to identify orientation and training needs. The response was good with approximately 200 responding.

Information Systems and Technology

- In the ongoing effort to "go green" the telephone office will eliminate the yellow pages in this year's campus telephone directory as well as many of the introductory/information pages. Phone directories will be provided on a CD to each department as well as offering it as a downloadable file from the University website. Users will be encouraged to rely on the many electronic versions available in an attempt to steer users away from the hard copy handout.

Physical Plant

Status of Building Projects:

- **Aboriginal House** - Rough landscaping should be completed by May 30. Physical Plant started the soft landscaping (trees, grass, shrubs, etc.) and will require two to three weeks to complete. IST should have most of their work completed by the third week of June.

- **Buller Building Redevelopment** - Updated duct layout has been provided for Level 100. Modifications to existing medium pressure steam and RO water lines will be required as well as various plumbing and electrical lines. Redundant

conduit and wiring has been removed and existing services relocated to suit the new layout. Windows are 90% complete. Overall project is 82% complete.

- **Pharmacy (Apotex Centre)** - Drywall and taping is complete in the basement, main and second floors. Third floor is 95% complete. Electrical and plumbing rough-in is 100% complete in basement, main, second and third floors. All cable terminations and cable testing will be 100% complete by June 13. Elevator installation is 90% complete. The Faculty of Pharmacy will be taking occupancy of the building on July 1.

- **St. John's College - Robert B. Schultz Lecture Theatre** - The majority of steel installation has been completed. Damproofing and insulation on the foundation walls is continuing and some backfilling has begun. Steel stud and drywall work has begun along the exterior walls. Roofing of the low roofs is complete.

- **Welcome Centre** - Removal of the old Visitors Centre is complete. The completion date is slated for March, 2009. Campus Information Services are temporarily located at 97 Dafoe Road.

- **Curry Place Landscaping** - The third phase of the Curry Place Pedestrian Mall project is underway. This project involves building a walkway over the Extended Education Complex.

Sustainability Update:

- April 22 was "Earth Day" and a survey was sent out to obtain pledges from staff and students to encourage sustainable practices. In total, 217 pledges were collected from 17 different departments across campus.

Smart Park

- **Eureka Project** - On May 14 and 15 the Eureka Project co-sponsored an event on the use of simulation in education and training, in conjunction with Industry Canada, Science Technology Energy and Mines, Competitiveness Training and Trade, and Destination Winnipeg. Daniel Laughlin of NASA was the featured speaker. The event drew 100 guests. Three new clients joined the Eureka Project on May 1: Invenia Technical Computing Corporation, Complex Games Inc., and Sunpeak Foods.

- The final Interactive for the season took place on May 28th and featured a BiPole 3 Educational Forum. Speakers included Rob Altemeyer (MLA, Wolseley), James Blatz (U

of M engineering professor), John Ryan (U of W retired geography professor), and Gaile Whelan Enns (Manitoba Wildlands).

V. EXTERNAL MATTERS

Office of the Vice-President (External)

- The President hosted a special dinner to thank major donors over her twelve year term as president and vice-chancellor. The program included thanks on behalf of deans by Dr. Karin Wittenberg, Associate Dean (Research) in the Faculty of Agricultural and Food Sciences, on behalf of faculty by Dr. Charles Bernstein, internal medicine, and on behalf of students by Rhodes Scholar Ms Akosua Matthews, BA(Hons)/06. The president thanked donors on behalf of the university.

- Doors Open at the University of Manitoba this year featured "Agriculture Row," one of the oldest and most interesting parts of the Fort Garry Campus. On May 24, 2008, visitors were treated to a tour of Taché Hall, the Georgian style Home Economics Practice House (now Alumni House) and the Art Barn among other buildings. Ice cream from Food Science, a historic photo exhibition and the recently published history of the Faculty of Agricultural and Food Sciences enhanced the tour.

Alumni Affairs and Alumni Association Inc.

- The Board of Directors of the Alumni Association unanimously approved Gregg Hanson, BComm(Hons)/76, retired president and CEO of Wawanesa Insurance, as the 2008 recipient of the Distinguished Alumni Award. Mr. Hanson will receive the award at Fall convocation.

Public Affairs

- Public Affairs hosted a Dealing with the Media seminar for a group of faculty and graduate students in the Department of Anthropology on April 18. Topics discussed included how to conduct a successful interview, how to attract media attention and details on how the media works.

- Public Affairs worked with the *Winnipeg Free Press* to create a new feature in the paper called The Learning Curve. The Learning Curve will be a regular feature column in which academics, researchers and graduate students can discuss their work in a way that is accessible and interesting to the general public.

- The itsmyfuture.ca website has won a Gold Award for the best department or program site at the Canadian Council for the Advancement of Education's 2008 PRIX D'EXCELLENCE. The site was a key component of the It's My Future marketing program and featured student/alumni profiles, ongoing blogs and photos. Through the voice of these students and alumni, the site reinforces why the University of Manitoba is the institution of choice for prospective students while providing insight into what it's like to be a University of Manitoba student.

Government Relations Office

- On May 5, John Alho, Associate Vice-President (External) attended the Manitoba – North Dakota Bi-National Summit Steering Committee meeting. This bilateral summit has a strong focus on research, technology transfer and collaboration between the University of Manitoba and University of North Dakota.

Development and Advancement Services

- Total funds raised as of May 31, 2008: $12,035,900.56 million

- On April 4, the University announced a gift of $5 million from Stuart Clark, (BComm[Hon]/76) and Asper Centre for Entrepreneurship was renamed, with the consent of the Asper Foundation, the Stu Clark Centre for Entrepreneurship. Mr. Clark, an oil and gas entrepreneur now living and working in Alberta, had made an earlier gift of $1 million in 2004. The gift announcement was made during the Stuart Clark Venture Challenge, a student competition for new, independent ventures in the seed, start-up or early growth stages.

- The Dr. John Frank Allen estate has been finalized, resulting in a $974,472 gift to the Frank Allen Library Endowment Fund. The purpose of the fund is to support the acquisition of library materials in the fields of physics, architecture, human ecology, art and design, and Winnipeg history.

- A former Bisons athlete, Allan Edie (BPE/80, Cert Ed/81), made a $300,000 donation to create 12 scholarships in men's volleyball. This is the largest single donation to a Bison Sports men's team, and it will be matched by the Manitoba Scholarship and Bursary Initiative. The Endowment Fund will generate revenue to provide substantial support to men's volleyball student-athletes in perpetuity. Edie played men's volleyball for the Bisons from 1976-81.

- Archives & Special Collections held its grand reopening on April 29, 2008. The event celebrated more than two years of fund-raising for the $1.4-million project and was an opportunity to thank donors and the archival community for their support. Dr. John English delivered a keynote speech on the importance of archives, followed by the dedication and ribbon cutting ceremony – which in this case was a unique University of Manitoba flagpole staking. More than 200 people attended the event, including project donors, members of the archival community and university staff.

- Planned Giving, has raised a total of $15,967,805 (in realized and future gifts) over the past three years, an increase of $223,805.77 over its three-year goal of $15,744,000 set April 1, 2005.

- The gifts in kind have been received into the library and archives from the William G. Stobie estate. More than 60 boxes of books, 19 boxes of archival materials, antique furniture and 2 portraits of the Stobies were received, valued at $107,845. The university is the beneficiary of most of the balance of Dr. Stobie's estate and a much larger bequest of stock will follow.

External Relations (Bannatyne Campus)

- The Alan Klass Memorial Program in Health Equity was launched on April 4. The launch included a donor recognition reception, as well as a day-long professional development series for students, residents, and faculty. The family of Alan Klass along with the Tolkien Trust, a charitable foundation established by the family of the late JRR Tolkien, established the program. This new initiative aims to provide all graduates of the University of Manitoba's school of medicine with the capacity to ensure that access to health care is the same for all who turn to them as physicians and that the quality of services offered is the best available.

- The opening of the Clinical Learning and Simulation Facility took place on April 11, 2008. President Dr. Emőke Szathmáry, Dean of Medicine Dr. J. Dean Sandham, CEO of the WHRA Dr. Brian Postl, Minister of Health Theresa Oswald, Minister of Science, Technology, Energy and Mines Jim Rondeau, and Medicine Senior Stick Kam Birdi addressed the large audience of donors, guests, faculty, staff and students. Dean Sandham also announced the establishment of the Mindermar Professorship in Human Simulation, created through a $1-million dollar gift from the Rady Family Foundation, Mindel Olenick and Marjorie and Morley Blankstein. The Mindermar Professorship in Human Simulation will provide leadership in the area of medical education through human simulation. Guided tours of the new facility filled up quickly and the response to the new 11,000 square foot, $4.6 million facility was overwhelmingly positive.

- The Faculty of Medicine hosted an interactive forum on May 30, 2008 to collectively craft a vision for the future of the Faculty. The forum allowed a broad cross-section of the community, from civic and business leaders to university and medical professionals, to provide feedback on the challenges and opportunities facing the Faculty of Medicine.

- The Faculty of Dentistry presented Traditions of Excellence in Oral Research on April 25, 2008. The day-long event was part of Symposia 50, a series of special events celebrating the achievements of faculty and students, past and present during the Faculty of Dentistry's 50th anniversary.

- As the Faculty of Dentistry celebrates its 50th anniversary, the Centre for Community Oral Health (CCOH) is celebrating its contribution to the community with the first annual Urban Smiles. The CCOH will be providing free dentistry to the inner city community on June 11 at the Aboriginal Centre on Higgins.

- The Faculty of Pharmacy hosted an alumni reception at the annual Manitoba Pharmacy Conference held from April 11-13. The classes of 1958 and 1983 received their 50th and 25th service pins from the Manitoba Pharmaceutical Association.

Monday, April 21, 2008

- Meet with Dr. Paul Genest, President, Council of Ontario Universities, along with Mr. John Alho, Associate Vice-President (External)

Tuesday, April 22, 2008

- Attend, as Head Table guest, the Manitoba Chambers of Commerce Breakfast Meeting featuring Premier Gary Doer as Keynote Speaker

- Present remarks at the Province of Manitoba funding announcement for the establishment of a research chair in water quality by Honourable Christine Melnick, Minister of Water Stewardship, along with Ms. Marilyn Brick, MLA, St. Norbert and Dr. Joanne Keselman, Vice-President (Research)

- Attend the funeral service for Dr. Harold Buchwald, L.L.D. (*honoris causa*), Manitoba, distinguished alumnus and university benefactor

Wednesday, April 23, 2008

- Host reception for graduating International Students at 37 King's Drive

Thursday, April 24, 2008

- Attend luncheon meeting with University alumnus and benefactor, Dr. Monty Hall and Mrs. Marilyn Hall, along with Mrs. Elaine Goldie, Vice-President (External)

Friday, April 25, 2008

- Present remarks at the Official Opening of the Husky Ethanol Plant in Minnedosa, Manitoba and funding announcement by Mr. John C. S. Lau, President and CEO Husky Energy Inc.

- Attend the School of Agriculture Graduation Ceremony and present two awards

- Bring greetings to the School of Agriculture Graduation Banquet

Saturday, April 26, 2008

- Present remarks at the semi-annual University of Manitoba Retirees' Reception

- Attend the Variety Club 2008 Gold Heart Gala featuring Dr. Monty Hall as guest speaker

Sunday, April 27, 2008

- Present remarks, as keynote speaker, at the William and Catherine Booth College Convocation Ceremony

Monday, April 28, 2008

- Attend a meeting of the St. Boniface General Hospital Board of Directors

Tuesday, April 29, 2008

- Present remarks at the Provincial Government funding announcement of Biotechnology Research with South Australia by Honourable Jim Rondeau, Minister of Science, Technology, Energy and Mines

- Present remarks at the Grand Opening of the Archives and Special Collections

Thursday, May 1, 2008

- Attend luncheon in honour of incoming President Dr. Alain Beaudet, Canadian Institutes of Health Research

- Present remarks and present certificates at the Students' Teacher Recognition Event

Friday, May 2, 2008

- Attend meeting of the Joint University of Manitoba/City of Winnipeg Liaison Committee attended by Mayor Sam Katz; Mr. Bryan Gray, Manager of Policy and Manager, Executive Policy Committee; Mr. Glen Laubenstein, Chief Administrative Officer; Mr. Alex Robinson, Mayor's Director of Economic Development and Strategic Initiatives; and Ms. Linda Black, Manager of the Chief Administrative Office Secretariat, along with Mrs.

Debbie McCallum, Vice-President (Administration); Mr. Alan Simms, Associate Vice-President (Administration); and Mr. John Alho, Associate Vice-President (External)

- Attend reception for Support Staff Awards of Excellence recipients, the Aurora Student Implementation Team

Sunday, May 4, 2008

- Attend brunch with Senator Vivienne Poy, L.L.D. (*honoris causa*), Manitoba, with retiree Shirley Chang, Mr. Philip Chang and Dr. George Reilly

Monday, May 5, 2008

- Host and present remarks at the Winnipeg Rh Institute Awards reception at 37 King's Drive

Tuesday, May 6, 2008

- Present remarks at the Allan Eadie Gift Announcement of $300,000 to create 12 scholarship in the Bison Men's Volleyball Program

Saturday, May 10, 2008

- Present remarks as the keynote speaker at the Annual Meeting of the Hungarian-American Educators' Association, held at Dusquesne University, Pittsburgh, Pennsylvania May 8 - 10, 2008

Monday, May 12, 2008

- Present remarks as keynote speaker at the Jewish Foundation of Manitoba Womens' Endowment Fund Luncheon

- Host and present remarks at the Support Staff of Excellence Awards Reception at 37 King's Drive

Tuesday, May 13, 2008

- Attend meeting of the Council of Presidents of Universities in Manitoba (COPUM) at Brandon University

Wednesday, May 14, 2008

- Attend the Scopus Award Dinner honouring Dr. Frank Plummer

Thursday, May 15, 2008

- Attend a meeting with Ms. Heather Reichert, Deputy Minister of Advanced Education and Literacy, along with Mr. John Alho, Associate Vice-President (External)

Friday, May 16, 2008

- Attend meeting with Mr. Sid Rogers, Chair, Manitoba Council on Post-Secondary Education and Mr. Dan Smith, Senior Policy Analyst, along with Mr. Jeff Leclerc, University Secretary

Tuesday, May 20, 2008

- Present remarks at the Marcel Desautels Gift Announcement

Wednesday, May 21, 2008

- Present remarks at the "Community Farewell" dinner to the University's 10th president

Friday, May 23, 2008

- Attend meeting with Honourable Diane McGifford, Minister of Advanced Education and Literacy, along with members of the Council of Presidents of Universities in Manitoba

Monday, May 26, 2008

- Attend meeting of the St. Boniface General Hospital Board of Directors

Tuesday, May 27, 2008

- Host Convocation Luncheon at 37 King's Drive

- Attend meeting with potential University benefactors

Wednesday, May 28, 2008

- Host Convocation Luncheon at 37 King's Drive
- Host Convocation Dinner in Marshall McLuhan Hall

Thursday, May 29, 2008

- Host Convocation Luncheon at 37 King's Drive
- Provide remarks at Scholars' Night dinner (for Program and Gold Medalists) hosted by Susan J. Glass and members of the Manitoba Club

Monday, June 2, 2008

- Present remarks, and confer award to Mr. Peter Munk at the International Distinguished Entrepreneur Award (I.D.E.A.) Dinner

Wednesday, June 4, 2008

- Present remarks at the University of Manitoba Alumni Association Annual General Meeting

Thursday, June 5 2008

- Host dinner for Deans' and Directors' Council at 37 King's Drive

Monday, June 9, 2008

- Attend the J. W. Dafoe Foundation Annual General Meeting

Tuesday, June 10, 2008

- Meet with representative of a University benefactor, along with Mrs. Deborah McCallum, Vice-President (Administration) and Mrs. Elaine Goldie, Vice-President (External)
- Present remarks and certificates at the Long Service awards

Thursday, June 12, 2008

- Attend luncheon at McMaster University in honour of Honorary Degree recipients
- Attend McMaster University Convocation to receive the degree Doctor of Laws (*honoris causa*)
- Attend McMaster University Convocation dinner

Monday, June 16, 2008

- Make presentation at the Canadian Association of University Business Offers Annual Meeting as part of the "President's Panel" along with Dr. Bonnie Patterson, President, Trent University and Ms. Claire Morris, President, the Association of Universities and Colleges in Canada

Wednesday, June 18, 2008

- Bring greetings to the opening of the Annual Meeting of the Canadian Federation of Biological Societies

June 11, 2008

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**

   Professor Kevin Coombs will be the Speaker for the Executive Committee for the June meeting of Senate.

2. **Nominations to the Senate Committee of Nominations**

   The report of the University Secretary on the Senate Committee on Nominations is attached. Members of the Senate Committee of Nominations are nominated by the Senate Executive Committee and elected by Senate (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 nomination to the Senate Committee on Nominations be approved by Senate for three-year terms ending May 31, 2009:

a) Professor Sandra Kouritzin (Senator), representing Education & Kinesiology and Recreation Management

Respectfully submitted,

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

/mb

Vacancies on the Senate Committee on Nominations

At the July 1977 meeting, Senate approved without debate the following area representations for the Senate Committee on Nominations. The representation was amended in July 1991 to include the Libraries, and again in June 2005 to include the Clayton H. Riddell Faculty of Environment, Earth and Resources. The membership at June 1, 2008 is as follows:

1.	Agriculture & Human Ecology	Carla Taylor*	to	2009
2.	Architecture & Engineering	Jay Doering*	to	2010
3.	Arts	Pamela Perkins	to	2011
4.	Science	Norm Hunter*	to	2010
5.	Law, Pharmacy & Environment, Earth, and Resources	David Collins*	to	2010
6.	Medicine & Dentistry	Emily Etcheverry*	to	2011
7.	Education & Kinesiology and Recreation Management	TBA	to	2011
8.	Management & Extended Education	Mary Brabston*	to	2011
9.	Music, Fine Art & Libraries	Karen Jensen	to	2009
10.	Nursing, Social Work & Student Affairs	Marie Edwards	to	2010
11.	Students (2) *(note: student terms end October 14)*	Peter Nawrot Aimee Pochinco	to to	2008 2008

* denotes member of Senate at time of appointment

The term for Dennis Hrycaiko ended May 31, 2008. Consequently a replacement for the following area is required for the term June 1, 2008 to May 31, 2011.

1. Education & Kinesiology and Recreation Management

The composition of the Committee on Nominations calls for ten members of the academic staff, the majority of whom are to be members of Senate. Since six of the academic members currently on the Committee are Senators, the replacement will *not* necessarily have to be a member of Senate at the time of election to the Senate Committee on Nominations.

REPORT OF THE SENATE COMMITTEE ON AWARDS – PART B

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)

Observation

At its meeting of May 13, 2008 the Senate Committee on Awards reviewed two new offers that appear to be discriminatory according to the *Policy for Non-Acceptance of Discriminatory Scholarships, Bursaries or Fellowships*. The Committee received letters of support for the *Manitoba Lotteries Corporation Lloyd LeVan Hall Memorial Scholarship* from Dr. Glenn Feltham, Dean of the I.H. Asper School of Business, and from Ms Kali Storm, Director of the Aboriginal Student Centre (Appendix A, Attachments I and II). The Committee received a letter of support for the *Arun Sud Memorial Scholarship* from Ms Carolyn Christie, Coordinator of Disability Services (Appendix A, Attachment III).

Recommendation

The Senate Committee on Awards recommends that Senate and the Board of Governors approve the establishment of two new offers as set out in Appendix A of the *Report of the Senate Committee on Awards – Part B* (dated May 13, 2008).

Respectfully submitted,

Professor R. Baydack
Chair, Senate Committee on Awards

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

Appendix A

MEETING OF THE SENATE COMMITTEE ON AWARDS
May 13, 2008

1. NEW OFFERS

Manitoba Lotteries Corporation Lloyd LeVan Hall Memorial Scholarship

The Manitoba Lotteries Corporation offers an annual scholarship, to assist Aboriginal students pursuing post-secondary education in the I.H. Asper School of Business at the University of Manitoba. The Lloyd LeVan Hall Memorial Scholarship commemorates the extraordinary life and contributions of Lloyd LeVan Hall, who served as Vice-Chairperson of the Board of Directors for the Manitoba Lotteries Corporation from 2000 – 2007.

One scholarship, valued at $2,000, will be offered to an undergraduate student who:

(1) is Aboriginal (Status, Non-Status, Métis, Inuit);

(2) is a Canadian citizen;

(3) is enrolled full-time, in the second, third, or fourth year of study, in the I.H. Asper School of Business;

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

(5) has demonstrated community involvement through volunteering.

Candidates must submit a statement (maximum 200 words) describing their contributions to the community through volunteering. Candidates who meet the criteria may be interviewed by the selection committee. The deadline to submit an application will be November 1st.

The selection committee will be named by the Dean of the I.H. Asper School of Business (or designate) and will include a representative of the Manitoba Lotteries Corporation.

(Attachments I and II)

Arun Sud Memorial Scholarship

The Sud family and their friends have established an endowment fund initially valued at $3,500 at the University of Manitoba. The available annual interest generated by the fund will be used to offer one scholarship to an undergraduate student who:

(1) is enrolled part-time or full-time in any Faculty or School at the University of Manitoba;

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

(3) is registered with the office of Disability Services at the University of Manitoba;

(4) has demonstrated extra-curricular involvement in the university or external community (e.g., community services, volunteering, music, drama, art, athletics, student government).

Preference will be given to students who have a long-term mental health disability.

Applicants will be required to submit an application form along with a statement (maximum one-page) outlining their extra-curricular involvements.

The selection committee will be named by the Director of the Office of Financial Aid and Awards (or designate) and will include the Coordinator of Disability Services.

(Attachment III)

UNIVERSITY OF MANITOBA | Asper School of Business
Faculty of Management

Glenn Feltham, PhD, MBA, LLB, CMA, FCMA
Dean and CA Manitoba Chair in Business Leadership
314 Drake Centre
181 Freedman Crescent
Winnipeg, Manitoba
Canada R3T 5V4
Telephone (204) 474-9209
Fax (204) 474-7928
glenn_feltham@umanitoba.ca

April 21, 2008

MEMORANDUM

TO: **Dr. Rick Baydack**
Chair of the Senate Committee on Awards

FROM: **Glenn Feltham**

SUBJECT: **LeVan Hall Memorial Scholarship**

The Asper School of Business is committed to growth in Aboriginal Business Education. During the regular academic session 2006-07, a total of 20 aboriginal students were studying in the Aboriginal Business Education Program of the ASB. This is only slightly more than 1% of our total student population of about 1600 full and part time students. Over the past five years, the percentage of students enrolled in ABEP relative to total number of students enrolled averaged 1.4%. As aboriginal people represent 14 % of Manitoba's total population, aboriginal students are under-represented at the Asper School of Business in comparison to the general population.

The LeVan Hall Memorial Scholarship will provide meaningful support to aboriginal students enrolled in the Bachelor of Commerce (Honours) program in the Asper School of Business. Given the Asper School's commitment to growth in Aboriginal Business Education, and given the under-representation of aboriginal students in the School, I strongly support the establishment of this scholarship.

Copy: Shannon Coyston, Awards Establishment Coordinator
Margot Hamilton, Director of Development

UNIVERSITY OF MANITOBA | Aboriginal Student Centre

537 University Centre
Winnipeg, Manitoba R3T 2N2
Telephone (204) 474-8850
Fax (204)275-3142
Toll Free in Manitoba
1-800-432-1960 ext. 8850
asc@umanitoba.ca

April 15, 2008

Dr. Rick Baydack
Chair of the Senate Committee on Awards
C/o Ms. Shannon Coyston
Awards Establishment Coordinator
417 University Centre

Dear Dr. Baydack & Senate Committee;

Please accept this letter as formal support for the Manitoba Lotteries Corporation Lloyd LeVan Hall Memorial Scholarship designed to assist Aboriginal students in the Asper School of Business.

As the Director of the Aboriginal Student Centre, I can verify that financial strain is the leading cause for Aboriginal students leaving school before graduation. It is common knowledge that many Aboriginal peoples live in poverty and whereas a university education can help rectify this, most cannot afford to do so. It is commendable that the University of Manitoba would want to assist in rectifying this situation with the establishment of awards such as the one being proposed by the Manitoba Lotteries Corporation.

The number of Aboriginal students attending the University of Manitoba continues to increase and, I believe, is partially due to the financial assistance made available through programs and faculties. The Manitoba Lotteries Corporation Lloyd LeVan Hall Memorial Scholarship is an example of a community member wanting to assist with the academic success of Aboriginal commerce students. For many Aboriginal students, attending university requires moving away from home knowing there is little or no financial assistance available from their families should they need it.

I trust that the Senate committee will approve this bursary and others like it, in the hopes of increasing the recruitment and retention of Aboriginal students in the Asper School of Business.

In education, miigwech!

Kali Storm
Director, Aboriginal Student Centre

Aboriginal Peoples comprise 15% of the Manitoba population
Aboriginal Peoples comprise 10% of the City of Winnipeg population
Aboriginal Peoples comprise 7% of the University of Manitoba population
4% of the Aboriginal population complete a university degree vs. 12.6% of the non-Aboriginal population.
There are 39 self-declared Aboriginal students in the Asper School of Business or 2.4% of the Faculty population (fall, 2007).

- Statistics are from the Government of Canada 'Aboriginal Census 2006 Highlights' and from Institutional Analysis 'A Profile of Canadian Aboriginal Students at The University of Manitoba'.

Disability Services
155 University Centre
Winnipeg, Manitoba
Canada R3T 2N2

Tel: (204) 474-6213 (voice)
(204) 474-9790 (TTY)
(204) 261-7732 (fax)
E-mail: disability_services@umanitoba.ca

October 29, 2007

Dr. Rick Baydack
Chair of the Senate Committee on Awards
c/o Ms. Shannon Coyston, Awards Establishment Coordinator
422 University Centre

Dear Dr. Baydack and the Senate Committee;

Please accept this letter as formal support for the proposed Arun Sud Memorial Scholarship. This scholarship would be used to support students with mental health disabilities who are enrolled at the University of Manitoba.

Students with mental health disabilities are the largest growing population within the Disability Services office. According to Statistics Canada, teenagers and young adults aged 15-24 experience the highest incidence of mental disorders of any age group in Canada. The Canadian Mental Health Association estimates that the "unemployment rate of persons with serious mental illness...has been commonly reported to range from 70-90%, depending on the severity of the disability". In addition, from the 1997 review at Statistics Canada, people with disabilities are more than twice as likely to be living on low income as were adults without disabilities. Therefore, this particular group of students needs our support so that they may change their life circumstances.

The number of students registered at Disability Services (DS) has increased from 228 in 2001 to 802 in 2007 with the number of students with a mental health disability increasing from 7.5% to 28.4% of the DS population. This is a significant increase and shows that the University of Manitoba is committed to supporting our students. DS staff hear first hand of the challenges students with disabilities encounter when pursuing their academic studies and are keenly aware of the limited financial resources available.

One such story is of a student who was so disrupted by her mental health disability that she was unable to live independently. However, through perseverance and with the help of the appropriate resources, she is now living on her own and is working part-time on her Bachelor of Arts in Psychology, achieving excellent results.

The Arun Sud Memorial Scholarship will demonstrate the University's commitment to support students with mental health disabilities.

Sincerely,

Carolyn Christie
Coordinator
Disability Services

Faculty of Science
University of Manitoba

Proposal for a Bachelor of Science (Honours) in Forensic Science

Table of Contents

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

Faculty of Science
University of Manitoba

Bachelor of Science (Honours) in Forensic Science

SECTION I: Program Description:

1.1 Description of the program as it would appear in a catalogue:

Forensic Science is the impartial, analytical study of evidence collected from a crime scene for use in legal investigations. Forensic Science is multidisciplinary, based largely on biological, chemical and physical sciences; however, also drawing from mathematical sciences, geological sciences, soil sciences and social sciences such as anthropology and sociology (criminology). The Forensic Scientist is first and foremost a scientist receiving a strong background in the basic sciences but will also receive specialized training in gathering and analysis of evidence and presentation of such evidence in the court of law.

The Bachelor of Science (Honours) in Forensic Science will provide students with a strong basic science background and specialization in Forensic Chemistry (Trace Analysis), Forensic Toxicology (including Controlled Substances), Forensics Biology (primarily DNA analysis) or Forensic Physical Evidence (e.g. Firearms, Impressions). Although the majority of courses are delivered by the Faculty of Science, courses from the Faculty of Arts, Faculty of Agricultural and Food Sciences, and the Clayton H. Riddell Faculty of the Environment, Earth and Resources are required.

1.2 Program educational objectives and learning outcomes:

The University of Manitoba is well positioned to offer a high quality, interdisciplinary program with streams in the key forensic science areas. A Bachelor of Science Honours program will provide the rigor of an Honours program to the best and the brightest students with the ability to excel in analytical scientific study and critical thinking, and be able to correlate information from a variety of sources and clearly present their findings in court.

Students will take a common core of 1000, 2000, 3000 and 4000 level required science and social science courses. Specialization in the traditional streams, as defined by the American Academy of Forensic Sciences (AAFS, see Appendix 4), include Forensic Biology, Forensic Chemistry (Trace Elements), Forensic Toxicology (Controlled Substances), or Forensic Physical Evidence (Firearms/Impression Evidence) and begins after students have built a solid basic science background from the core 1000 and 2000 level courses. The first year resembles a typical first year science program including introductory biology, chemistry, physics and math. The core includes all University 1 required elements. Students will be required to take 5 core forensic science courses, including FORS 2XXX (Introductory Forensic Science) which is designed a W (writing) course. The core forensic science courses must be taken in sequence. Introductory Forensic Science is followed by 3 intensive practical courses, where students will learn the theory and practice of sample collection and identification, and communication skills specific to forensics. A mock Crime Scene will be used for instruction and testing. Mock trials will allow students to practice and be tested on presenting evidence in court. The last forensic science core course is an independent Honours Research Project course to be taken in the final year of the program under the supervision of either faculty members doing forensic science research or forensic science specialists in the field. In addition to the core courses, students will be required to take stream specific courses, including specifically designed forensics courses, and a short but comprehensive list of suitable electives.

Core courses in crime scene investigation will be co-taught by university instructors and forensic specialists from, for example, RCMP Forensic Laboratory Services, Winnipeg Police Forensic

Identification Unit and the Chief Medical Examiner's Office. Students will not only develop laboratory skills but also oral and written communication skills. Each stream is designed to provide graduating students with the training required to pursue a career in the given scientific discipline, forensic-based or not, to seamlessly enter a graduate program, forensic-based or not, or to enter professional degree programs (e.g. medicine, dentistry, pharmacy, law, education). With this in mind, each stream is designed with limited room for electives, with the rationale of providing graduating students with the essential tools required for this profession. The aim is not only to "train" forensic scientists but to give the exceptional scientifically gifted student the flexibility to continue in the field of forensics or apply their knowledge to other aspects of their given discipline.

1.3 Program Requirements:

1.3.1 Admission Requirements:

Students must meet the Faculty of Science requirements for entry into an Honours Program; a Degree GPA (DGPA) of not less than 2.5 on all courses completed at the end of Year 1 (minimum 24 credit hours). Also students must have a minimum grade of B in BIOL 1030, CHEM 1310, PHYS 1070 and MATH 1700 and a minimum grade of C+ in BIOL 1020, CHEM 1300, MATH 1500, PHYS 1020 or PHYS 1050 and SOC 1200. Existing university repeat rules will be followed.

Courses Required for Admission:		**Credit Hours**
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
CHEM 1300	Chemistry: Structure and Modeling	3
CHEM 1310	Chemistry: Introduction to Physical Chemistry	3
MATH 1500	Introduction to Calculus (M requirement)	3
MATH 1700	Calculus 2 (M requirement)	3
PHYS 1020 or 1050	General Physics 1/Physics 1: Mechanics	3
PHYS 1070	Physics 2: Waves and Modern Physics	3
SOC 1200	Introduction to Sociology	6
		30

1.3.2 Continuation and Graduation Requirements:

Once accepted, Faculty of Science Academic Regulations for Honours Programs will apply. Students must maintain a DGPA $\geq$ 3.0 and a minimum grade of "B" on all Common Core Courses and "C+" on all Stream Specific Courses, including electives, in all terms. A minimum of 9 credit hours per term are required. No more that 15 credit hours of F's can be accumulated, regardless if the course has been repeated and a higher grade achieved. Core Forensics courses must be taken in sequence and the 4th year Honours Research project course must be taken in the final year of the program. A Degree GPA $\geq$ 3.0 is required for graduation. Students who do not meet these minimum requirements will be required to withdraw from the program and will normally be eligible to enter the 3 Year General B. Sc Program or a 4 year Major Program in the most appropriate discipline (e.g. Chemistry, Physics, Biological Sciences, Microbiology, Geological Sciences).

Common Core Courses - required for all streams		**Credit Hours**
GEOL 1340	The Dynamic Earth	3
STAT 1000	Basic Statistical Analysis 1	3
CHEM 2210	Organic Chemistry I: Structure and Function	3
CHEM/MBIO 2360	Biochemistry 1: Biomolecules and Metabolic Energy	3
CHEM 2470	Introductory Analytical Chemistry	3
****FORS 2XXX W***	***Introductory Forensic Science***	3
GEOL 2060	Introduction to Geophysics	3
PHYS 2260	Optics	3
SOC 2510	Criminology	3
SOC 2610	Sociology of Criminal Justice and Corrections	3
CHEM 3590	Instrumental Analysis	3
****FORS 3XXX***	***Introductory Forensic Identification***	3
****FORS 3XXY***	***Forensics Evidence/Expert Witness***	3
****FORS 3XXZ***	***Advanced Forensic Identification***	3
****FORS 4XXX***	***Forensic Science Research Project***	6
SOIL 4130	Soil Chemistry and Mineralogy	3
		51

Stream Specific Required Courses:

a. Forensic Biology (Molecular Biology)

BOTN 2460	Genetics 1	3
CHEM/MBIO 2370	Biochemistry 2: Catabolism, Synthesis and Pathways	3
MBIO 2100	General Microbiology A	3
ZOOL 2280	Cell Biology	3
MBIO 3410	Molecular Biology	3
****FORS 4XXY***	***Forensic Biology***	3
****FORS 4XXZ or FORS 4XYY Forensic Toxicology or Chemistry***		3
**Electives		18
		120 Total

b. Forensic Chemistry (Trace Analysis)

CHEM 2220	Organic Chemistry II: Reactivity and Synthesis	3
CHEM 2280	Physical Chemistry	3
CHEM/MBIO 2370	Biochemistry 2: Catabolism, Synthesis and Pathways	3
CHEM 2380	Chemistry of Main Group Elements	3
CHEM 3370	Symmetry, Spectroscopy and Structure	3
CHEM 4590	Bioanalytical Methods	3
****FORS 4XYY***	***Forensic Chemistry***	3
****FORS/GEOL 4XZZ Forensic Geoscience***		3
**Electives		15
		120 Total

c. Forensic Toxicology (Controlled Substances)

CHEM 2220	Organic Chemistry II: Reactivity and Synthesis	3
CHEM 2280	Physical Chemistry	3
CHEM/MBIO 2370	Biochemistry 2: Catabolism, Synthesis and Pathways	3
CHEM 2380	Chemistry of Main Group Elements	3
MBIO 2100	General Microbiology A	3
ZOOL 2180	Introductory Toxicology	3
****FORS 4XXZ***	***Forensic Toxicology***	3
****FORS 4XYY***	***Forensic Chemistry***	3
**Electives		15
		120 Total

d. Forensic Physical Evidence (Firearms/Impression Evidence etc.)

CHEM 2280	Physical Chemistry	3
PHYS 2390	Theoretical Physics 1	3
PHYS 2490	Theoretical Physics 2	3
PHYS 2600	Electromagnetic Field Theory	3
PHYS 2650	Classical Mechanics	3
PHYS 3670	Classical Thermodynamics	3
****FORS 4XYY***	***Forensic Chemistry***	3
****FORS 4XYZ***	***Forensic Physics***	3
**Electives		15
		120 Total

****FORS* = New Courses

** Electives – minimum of 9 Cr. Hrs at the 3000/4000 level. See list of acceptable electives.

Electives (minimum of 9 Cr. Hrs. at the 3000/4000 level):

ANTH 2820	Human Osteology
ANTH 2860	Human Population Biology
ANTH 2890	Evolution and Human Diversity
ANTH 3730	Forensic Anthropology (Human skeletal remains)
BOTN 2010	Plant Structure and Function 1
BOTN 3190	Plant Anatomy
BOTN 3460	Genetics 2
BOTN 4460	Molecular Biology for Plants and Fungi
CHEM 2220	Organic Chemistry II: Reactivity and Synthesis
CHEM 2280	Physical Chemistry
CHEM 2290	Chemical Energetics and Dynamics
CHEM/MBIO 2370	Biochemistry 2: Catabolism, Synthesis and Pathways
CHEM 2380	Chemistry of Main group Elements
CHEM 3370	Symmetry, Spectroscopy and Structure
CHEM 3380	Inorganic Chemistry
CHEM 4590	Bioanalytical Methods
CHEM 4600	Advanced Chemistry Techniques
CHEM 4620	Biochemistry of Nucleic Acids
CHEM 4630	Biochemistry of Proteins

CHEM 4670	Drug Design and Drug Delivery
ENTM 2050	Introductory Entomology
ENVR 3300	Methods in Ecotoxicology
ENVR 4180	Ecotoxicological Risk Characterization
FMLY 2800	Family Violence
***FORS 4XXY**	***Forensic Biology***
***FORS 4XXZ**	***Forensic Toxicology***
***FORS 4XYY**	***Forensic Chemistry***
***FORS 4XYZ**	***Forensic Physics***
***FORS/GEOL 4XZZ**	***Forensic Geoscience***
GEOL 2530	Introductory Seismology, Petrology and Stratigraphy
GEOL 3740	Exploration Seismology
GEOL 3810	Applied Geophysics
GEOL 4280	Instrumental Methods in Geology
MBIO 2100	Microbiology A
MBIO 2110	Microbiology B
MBIO 3010	Microbial Mechanisms of Disease
MBIO 3410	Molecular Biology
MBIO 4010	Immunology
MBIO 4570	Recombinant DNA Technology
PHYS 2390	Theoretical Physics 1
PHYS 2490	Theoretical Physics 2
PHYS 2600	Electromagnetic Field Theory
PHYS 2610	Circuit Theory and Electronics
PHYS 2650	Classical Mechanics
PHYS 3220	Medical Physics and Physiological Measurement
PHYS 3670	Classical Thermodynamics
PHYS 4520	Solid State Physics
PLNT 3140	Introductory Cytogenetics
SOIL 3600	Soils and Landscapes in Our Environment
STAT 2400	Introduction to Probability
STDO 1200	Fundamentals of Drawing
STDO 1220	Basic Design
STDO 1260	Drawing for Non-Majors
ZOOL 2180	Introductory Toxicology
ZOOL 2530	Human Physiology 1
ZOOL 2540	Human Physiology 2
ZOOL 3060	Comparative Animal Histology
ZOOL 4140	Microtechnique
ZOOL 4840	Environmental Toxicology

Calendar Entry:

FORENSIC SCIENCE
Proposed Program
2008-2009

FORENSIC SCIENCE, Department Code: XXX

UNIVERSITY 1	YEAR 2	YEAR 3	YEAR 4
FORENSIC SCIENCE HONOURS 120 CREDIT (comprising courses listed in chart below, and electives)			
BIOL 1020 (C+), BIOL 1030 (B) CHEM 1300 (C+), CHEM 1310 (B) PHYS 1020 OR 1050 (C+) PHYS 1070 (B) MATH 1500 (C+), MATH 1700 (B), SOC 1200 (C+)	CHEM 2210, MBIO/CHEM 2360, CHEM 2470, FORS 2XXX PLUS PROGRAM STREAM COURSES. Plus sufficient credit hours of electives to total 30 hours.	CHEM 3590, FORS 3XXX, FORS 3XXY, FORS 3XXZ, SOIL 4130 PLUS PROGRAM STREAM COURSES Plus sufficient credit hours of electives to total 30 hours.	FORS 4XXX PLUS PROGRAM STREAM COURSES Plus sufficient credit hours of electives to total 30 hours.
	The following courses are required, and may be taken in Year 2, 3 or 4, as approved by the Program Director: STAT 1000, PHYS 2260, SOC 2510, SOC 2610, GEOL 1340, GEOL 2060 A minimum of 9 credit hours of electives must be at the 3000-4000 level.		
30 Hours	30 Hours	30 Hours	30 Hours

NOTE:
MATH 1510, 1520 or 1530 may be used in place of MATH 1500; MATH 1710 may be used in place of MATH 1700; MATH 1690 may be used in place of MATH 1500 and 1700.

Program Streams courses:

Forensic Biology (Molecular Biology)
BOTN 2460, CHEM/MBIO 2370, MBIO 2100, ZOOL 2280, MBIO 3410, *FORS 4XXY, FORS 4XXZ or FORS 4XYY.*

Forensic Chemistry (Trace Analysis)
CHEM 2220, CHEM 2280, CHEM/MBIO 2370, CHEM 2380, CHEM 3370, CHEM 4590, *FORS 4XYY, FORS/GEOL 4XZZ.*

Forensic Toxicology (Controlled Substances)
CHEM 2220, CHEM 2280, CHEM/MBIO 2370, CHEM 2380, MBIO 2100, ZOOL 2180, *FORS 4XXZ, FORS 4XYY.*

Forensic Physical Evidence (Firearms/Impression Evidence etc.)
CHEM 2280, PHYS 2390, PHYS 2490, PHYS 2600, PHYS 2650, PHYS 3670, *FORS 4XYY, FORS 4XYZ.*

Elective courses:
Anthropology: ANTH 2820, ANTH 2860, ANTH 2890, ANTH 3730
Botany: BOTN 2010, BOTN 3190, BOTN 3460, BOTN 4460
Chemistry: CHEM 2220, CHEM 2280, CHEM 2290, CHEM/MBIO 2370, CHEM 2380, CHEM 3370, CHEM 3380, CHEM 4590, CHEM 4600, CHEM 4620, CHEM 4630, CHEM 4670
Entomology: ENTM 2050
Environment: ENVR 3300, ENVR 4180
Family Social Sciences: FMLY 2800
*Forensic: *FORS 4XXY, *FORS 4XXZ, *FORS 4XYY, *FORS 4XYZ, *FORS/GEOL 4XZZ*

Geological Sciences: GEOL 2530, GEOL 3740, GEOL 3810, GEOL 4280
Microbiology: MBIO 2100, MBIO 2110, MBIO 3010, MBIO 3410, MBIO 4010, MBIO 4570
Physics: PHYS 2390, PHYS 2490, PHYS 2600, PHYS 2610, PHYS 2650, PHYS 3220, PHYS 3670, PHYS 4520
Plant Science: PLNT 3140
Soil Science: SOIL 3600
Statistics: STAT 2400
Studio Courses: STDO 1200, STDO 1220, STDO 1260
Zoology: ZOOL 2180, ZOOL 2530, ZOOL 2540, ZOOL 3060, ZOOL 4140, ZOOL 4840

1.3.3 Course Descriptions:

a. Existing Courses (Core and Stream Specific Courses Only):

BIOL 1020 Biology 1: Principles and Themes Cr.Hrs.3 (Lab Required) A laboratory-based course in unifying principles of biology including cell biology, bioenergetics, cell division, genetics and evolution. This course is intended for major and honours students in the biological sciences. Not to be held with BIOL 1000 or BIOL 1001 (or 071.100), BIOE 2590 (or 034.259), or the former 071.125, 071.123 or 071.201. Recommended prerequisites: Biology 40S, and one of Chemistry 40S (or 002.090), or Physics 40S (or 016.090).

BIOL 1030 Biology 2: Biological Diversity, Function and Interactions Cr.Hrs.3 A laboratory-based course introducing biological diversity including prokaryotes, protists, fungi, plants and animals; the form and function of plants and animals and basic concepts of ecology. This course is intended for major and honours students in the biological sciences. Not to be held with BIOL 1010 or BIOL 1011 (or 071.101), BIOE 2590 (or 034.259), or the former 071.125, 071.123 or 071.201. Prerequisite: BIOL 1020 (C). NOTE: BIOL 1030 is a prerequisite to further courses in Microbiology and to most courses in Botany and Zoology. It is also intended for students proceeding to Agricultural and Food Sciences, Dentistry, Human Ecology, Medicine, Optometry, Pharmacy, Veterinary Science, Physical Education and Science.

BOTN 2460 Genetics 1 Cr.Hrs.3 (Lab Required) (Formerly 001.246) Principles of heredity, gametogenesis and the cytological basis of inheritance in plants and animals. The concepts of dominance and genetic interaction, sex and inheritance, linkage, chromosomal variations, quantitative and population genetics, the genetic code. Not to be held with BOTN 2461 or PLNT 2520 (or 039.252). Prerequisite: BIOL 1030 or BIOL 1031 or the former 071.125 (C).

CHEM 1300 University 1 Chemistry: Structure and Modeling in Chemistry Cr.Hrs.3 (Lab Required) (Formerly 002.130) Atomic and molecular models and their applications to chemistry, including a discussion of solid, liquid, and gaseous states, and of mixtures. Not to be held with CHEM 1301. Prerequisites: Applied Mathematics 40S or Pre-calculus Mathematics 40S, or the former Mathematics 40S (300), and Chemistry 40S (or equivalent) or CHEM 0900 (or 002.090) (P) or a minimum grade of "B" in CHEM 1000 or CHEM 1001 (or 002.100).

CHEM 1310 University 1 Chemistry: An Introduction to Physical Chemistry Cr.Hrs.3 (Lab Required) (Formerly 002.131) Thermochemistry, chemical thermodynamics, and chemical kinetics. Prerequisite: CHEM 1300 or CHEM 1301 (or 002.130) (C).

CHEM 2210 Introductory Organic Chemistry 1: Structure and Function Cr.Hrs.3 (Lab Required) (Formerly 002.221) An introduction to the concepts of organic reactivity and bonding in organic

molecules. Preparation and properties of functionalized organic molecules. Not to be held with CHEM 1320 (or 002.132) or CHEM 2211.Prerequisite: CHEM 1310 or CHEM 1311 (or 002.131) (C).

CHEM 2220 Introductory Organic Chemistry 2: Reactivity and Synthesis Cr.Hrs.3 (Lab Required) (Formerly 002.222) An introduction to the reactivity of organic compounds and organic spectroscopy. The application of functional group interconversions to syntheses. Prerequisite: CHEM 2210 or CHEM 2211 (or 002.221) (C).

CHEM 2280 Physical Chemistry: Microscopic Descriptions of Matter Cr.Hrs.3 (Lab Required) (Formerly 002.228) Molecular based approach to understanding physical behaviour of matter. Introduction to principles of quantum mechanics, electronic structure and bonding, molecular spectroscopy. Not to be held with CHEM 2281. Prerequisites: CHEM 1310 or CHEM 1311(or 002.131) (C), PHYS 1030 or PHYS 1031 (or 016.103) (C) or PHYS 1070 or PHYS 1071 (or 016.107) (C), plus six credit hours of 1000 level mathematics (preferably calculus) with the exception of (136.100), MATH 1010 (or 136.101), MATH 1190 or MATH 1191 (or 136.119) or MATH 1020 (or 136.102 or 054.102).

CHEM / MBIO 2360 Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy Cr.Hrs.3 (Lab Required) (Formerly 002.236) An introductory course dealing with kinds of molecules encountered in biochemistry, and the concept of metabolic energy as a product of catabolism and a requirement for biosynthesis. This course is also given in Microbiology as MBIO 2360. Not to be held with CHEM 2361 or CHEM 2770 (or 002.277), or MBIO 2360 or MBIO 2361 (or 060.236); or MBIO 2770 (or 060.277). Prerequisites: CHEM 1310 or CHEM 1311 (or 002.131) and BIOL 1030 or BIOL 1031 or the former 071.125, both courses with a minimum grade of (C). NOTE: Students may hold this course for credit in the B.Sc. General degree program, but may not use it to fulfill the minimum requirement of 12 credit hours in 2000 level Chemistry.

CHEM / MBIO 2370 Biochemistry 2: Catabolism, Synthesis, and Information Pathways Cr.Hrs.3 (Lab Required) (Formerly 002.237) An introductory course dealing with the basic metabolic processes that occur in living cells, including the production and use of metabolic energy, the breakdown and synthesis of biomolecules; the synthesis of DNA, RNA and proteins; and the regulation of these processes. This course is also given in Microbiology as MBIO 2370. Not to be held with CHEM 2780 (or 002.278), or MBIO 2370 or MBIO 2371 (or 060.237), or MBIO 2780 (or 060.278). Prerequisites: CHEM 2360 or CHEM 2361 (or 002.236) or MBIO 2360 or MBIO 2361 (or 060.236) and CHEM 2210 or CHEM 2211(or 002.221, both courses with a minimum grade of (C). NOTE: Students may hold this course for credit in the B.Sc. General degree program, but may not use it to fulfill the minimum requirement of 12 credit hours in 2000 level Chemistry.

CHEM 2380 Chemistry of the Main Group Elements Cr.Hrs.3 (Lab Required) (Formerly 002.238) Descriptive chemistry of the main group elements including explanation of their chemical and physical properties using current theories of structure and bonding. May not be held for credit with CHEM 2381. Prerequisite: CHEM 1310 or CHEM 1311 (or 002.131) (C).

CHEM 2470 Introductory Analytical Chemistry Cr.Hrs.3 (Lab Required) (Formerly 002.247) An introduction to common laboratory techniques of chemical analysis including gravimetric, volumetric and selected instrumental methods. Prerequisites: CHEM 1310 or CHEM 1311 (or 002.131)(C) and three credit hours of mathematics with the exception of MATH 1000, 1010, 1190, 1191 or 1020.

CHEM 3370 Symmetry, Spectroscopy and Structure Cr.Hrs.3 (Lab Required) (Formerly 002.337) Applications of symmetry in chemistry; molecular spectroscopy; structure of solids. Prerequisite: CHEM 2280 or CHEM 2281 (or 002.228 or 002.230) (C).

CHEM 3590 Instrumental Analysis Cr.Hrs.3 (Lab Required) A course dealing with the theory and use of standard instruments used for chemical and biochemical analyses. An introduction to the interpretation of data obtained from such analyses. This course is designed to follow a classical analytical chemistry course. Not to be held with ENVR 3550 (or 128.355) or the former 002.347 or the former 002.355. Prerequisite: CHEM 2470 (or 002.247) (C).

CHEM 4590 Bioanalytical Methods Cr.Hrs.3 (Lab Required) This course introduces different methods used currently for the analysis of biological materials. Qualitative and quantitative aspects are explored. Instrumentation is described and practical methods are designed. Not to be held with the former 002.347. Prerequisite: a grade of "C" in CHEM 3590 or ENVR 3550 (or 128.355) or the former 002.355.

GEOL 1340 The Dynamic Earth Cr.Hrs.3 (Lab Required) (Formerly 007.134) An introduction to dynamics of the Earth's interior and surface that created the environment in which life evolved and that continue to change the world in which people now live. Taught with GEOL 2250. Not to be held with GEOL 1440 (007.144) or GEOL 2250 (007.225) or (007.123) or (007.124).Recommended for students intending to proceed in further courses in the Geological Sciences.

GEOL 2060 Introductory Geophysics Cr.Hrs.3 (Lab Required) (Formerly 007.206) An introduction to geophysical exploration, Earth physics, satellite geophysics and remote sensing. Emphasis will be on quantitative modeling and will include geophysical measurements and handling of data. Prerequisites: (GEOL 1340 (007.134) (C), or GEOL 1440 (007.144) (C), or (007.123) (C), or (007.124) (C)),and (MATH 1300 (136.130) (C), or MATH 1310 (136.131) (C), or MATH 1500 (136.150) (C), or MATH 1510 (136.151) (C), or MATH 1520 (136.152) (C), or MATH 1530 (136.153) (C)), and (PHYS 1020 (016.102) (C), or PHYS 1050 (016.105) (C)); or permission of department head.

MATH 1500 Introduction to Calculus Cr.Hrs.3 (Lab Required)(Formerly 136.150) Differentiation and integration of elementary functions, with applications to maxima and minima, rates of change, area, and volume. Not to be held with MATH 1501, MATH 1510 (or 136.151), MATH 1520 (or 136.152), MATH 1530 (or 136.153), MATH 1680 (or 136.168), MATH 1690 (or 136.169). Prerequisite: a minimum grade of 60 per cent in Pre-calculus Mathematics 40S or the former Mathematics 40S (300), or a grade of "C" or better in either MATH 1000 (or 136.100) or the Mathematical Skills.

MATH 1700 Calculus 2 Cr.Hrs.3 (Lab Required)(Formerly 136.170) Theory and techniques of integration, curve sketching, volume, arc length, surface area and partial derivatives. Not to be held with MATH 1690 (or 136.169), MATH 1710 (or 136.171), MATH 1730 (or 136.173) or 006.126, 013.149, or 013.159. Prerequisite: MATH 1500, MATH 1501 (or 136.150) (C), MATH 1510 (or 136.151) (C), MATH 1520 (or 136.152) (C), MATH 1530 (or 136.153) (C) or MATH 1680 (or 136.168) (C).

MBIO 2100 General Microbiology A Cr. Hrs. 3 (Lab Required) (Formerly 060.210) Fundamental principles of and methods used in microbiology. An introduction to the major groups of micro-organisms, their structure and function, growth, metabolism, physiology and regulatory systems. Prerequisite: BIOL 1030 or BIOL 1031 (or the former 071.125) (C) and CHEM 1310 or CHEM 1311 (or 002.131) (C) or CHEM 1320 (or 002.132) (C).

MBIO 3410 Molecular Biology Cr.Hrs.3 (Formerly 060.341) A rigorous treatment of the foundations of modern day molecular biology as it pertains to molecular disease, gene and cell manipulation, and cellular controls. Prerequisites: MBIO 2370 or MBIO 2371 (or 060.237) or CHEM 2370 or CHEM 2371 (or 002.237) or MBIO 2780 or CHEM 2780 (or 060.278 or 002.278) (C), and ONE of MBIO 2110 or MBIO 2111 (or 060.211) (C), ZOOL 2280 or ZOOL 2281 (or 002.228) (C) or BOTN 2460 or BOTN 2461 (or 001.246).

PHYS 1020 General Physics 1 Cr.Hrs.3 (Lab Required) (Formerly 016.102) A non-calculus survey course in Physics covering topics in mechanics and thermodynamics, with illustrations drawn from the life and physical sciences. This course, together with the sequel PHYS 1030 (or 016.103), is recommended for students seeking either a single, comprehensive course in Physics or entry into health science programs. It may also be used for entry into the Honours Physics program ("B+" or better) or the Major Physics program ("B" or better). Not to be held with PHYS 1050 or PHYS 1051 (or 016.105), PHYS 1410 (or 016.141) or PHYS 1420 (or 016.142) (or the former 016.127). Prerequisites: Either Physics 40S, PHYS 0900 (or 016.090) (with a "P"), or equivalent; and either Pre-calculus Mathematics 40S, Applied Mathematics 40S (with 70 per cent or better), or equivalent. It is strongly recommended that students attain a minimum of 70 per cent as the average of their marks in Physics 40S and Pre-calculus Mathematics 40S.

PHYS 1050 Physics 1: Mechanics Cr.Hrs.3 (Lab Required) (Formerly 016.105) A calculus-based introduction to classical mechanics which includes vectors, translational kinematics and dynamics, work and energy, linear momentum and collisions, rotational kinematics and dynamics, and oscillatory motion. This course is intended for students considering a program of study in engineering or the physical sciences. Not to be held with PHYS 1020 or PHYS 1021 (or 016.102), PHYS 1410 (or 016.141) or PHYS 1420 (or 016.142) (or the former 016.118, 016.120 or 016.127). Prerequisites: Pre-calculus Mathematics 40S (300) (or equivalent) and Physics 40S (300) (or equivalent) or PHYS 0900 (or 016.090) (with a grade of "P"). It is strongly recommended that students attain a minimum of 80 per cent as the average of their marks in Physics 40S (300) and Pre-calculus Mathematics 40S (300). Prerequisite or concurrent requirement: One of MATH 1500 or MATH 1501, MATH 1510, MATH 1520, MATH 1530 or MATH 1690.

PHYS 1070 Physics 2: Waves and Modern Physics Cr.Hrs.3 (Lab Required) (Formerly 016.107) A calculus based introduction to waves and modern physics which includes: oscillations, waves, superposition, interference, relativity, photoelectric effect, quantisation, Rutherford atom, Bohr model, atomic spectra, deBroglie waves, Heisenberg's uncertainty principle, nuclear reactions, fission, fusion, subatomic particles. This course, like Physics 1 (PHYS 1050), is intended for students considering a program in the physical sciences. Not to be held for credit with PHYS 1410 (or 016.141) or PHYS 1420 (or 016.142). Prerequisites: PHYS 1050 or PHYS 1051 (or 016.105) (or the former 016.118) (C) or PHYS 1020 or PHYS 1021 (or 016.102) (B), and MATH 1500 or MATH 1501 (or 136.150) or MATH 1510 (or 136.151), MATH 1520 (or 136.152), MATH 1530 (or 136.153) (C). Prerequisite or concurrent requirement: MATH 1700 or MATH 1701 or MATH 1690, MATH 1710, MATH 1730.

PHYS 2260 Optics Cr.Hrs.3 (Lab Required) (Formerly 016.226) A survey of refraction, reflection, simple lens systems and optical systems, dispersion, achromatism and an elementary treatment of diffraction, interference, and polarization. Prerequisites: One of: PHYS 1070 or PHYS 1071 (or 016.107) (C) or PHYS 1020 or PHYS 1021 (or 016.102)(C+) and PHYS 1030 or PHYS 1031 (or 016.103)(C+); and one of MATH 1500 or MATH 1501 (or 136.150) (C), MATH 1510 (or 136.151) (C),

MATH 1520 (or 136.152) (C), MATH 1530 (or 136.153) (C) or MATH 1690 (or 136.169) (C). Prerequisite or concurrent requirement: MATH 1300 or MATH 1301or MATH 1310, and one of MATH 1690, MATH 1700 or MATH 1701, MATH 1710 or MATH 1730.

PHYS 2390 Theoretical Physics 1 Cr.Hrs.3 This course provides an introduction to the mathematics required for both the Honours and Major programs in Physics and Astronomy. Topics include series expansions, partial derivatives, vector calculus and integral theorems. Not to be held with the former 016.237. Prerequisites: PHYS 1070 (or 016.107), and one of MATH 1690 (or 136.169), MATH 1700 (or 136.170), MATH 1710 (or 136.171), MATH 1730 (or 136.173).

PHYS 2490 Theoretical Physics 2 Cr.Hrs.3 This course provides a continuation of the introduction to the mathematics required for both the Honours and Major programs in Physics and Astronomy. Topics include Fourier series, differential equations, special functions, boundary value problems and transform methods. Not to be held with the former 016.237. Prerequisite: PHYS 2390.

PHYS 2600 Electromagnetic Field Theory Cr.Hrs.3 (Formerly 016.260) Electric field, electric potential, Gauss' law, capacitors, dielectric materials, magnetic fields, Ampere's law, magnetic induction, magnetic materials, displacement current, integral form of Maxwell's equations. Not to be held with PHYS 2200 or PHYS 2201 (or 016.220). Prerequisites: PHYS 1070 or PHYS 1071 (or 016.107) (or the former 016.106 or 016.120) (C) and one of MATH 1690 (or 136.169) (C), MATH 1700 or MATH 1701 (or 136.170) (C), MATH 1710 (or 136.171) (C), MATH 1730 (or 136.173) (C).

PHYS 2650 Classical Mechanics 1 Cr.Hrs.3 3 (Formerly 016.265) The first in a sequence of three courses on intermediate to advanced level mechanics. Topics include dynamics of a particle, conservation theorems, rotation, rolling motion, oscillations, gravitation and central force motion, and associated mathematical methods. Prerequisite: PHYS 1070 or PHYS 1071 (or 016.107) (or the former 016.106) (C). Prerequisite or concurrent requirement: PHYS 2490 and MATH 2720 or MATH 2130 or MATH 2750.

PHYS 3670 Classical Thermodynamics Cr.Hrs.3 An introduction to the laws of classical equilibrium thermodynamics and their applications. Not to be held with the former 016.341. Prerequisite: PHYS 2490 (or the former 016.237).

SOC 1200 - Introduction to Sociology

(Formerly 077.120) A systematic introduction to the scientific perspective of sociology. The following areas will be treated: culture, socialization, groups, social stratification, associations, collective behaviour, and urban and political institutions. Students may not hold credit for SOC 1200 (077.120) and any of: SOC 1201 (077.120) or SOC 1211 (077.121) or SOC 1221 (077.122).
6.000 Credit Hours

SOC 2510 - Criminology Cr. Hrs. 3 (Formerly 077.251) A general introduction to theories of deviant behaviour and criminology. The explanation of crime with reference to physical, psychological, and social factors. Students may not hold credit for both SOC 2510 (077.251) and SOC 2511 (077.251). Prerequisite: [a grade of "C" or better in SOC 1200 (077.120) or SOC 1201 (077.120)] or [a grade of "C" or better in both SOC 1211 (077.121) and SOC 1221 (077.122)].

SOC 2610 - Sociology of Criminal Justice and Corrections Cr. Hrs. 3 (Formerly 077.261) The sociological study of the criminal justice system, including the police, the courts, prisons and other

correctional agencies. Prerequisite: [a grade of "C" or better in SOC 2510 (077.251) or SOC 2511 (077.251)] or written consent of department head.

SOIL 4130 Soil Chemistry and Mineralogy Cr.Hrs.3 (Formerly 040.413) Composition of soil materials. Reactions of nutrients and contaminants with soil organic matter, silicate clays, oxides and other soil constituents which affect their mobility and bioavailability. Prerequisite: SOIL 3600 (or 040.360) or 040.350 or 040.351 or consent of instructor.

STAT 1000 - Basic Statistical Analysis 1 Cr. Hrs. 3 (Formerly 005.100) An introduction to the basic principles of statistics and procedures used for data analysis. Topics to be covered include: gathering data, displaying and summarizing data, examining relationships between variables, sampling distributions, estimation and significance tests, inference for means. Not to be held with STAT 2220 (or the former 005.222 or 005.101, 005.120, 005.201, 005.210, 005.21, 005.220, 005.221, 005.231, 005.241, or 005.250). Prerequisite: Any grade 12 or 40S Mathematics, or equivalent.

ZOOL 2180 Introductory Toxicology Cr.Hrs. 3 (Formerly 022.218) A survey of general principles underlying the effects of toxic substances on biological systems, including consideration of the history, scope and applications of toxicology, the mechanisms of toxic action, and some major types of toxicants. This course is also taught in the Department of Botany as BOTN 2180, in Environmental Science as ENVR 2180 and in Agriculture as AGRI 2180. Not to be held with ZOOL 2190 (or 022.219), BOTN 2180 (or 001.218), BOTN 2190 (or 001.219), AGRI 2180 (or 065.218), AGRI 2190 (or 065.219), ENVR 2180 (or 128.218), ENVR 2190 (or 128.219) (or the former 001.337). Prerequisites: BIOL 1030 or BIOL 1031 (or the former 071.125) (C), and CHEM 1310 or CHEM 1311 (or 002.131) (C) or CHEM 1320 (or 002.132)(C).

ZOOL 2280 Cell Biology Cr.Hrs. 3 (Lab Required) (Formerly 022.228) The microscopic and submicroscopic aspects of cellular structure and function are considered with emphasis on the living cell as a dynamic system. Prerequisite: BIOL 1030 or BIOL 1031 (or the former 071.125) (C).

b. <u>New Courses (Core and Stream Specific):</u>

FORS 2XXXW **Introductory Forensic Science** Cr. Hrs. 3 Survey course which introduces forensic science via a series of guest lectures provided by experts from within the university and from the community (e.g. Winnipeg Police, RCMP, Chief Medical Examiner, etc). Multidisciplinary topics will be covered including how a case is studied, use of scientific techniques in investigations, collection of evidence, the role of the expert witness, and presentation of evidence in court. *Prerequisites:* BIOL 1030 (C+), CHEM 1310 (C+) and MATH 1500 (C+).

FORS 3XXX **Introductory Forensic Investigation** Cr. Hr. 3 (Lab Required) This is the first practical introduction to the crime scene. The theory and practice of the following will be covered: crime scene protocols, management, reconstruction, and record keeping; image collection, storage and enhancement; chain of custody; preservation of evidence. Registration restricted to Honours Forensic Science students. *Prerequisites*: FORS 2XXX (B), CHEM 2470 (B), CHEM 2210 (B), and MBIO/CHEM 2360 (B).

FORS 3XXY **Forensics Evidence/Expert Witness** Cr. Hr. 3 (Lab Required) This course explores the role of the Forensic Scientist in providing information in the context of the Canadian legal system. Rules and procedures governing the collection and admissibility of evidence will be covered along with the

reliability of evidence. Students will receive practical instruction via mock court presentations and preparation of court reports. Registration restricted to Honours Forensic Science students. *Prerequisites*: FORS 3XXX (B).

FORS 3XXZ **Advanced Forensic Identification** Cr. Hr. 3 (Lab Required) This course focuses on the in depth study of the practical aspects of criminal investigations. Students will build on the basic search and collection skills acquired in FORS 3XXX Introductory Forensic Investigation and court report writing and presentation skills acquired in FORS 3XXY Forensic Evidence and the Expert Witness. Various types of crime scenes will be used for the search, collection, and basic analysis of evidence. Analyses will be used to prepare court reports and/or presented in mock court settings. Registration restricted to Honours Forensic Science students. *Prerequisites*: FORS 3XXY (B), CHEM 3590 (B), GEOL 2060, and SOIL 4130.

FORS 4XXX **Forensic Science Research Project** Cr. Hr. 6 (Lab Required) Students carry out independent forensic science based research in their area of interest under the supervision of a faculty member or an external forensic professional. Results will be presented as an interim oral report and a written journal style paper. Registration restricted to Year 4 Honours Forensic Science students. *Prerequisites*: FORS 3XXZ (B).

FORS 4XXY **Forensic Biology** Cr. Hrs. 3 (Lab Required) The recovery and analysis of body fluids and other biological specimens will be the main focus of this course. Analyses include identification and comparison of genetic markers, genotyping, immunological testing, biomolecule identification, blood grouping, plant and insect identification. DNA databanks will be used and DNA profiling examined. Basic forensic pathology will be covered as pertaining to the cause, manner and time of death. The use of biological analyses as evidence in a courtroom will be examined. *Prerequisites:* FORS 3XXZ (B), BOTN 2460 (B), CHEM/MBIO 2370 (B), and MBIO 3410 (B) or consent of instructor.

FORS 4XXZ **Forensic Toxicology** Cr. Hrs. 3 (Lab Required) The role of the Forensic Toxicologist in criminal and death investigation will be studied. Emphasis will be placed on the use of analytical and chemical procedures for the detection of drugs and poisons from body fluids and tissues. *Prerequisites:* FORS 3XXZ (B), CHEM 2220 (B) and ZOOL 2180 (B) or consent of instructor.

FORS 4XYY **Forensic Chemistry** Cr. Hrs. 3 (Lab Required) Analysis of various forms of forensic evidence using instrumental and analytical chemistry techniques. Biological and physical evidence will be examined including human remains, paint, fibres, fire and explosion remains, etc. *Prerequisites:* FORS 3XXZ (B), CHEM 3590 (B) or consent of instructor.

FORS 4XYZ **Forensic Physics** Cr. Hrs. 3 (Lab Required) This course introduces the student to forensic applications of physics, via the study of selected topics. Students will study the physics behind investigative methods used to gather evidence and reconstruct crime events. *Prerequisites*: FORS 3XXZ (B), PHYS 2650 (B), PHYS 3670 (B) or consent of instructor. PHYS 3430 and PHYS 2390 are recommended.

F*ORS/GEOL 4XZZ* **Forensic Geoscience** Cr. Hrs. 3 (Lab Required) The use of geological principles and techniques to analyze and characterize materials that can be used as trace evidence in criminal cases. The course will focus on isotope and trace element analysis of human remains, soils, rocks, and minerals. Specific instrumentation used to characterize forensic materials will be discussed. Under

development by Department of Geological Science. Course outline will be available for approval at a later date.

1.4 Program fit with institutional mission and planning priorities:

1.4.1 University of Manitoba Priorities:

The B.Sc. Honours in Forensic Science encompasses aspects of all five Institutional Priorities for Success outlined in the 2003 University of Manitoba 2003 Strategic Academic Plan: Building for a Bright Future.

1. Provide access to an exceptional education. We have designed an innovative high quality interdisciplinary program that emphasizes problem-based learning. This interdisciplinary program draws from expertise in the Faculties of Agricultural and Food Sciences, Arts, Science and the Clayton Riddell Faculty of the Environment, Earth and Resources. Other faculties and schools have voiced interest in either participating in teaching, mentoring research project students or developing forensic streams or minors. The basis of the program is derived from the core curriculum specified by the American accrediting organization, FEPAC, and was carefully designed as an Honours program allowing for the seamless progression in graduate or professional programs. Forensic Science is a problem based discipline and students will receive the highest quality instruction from university personnel and local forensic specialists.

2. Attract and retain the best. This exciting new program will attract students not only from Winnipeg and Manitoba but across the Western Provinces, Northwestern Ontario and our neighbouring States. This will be the first Forensic Science Honours program in Western Canada. Grade based admission and rigorous continuation requirements will attract the best and the brightest students who are looking for a high quality science based education in an emerging field. Likewise, being only one of a very few programs in Canada, we will be able to attract the best and the brightest new faculty members with expertise in this emerging field.

3. Be a centre for research and graduate education that makes a difference to our Province, our Nation, and our World. We will be bringing together faculty members from a wide range of disciplines to develop and deliver the new forensic science courses and mentor Honours project students. New faculty members trained in a variety of forensic science specialties will be hired (Program Director, stream specific course instructors). This will *de facto* bring new research expertise into the university which will naturally foster new research directions across many faculties and stimulate innovative collaborations and funding opportunities. One can easily extrapolate a successful undergraduate program into new graduate programs, or streams within existing graduate programs.

4. Provide the human, physical and technological infrastructure necessary for learning and research. State-of-the-art equipped analytical and molecular biological laboratories are essential for the successful training of forensic scientists. The Manitoba Chemical Analysis Laboratory (MCAL), housed in the Department of Chemistry, funded in part by the Western Economic Diversification, will be used to provide the analytical training for students in this program. Funding for an equally sophisticated molecular biology laboratory will be required for this program. As currently exists with MCAL, new facilities will be available to the benefit of students and researchers from other units and programs.

5. Be a centre of our community: On Manitoba. This has been easily addressed in all of the above points. In particular, this will be the first B. Sc Honours Forensic Science Program in Western Canada and the only program with training in Geoscience, and thus will 'enable the University of Manitoba to differentiate itself from other Western Canadian Universities by carving out areas that are recognized as centres of regional research excellence.' This program will bring respect to the University for providing an innovative interdisciplinary approach and attract top researchers and students.

1.4.2 Faculty of Science Priorities:

The proposed B.Sc. Honours in Forensic Science satisfies all nine Strategic Priorities of the Faculty of Science, as outlined in the 2007 Faculty of Science Interim Integrated Plan: An Agenda for Excellence, Innovation and Renewal. Notable priorities include:

a. Create a pervasive atmosphere that fosters innovation and experimentation with new programs and program options. Develop modern, innovative and excellent undergraduate programs and program options. Build a reputation for innovation.

b. Ensure that our courses, especially at first year, are as good as they can be, and are delivered as well as resources permit.

c. Embrace and respond to evolving needs of our society and our students.

d. Promote ourselves as the place for excellent and innovative students, academic programs, and research, one that offers students a breadth of options that few other in Canada can.

e. Recruit and retain the best: staff, graduate and undergraduate students.

f. Maintain undergraduate student numbers, and grow our graduate programs.

The fit with these priorities has already been addressed above. This will be a new, innovative program that will attract the best and the brightest students and faculty. New research directions and graduate programs will follow as a natural progression. This program has the potential to become the showcase for the Faculty and the University.

1.5 Comparison to existing programs:

No comparable programs currently exist in the Province of Manitoba. Presently there are eight Canadian institutions that offer forensic science programs. The other four year university degrees (Honours and/or Majors) similar to that described in this proposal are offered by five Ontario universities: University of Toronto-Mississauga, University of Windsor, Trent University, University of Ontario Institute of Technology (UOIT) and Laurentian University, with Laurentian being the geographically closest to Winnipeg. Post-degree or technical college/university joint programs are offered by the remaining institutions (Saint Mary's University, Mount Royal College and British Columbia Institute of Technology). Over 200 programs exist in the US; the geographically closest being a social science focused program at the University of North Dakota. In the United Kingdom over 400 institutions provide some sort of forensic science training. Forensic Science is also popular in Australia, with programs in almost all of the major universities and more than double the number in Canada.

The large number of programs in other countries speaks to the strong interest and student demand. The majority of existing programs do not have a strong scientific framework. In the US, the American Academy of Forensic Sciences (AAFS) has set up the Forensic Science Education Programs Accreditation Commission (FEPAC) to review and grant accreditation to programs following a prescribed curriculum. We used the FEPAC model curriculum as the basis of our program to ensure rigor and to have a recognized program in place in anticipation of a future Canadian accreditation process. Currently Canadian programs are not required to undergo an accreditation, however, there is a strong indication in the Canadian community that this will not be far off.

Within Canada, an Honours B.Sc. offered by the University of Manitoba will draw students from our nearest neighbours, Western Canada, Northwestern Ontario and the Northern United States but its uniqueness will likely attract student from across Canada. Our program is the only one offering the FEPAC based streams and curricula. In addition, our program is the only one recognizing the new forensic field of isotope tracing and the importance of ground surface/soil-based evidence in forensic investigation. By building on local research strengths (analytical chemistry, molecular biology, geological sciences) and ties with local experts (RCMP, Winnipeg Police and Fire Department, Chief Medical Examiner) the University of Manitoba is well positioned to provide the preeminent Forensic Science Program in Canada.

SECTION II: Market Need and Market Demand for the Program

2.1 Local or provincial market needs for graduates:

The need for well trained scientists working in various forensic fields has been increasing over the past 10 years, particularly in the areas of Forensic Biology (i.e. DNA analyses), Chemistry (trace evidence) and Toxicology. For example, the increased need for DNA analyses has forced RCMP and Police units to have samples processed by private laboratories to reduce the backlog and increase the turn around time for results. In addition, this program not only prepares graduates for a career in forensic science but also prepares them for discipline specific careers, graduate school and for entry into professional degree programs. Graduates will receive a solid background in the core sciences plus enhanced training in Chemistry, Physics or Biological Sciences, depending on the chosen stream. Depending on choice of stream and electives, students will have the required courses for application into professional programs such as medicine, dentistry, pharmacy, or law. In addition, all streams are specifically designed to contain the essential requirements for seamless entry into the stream specific graduate programs. Potential employers include forensic laboratories such as the RCMP Forensic Laboratory Services, police services (Forensic Identification Units), fire investigation units, medical examiner or coroners' offices, insurance investigation units, and government agencies (e.g. immigration, customs and excise). Technologists in all of these areas require, as a minimum, a B.Sc. Honours in a related discipline.

2.2 Probable employment destinations:

There are many potential employers for students graduating from the proposed program. Although some employers are specific forensic science laboratories the majority of employers require employees with substantial training in analytical sciences. Graduates will also be suitable for positions in biotechnology and pharmaceutical sectors along with institute or university based research facilities. Within the Province of Manitoba, potential employers include: RCMP Forensic Laboratory Services, City of Winnipeg Police Forensic Identification Units, various hospital clinical labs (e.g. Health Sciences Centre, St. Boniface General Hospital), pharmaceutical/biotechnology companies (e.g. Biovail, Cangene, Apotex), any lab where analytical and quality control expertise required (Envirotest, Vita Health, Maple Leaf Pork, etc.), National Microbiology Laboratory and the National Research Council Institute for Biodiagnostics. Graduates will also be employable in similar industries, agencies and laboratories across Canada. In some workplaces graduates will require additional training and credentials (e.g. RCMP, Police) obtained prior to or during initial employment.

Employment will not be limited to Canada but will include the US, UK and Australia. The program was specifically designed following model curricula outlined by the American Association of Forensic Sciences (AAFS) Forensic Science Education Programs Accreditation Commission (FEPAC) to ensure graduates will be employable abroad. For example, there were 78 employment positions listed on the AAFS website and 105 positions on the Australian employment website (www.seek.com.au) on November 30, 2007, requiring all levels of forensic science training (B. Sc to PhD).

2.3 Consultation with relevant groups/agencies:

From the outset representatives from the RCMP Forensic Laboratory Service, City of Winnipeg Police Forensic Identification Units, Medical Examiners Office and clinical laboratories were consulted. Their input was factored into the program development and many played a key role in crafting the new forensic science courses. The overwhelming consensus was that graduates must have a strong scientific background with particular emphasis on analytical and communication skills. The ideal employee must have at a minimum a B. Sc. Honours degree.

2.4 Fit with provincial economic, social and cultural priorities:

Along with the obvious fit with the 2005 Action Strategy for Economic Growth priorities of "education first" and "building through research and innovation", a Forensic Science Program, as we have proposed, targets several of the key areas of the Manitoba 2006 Action Strategy "Reaching Beyond our Borders". Of these, two are well represented by the proposed program: 1. encouraging research and development in life sciences; 2. supporting the attraction of more international students through innovative projects. Student and professors participating in the Forensic Biology Stream will be involved in life science focused research including, for example, molecular biology, pathology, odontology, and entomology. The Forensic Science Program is specifically designed using FEPAC standards to provide students a suitable background to study in universities outside of Canada and will attract students from particularly the US, Australia and Britain. The 4th year research project course will stimulate research in all aspects of forensics, to be pursued at the University of Manitoba or any appropriate university and in any forensic facility across Canada or abroad. The Faculty of Science, in conjunction with the International Student Centre, will encourage foreign students with suitable training to pursue part of their degrees as exchange students. Presently the University has exchange agreements with many universities. Our specific interest lies with Deakin University, Flinders University and Griffith University, all Australian universities with comparable Forensic Science programs. Thus this new program will stimulate research in not only the life sciences but all sciences, and attract international students.

2.5 Potential for job creation and research and development:

The time is perfect for bright entrepreneurial graduates to develop analytical laboratory based companies to service the needs of RCMP and police investigations. Presently the RCMP Forensic Laboratory Service does not have adequate facilities and personnel to process all the urgently required forensic samples and are sending samples to private labs for processing. There are very few such labs equipped to perform proper analyses. One could easily project that in the near future private labs will be utilized for most routine analyses and graduates of our program will have the ideal training to manage and staff these companies.

New directions in research will naturally follow once this program has begun. New faculty members will have to be hired to teach the forensic specific courses. As Assistant/Associate Professors a major portion of their duties will be research based. Given the interdisciplinary nature of the field there will be great incentive to form interfaculty collaborations plus collaborations with other like-minded researchers across Canada and abroad. Discussions and correspondence with other faculties have already stirred interest in joint programs or minors in such areas as Forensic Art /New Media, or Family Studies. Forensic studies are far reaching. Initially new directions in research can be piloted by encouraging members from all relevant units to mentor senior Forensic Science Research Project students. Successful student projects in new areas of research can lead to the development of new research programs. National funding agencies are rapidly moving towards funding interdisciplinary and collaborative research (e.g. Collaborative Health Research Council) and will be one source of new monies to the University and Province.

SECTION III: Student demand for the program

3.1 Students the program will serve:

This program is targeted to undergraduate students interested in pursuing a highly rigorous, predominantly science-based degree in one of the four streams of forensic science – biology, chemistry, toxicology and the physical sciences. The admission process is highly competitive and the continuation requirements require students to maintain a high standard. The target student must be interested in the analytical sciences but also must be willing to develop exceptional communication skills. Four streams

in very distinct science areas will attract students from a variety of backgrounds and interests ranging from the biological to the physical sciences. Besides training forensic scientists, the program is designed such that students wanting to pair their first degree in Forensic Science with a professional degree in Medicine, Dentistry or Pharmacy will have, depending on electives selected, the entrance requirements for each of these programs. The program is also designed for the seamless entry into graduate programs in Forensic Science or any of the stream areas (chemistry, physics, microbiology, biology, geological sciences).

3.2 Existing program offerings in Manitoba:

No equivalent programs exist within the province.

3.3 Evidence of student interest and demand for program:

There is an obvious interest in Forensic Science among Manitoba High School students. Individuals staffing Faculty of Science career fair booths are routinely asked about programs in forensic science. This interest is undeniably linked to popular fiction media, however, recent legal cases described by news media have emphasized the increasing demand for highly skilled forensic scientists.

3.4 Projected enrolments:

Enrolment in this program will be limited by laboratory and crime scene facilities, along with availability of equipment. An estimated maximum of 30-40 students per year can be readily accommodated with existing and proposed facilities. This number may increase dependent on student demand and availability of resources.

3.5 Existing programs projected to lose enrolment to this program:

This program will most likely draw exceptional students who would normally be pursing a 3 Yr. General B. Sc. with a goal of entering a professional program (e.g. medicine, dentistry, pharmacy). A few students from any of the Majors or Honours B. Sc. Programs in Chemistry, Physics, Microbiology, Genetics, Biochemistry or Biotechnology will opt for the Forensic Science Program. This was anticipated when drafting the program and in as such each stream has the rigor and, for the most part, the content of existing Honours programs in Chemistry/Biochemistry/Biotechnology, Physics and Microbiology/Genetics.

3.6 Proposed growth limits and minimum enrolments:

The maximum of 30-40 students is based on existing laboratory space and controlled access to essential analytical equipment. To increase enrolment beyond that level substantial additional resources will be required. At present we do not anticipate concerns for declining enrolment. All existing Canadian programs have competitive admission processes and capped enrolments, resulting in a high demand for spaces in comparable programs across the country.

3.7 Projected number of graduates and program majors for the first 3 to 5 years:

A maximum of 30 students will graduate from the program per year; the minimum will depend on attrition and the number of students taking less than a full course load.

3.8 Participation and success by under-represented groups:

Existing Faculty of Science recruitment (e.g. Let's Talk Science, W.I.S.E.) and retention programs (e.g. Access sections of introductory courses) and processes (e.g. exceptional Student Advising staff) will extend to this program. All laboratories are wheel-chair accessible and any new facilities will be constructed to include physical accessibility.

3.9 Availability to part-time learners:

Students are admitted into an Honours program after completing 24-30 credit hrs of required University 1 courses. Prior to admission students may choose part-time study however the Faculty of Science requires that all students in Honours programs complete a minimum of 9 credit hrs per registration term.

SECTION IV: Faculty Requirements

4.1 Current Faculty who will teach in the program:

Listed below are Instructors of existing courses required for Admission into the program, Core and Stream Specific courses, as determined by the 2007-08 course offerings:

Current Instructors	Discipline	Status
Annemieke Farenhorst	soil science	Associate Professor
Harry W. Duckworth	biochemistry	Professor
Brian L. Mark	biochemistry	Assistant Professor
Peter C. Loewen	biochemistry	Professor
Joerg Stetefeld	biochemistry	Assistant Professor
Karen Y. Sereda	biology	Sessional Instructor
Michael J. Sumner	botany	Associate Professor
Steven Whyard	cell biology	Assistant Professor
Tammy L. Welshman	chemistry	Sessional Instructor
Elena Smirnova	chemistry	Senior Instructor
James Xidos	chemistry	Instructor II
Philip G. Hultin	chemistry	Professor
Krystyna Koczanski	chemistry	Instructor II
John M. Cullen	chemistry	Associate Professor
Francois Gauvin	chemistry	Instructor II
Peter H. Budzelaar	chemistry	Associate Professor
John Sorensen	chemistry	Assistant Professor
Norman R. Hunter	chemistry	Professor
Torsten Hegmann	chemistry	Assistant Professor
Jennifer Van Wijngaarden	chemistry	Assistant Professor
Mario Bieringer	chemistry	Assistant Professor
Kathleen M. Gough	chemistry	Professor
Helene Perreault	chemistry	Professor
Michael S. Freund	chemistry	Professor
Feiyue Wang	environmental chemistry	Associate Professor
L. G. Goldsborough	biological science	Associate Professor
Mark L. Hanson	environmental science	Assistant Professor
Karen J. Ferreira	geology	Sessional Lecturer
Robert J. Elias	geology	Professor
William S. Mandziuk	geology	Instructor
Anton Chakhmouradian	geology	Associate Professor
Andrew Frederiksen	geology	Assistant Professor
Darja D. Kalajdzievska	mathematics	Sessional Instructor
Margaret L. Young	mathematics	Sessional Instructor

Chander K. Gupta	mathematics	Distinguished Professor
James A. Gerhard	mathematics	Professor
Fereidoun Ghahramani	mathematics	Professor
Pappur N. Shivakumar	mathematics	Professor
Jiri J. Sichler	mathematics	Professor
William W. Korytowski	mathematics	Sessional Instructor
Thomas G. Kucera	mathematics	Associate Professor
Sasho Kalajdzievski	mathematics	Senior Instructor
William W. Korytowski	mathematics	Sessional Instructor
Richard R. Sparling	microbiology	Associate Professor
Ivan J. Oresnik	microbiology	Associate Professor
Silvia Cardona	microbiology	Assistant Professor
Jason S. Richardson	microbiology	Sessional Instructor
Lane C. Graham	parasitology	Associate Professor
James Birchall	physics	Professor
John H. Page	physics	Professor
Michael T. Gericke	physics	Assistant Professor
Kumar S. Sharma	physics	Associate Professor
Gwyn Williams	physics	Professor
Canming Hu	physics	Associate Professor
Thomas A. Osborn	physics	Professor
Ian Cameron	physics	Sessional Instructor
Gerald Gwinner	physics	Associate Professor
Erich W. Ens	physics	Professor
Byron W. Southern	physics	Professor
Johan Van Lierop	physics	Assistant Professor
Shelley Page	physics	Professor
Roy M. Roshko	physics	Professor
Dana F. Schroeder	plant genetics	Assistant Professor
Anne C. Worley	plant genetics	Assistant Professor
Susan Miller	sociology	Instructor
Cheryl A. Albas	sociology	Instructor
Christopher J. Fries	sociology	Assistant Professor
Mary-Anne Kandrack	sociology	Instructor
Sonia K. Bookman	sociology	Assistant Professor
Raymond Foui	sociology	Instructor
Rodney M. Kueneman	sociology	Associate Professor
Christopher J. Powell	sociology	Assistant Professor
Peter Feher	sociology	Instructor
Daniel C. Albas	sociology	Professor
Susan Prentice	sociology	Associate Professor
Lance W. Roberts	sociology	Professor
Eric W. Linden	sociology	Professor
Andrew Woolford	sociology	Associate Professor
Stephen L. Brickey	sociology	Associate Professor
Russell C. Smandych	sociology	Professor
Edward F. Cormier	sociology	Instructor
David A. Lobb	soil science	Associate Professor

Tee B. Goh	soil science	Professor
Bradford C. Johnson	statistics	Assistant Professor
David J. Loewen	statistics	Instructor II
Kenneth S. Mount	statistics	Associate Professor
James C. Fu	statistics	Professor
Yanging Yi	statistics	Sessional Instructor
Taraneh Abarin	statistics	Sessional Instructor
Saumendranath Mandal	statistics	Associate Professor
Amelia T. Sheocharan	statistics	Sessional Instructor
Mrityunjay Samanta	statistics	Professor
Liqun Wang	statistics	Associate Professor
Gordon A. Holens	statistics	Sessional Instructor
Zenaida Mateo	statistics	Instructor II
Smiley W. Cheng	statistics	Professor

4.2 Additional Faculty and Staff Required:

4.2.1 Faculty

a. Program Director – One (1) FTE Assistant or Associate (preferable) Professor with PhD and/or PDF in any Forensic Science related discipline to set up and co-ordinate the program and all core forensics courses, deliver lectures in core and stream specific courses as required, mentor research project students, develop a new graduate course in area of research expertise, and maintain a forensic science based research program. To be hired in advance of the first offering of the 3000 level Forensic Science Core courses, no later than April 1, 2009, to set up the new courses and begin teaching in the 2009-2010 Session.

b. Core Course Instructors – 0.5 FTE Senior Instructor and **two (2) Sessional Instructors** to deliver substantial segments of the four (4) Core Forensic Science courses. Sessionals may be existing faculty members or external forensic experts. The Instructor will have a minimum of a Ph. D. in some aspect of Forensic Science with experience in crime scene investigation and evidence collection and analysis. She/he will be responsible for the initial set up and subsequent delivery of the laboratory component and for providing some lectures in core and stream specific courses as required. The Instructor will be hired in advance of the first offering of the 3000 level Forensic Science Core courses, no later than April 1, 2009, to set up the new courses and beginning teaching in the 2009 – 2010 Session.

c. Stream Specific Course Instructors – One (1) FTE Assistant Professor with PhD and/or PDF in any Forensic Science, to deliver two of stream specific courses and one core course, deliver lectures in other core and stream specific courses as required, mentor research project students, develop a new graduate course in area of research expertise, and maintain a forensic science based research program. To be hired no later than July 1, 2010 to begin teaching in 2010-2011 Session.

- Equivalent to three (3) **Sessional Instructors** to deliver stream specific courses. Sessionals may be existing faculty members or external forensic experts.

- **0.5 FTE Senior Instructor** responsible for the laboratory components of the stream specific courses. The Instructor will have a minimum of a Ph.D. in some aspect of Forensic Science with experience in crime scene investigation, evidence collection and advanced

analytical skills in all forensic analyses (DNA, trace elements, controlled substances) to be able to direct advanced laboratories. This will be the same Instructor running the core course laboratories.

4.2.2. Additional Staff:

One FTE Laboratory Steward for laboratory preparation.
5-7 Grader/Markers for W course FORS 2XXX Introductory Forensic Science based on 1 Grader/Marker per 30 students, dependant on enrolment.
16 Teaching Assistants for all laboratory courses (Two per course)
0.5 FTE Office Assistant 3

Note: Faculty of Science Student Advisors will be responsible for advising prospective and continuing students. Honours Programs will be approved by the Head of the Department of Chemistry or his designate, which then will be processed through the Faculty of Science.

Total New Faculty and Staff :

1 FTE Associate Professor (Program Director)
1 FTE Assistant Professor
1 FTE Senior Instructor
5 Sessional Instructors
1 FTE Laboratory Steward
5-7 Grader/Markers
16 Laboratory TAs.
0.5 FTE Office Assistant 3

SECTION V: Cooperative Agreements

5.1 Cooperative agreements with other institutions/organizations:

We have agreements from a variety of external forensic experts to deliver lectures in core and stream specific courses and mentor research project students (see Appendix 1 – Letters of Support). The actual details will be finalized prior to the term in which each course will be delivered. This will change from year to year depending on the availability of individuals.

The University of Manitoba has formal Student Exchange agreements with Deakin, Flinders and Griffith Universities in Australia, all of which have comparable undergraduate Forensic Science Programs. We will encourage student movement between the University of Manitoba and these universities.

5.2 Transfer Credit:

Block and transfer credit will be readily accepted from all existing Canadian programs and American Academy of Forensic Scientists (AAFS) Forensic Education Programs Accreditation Commission (FEPAC) accredited US programs (and UK and Australian equivalents). Specific courses will be assessed by appropriate members of the Faculty of Science following existing procedures.

5.3 Internship/Practicum components of the program:

All existing courses and new Forensic Science courses cover both theoretical and practical aspects of the given topic. All students in this program will be required to take a 6 credit hour 4th Year Honours Research Project Course where they will be expected to partake in *bona fide* laboratory based, forensic focused research projects. These placements will be in university research laboratories, or off

campus locations such as RCMP, Police or Medical Examiner (Coroner) Forensic Laboratory Services in Winnipeg and abroad (Canada, US, UK and Australia). The feasibility of a Cooperative Option will be examined once the program is in full operation and suitable work placements have been identified. The existing Faculty of Science Cooperative model will be then implemented. Successful Cooperative Options are presently in place for the majority of Faculty of Science Majors and Honours Programs.

5.4 Credit for prior experiential learning:

Students who have been employed in Forensic Laboratories or received Post-Secondary Training from recognized Forensic Science Programs within Canada and abroad (e.g. US, UK and Australia) may be granted credit for the appropriate courses in the University of Manitoba program. This will be assessed on a case by case basis by the appropriate personnel in a similar manner to existing University of Manitoba Faculty of Science Transfer Credit processes.

SECTION VI: Learning Technologies

6.1 Use of modern learning technologies:

The method of instruction will be at the discretion of individual course instructors. Instructors of existing courses use a variety of classroom teaching technologies such as Power Point, video, internet and audience response units (iClickers). New courses will have state-of-the art laboratory facilities, some which already exist in MCAL. Existing laboratories facilities are being upgraded with funding coming from the newly implemented laboratory fees.

SECTION VII: Resource Requirements

7.1 Library Resources:

An initial expenditure is required to fortify the monograph collection ($6800). Annual maintenance costs include $400/yr for an e-subscription of the Journal of Forensic Sciences and up to $1500/yr for continued monograph additions. See Appendix 2 for the statement from the Head of the Sciences and Technology Library.

7.2 Computer Facilities:

Existing computer facilities are adequate to support this new program. See Appendix 3 for the statement from the Executive Director of Information Services and Technologies.

7.3 Use of existing facilities and equipment:

7.3.1 Existing Facilities:

With the exception of FORS 2XXX Introductory Forensic Science, which we predict will have a high enrolment, for all other courses, both lecture and laboratory, it is anticipated that 30-40 students will register per year. Even with projected overlaps from student in two consecutive years, this is a small enough number to have no impact on the use of the below described existing space.

a. All lectures for new courses will take place in existing classrooms.

b. Room 306 Parker (Laboratory) will be used for laboratory sample preparation, simple analyses and microscopic analyses for all new core Forensic Science courses, Forensic Chemistry and Forensic Toxicology.

c. Room 318 Parker (Laboratory) will be used for all high level analytical analyses for the new core courses, Forensic Chemistry and Forensic Toxicology.

d. Rooms 201/204 Buller (Laboratory) will be used for the laboratory component of Forensic Biology and all DNA analyses as required for the core courses.

e. Existing space in the Allen Building will be used for the laboratory component of Forensic Physics.

f. Existing space in the Wallace Building will be used for the laboratory component of Forensic Geoscience.

g. Presently unoccupied 126 Machray Hall may be converted into indoor Crime Scene facilities and video surveillance control rooms. Ideally a stand alone structure such as a small house, cabin or trailer, and garage on a plot of land suitable for both indoor and outdoors crime scene training is preferred.

h. Glenlea may be the site of outdoor Crime Scene facilities in lieu of that described above.

i. Existing office space will be utilized for the Program Director, Assistant Professors, and Instructors. Temporary offices for Sessional Instructors will be allocated from existing rooms. Sessional Instructors may be required to share office space.

7.3.2 Existing Equipment:

The recently purchased equipment in MCAL (Manitoba Chemistry Analysis Laboratory) will be heavily used by students in the Forensic Science Program. Existing large scale equipment such as centrifuges, freezers, incubators, etc. will be used along with small general use equipment and glassware. No additional preparation facilities such as autoclaves, dishwashers, etc. will be required; existing facilities will suffice. The additional 30 students per year will not make a significant impact on what presently exists.

7.4 Additional Facilities and Equipment Required:

Crime Scene Facilities:

- equivalent to a one bedroom house, including bathroom, kitchen, living room and bedroom (approximate 1000 sq. ft. ATCO) trailer or pre-fabricated cabin - $75,000
- equivalent to a two-car garage - $15,000
- used vehicles – donations with tax receipt to donor - $250-500/vehicle
- furnishings – donations as above or purchase new or used
  – one time cost for furniture - $5000
- supplies: chemicals, disposable garments, sampling equipment, etc - $20,000/yr
- surveillance equipment for use during training and examinations - $5000
- 15 digital cameras - $300 x 15 = $4500
- replacement of furnishings, equipment, cameras - $5000/yr

Laboratory Equipment:

- 30 stereomicroscopes - $1500 x 30 = $45,000
- One comparison microscope - $80,000
- 15 compound microscopes - $1000 x 15 = $15,000
- One polarized microscope - $5000
- One large forensic light source - $15,000
- One ground penetrating radar system - $40,000
- One magnetometer - $17,000
- Equipment for conductivity surveys - $8,000
- DNA sequencer - $100,000
- 4 PCR Thermocyclers - $7500 x 4 = $30,000
- One Gel-Doc System - $24,000
- 4 microcentrifuges - $2000 x 4 = $8000
- 10 sets of pipettemen - $2000 x 10 = $20,000
- 4 vertical electrophoresis units - $1000 x 4 = $4000
- 4 horizontal electrophoresis units - $500 x 4 = $2000

- 4 multi-voltage power supply units - $2000 x 4 = $8000
- Miscellaneous general use equipment - $20,000
- replacement of heavy use equipment (pipettemen, microcentrifuges, electrophoresis units, glassware, general lab equipment) - $30,000/yr

SECTION VIII: Financial Considerations

8.1 New Resources Required:

Faculty and Staff:

One FTE Associate Professor salary	$75,000
Research Start-Up Funds	$100,000
One FTE Assistant Professor salary	$70,000
Research Start-Up Funds	$100,000
One FTE Senior Instructor salary	$66,000
Five Sessional Instructor salaries	$35,000
One FTE Lab Steward 2 salary	$33,000
0.5 FTE Office Assistant 3	$18,000
23 Teaching Assistants salaries (including Grader/Markers)	$26,000
Staff Benefits (20%)	$58,000
Total Yearly Salary Costs	**$381,000**
One time only (start-up) costs	**$200,000**

Facilities:

Crime scene house	$75,000
Crime scene garage	$15,000
Cleaning and maintenance/yr	$5000
Total Facilities Start-up Cost	**$90,000**
Yearly maintenance costs	**$5000**

Equipment:

Crime scene house furnishings initial	$5000
Replacement/yr	$2000
Crime scene vehicle(s)	$1000
Crime scene surveillance equipment	$5000
Major Laboratory Equipment	$421,000
Minor Laboratory Equipment	$24,500
Maintenance and Replacement/yr	$31,000
Total Equipment Start-up Costs	**$391,500**
Yearly maintenance costs	**$33,000**
Replacement costs for major equipment per year banked over 10 years ($300,000)	**$30,000**

Laboratory Supplies:

Molecular biological supplies/yr	$10,000
Chemical supplies/yr	$10,000
General lab disposables	$10,000

Crime Scene supplies	$20,000
Total Yearly costs	**$50,000**

Library:	
One time start-up	$6800
Yearly maintenance	$1900

Total One Time Start-up Costs (not including salaries): $826,000
Yearly Costs including salaries (once program fully operational): $500,900

Note: Courses will be phased in over a 3 year period, beginning with FORS 2XXX in 2008. Costs attributed to new hires, equipment and supplies will follow accordingly.

8.2 Reallocation of existing funds/new funds required:

This is a new program requiring expertise not currently available at the University of Manitoba. For this to be an effective high quality program new incremental baseline salaries will be required for faculty and staff as indicated. In addition, all facilities, equipment and supplies as listed require new funds and can not be supported by the Faculty.

8.3 Projected tuition revenue:

Assuming the program attracts 15 new students per year to the University of Manitoba, not including International Students, and these students are taking on average 8 Science courses per year, in four years the yearly tuition revenue for students in all four years of the program will be:

15 x 8 x $369 x 4 (not including lab fees) = $177,120/yr

Yearly Program costs:	
Salaries and benefits:	$360,800
Equipment, supplies, maintenance:	$119,900
Total	**$500,900**

35% of Yearly Program Costs Accrued through Tuition

Tuition Revenue would increase drastically depending upon the number of new students recruited, particularly if there is a large cohort of International students.

8.4 Enrolment Impact on overall tuition fees:

Although the calculation above were made using only the 'new' Forensic Science courses, enrolment will increase in formerly undersubscribed Faculty of Science Courses (e.g. Chemistry and Physics courses). The Faculties of Arts, Agriculture and Food Science and the Clayton H. Riddell Faculty of the Environment, Earth and Resources will also benefit by this program. Each of these faculties will find enrolments increase by 30-40 students per year in the required courses and by at least 10 per year in the stream specific and elective courses. The main point is that although the "new" tuition revenues do not come close to covering the yearly costs, the benefits will be felt across the university. In addition, as the program matures Forensic Science Streams will be developed for other students in Faculty of Science, (e.g. Forensic Botany in the Department of Biological Science and Forensic Computing in the Department of Computer Science) and Forensic Science Minors will be designed for

students from other Faculties (e.g. Forensic Psychology, Forensic Art, Forensic Nursing, Forensic Engineering).

8.5 Program funding and enrolment decreases:

The Forensic Science Program is based first and foremost on a strong science background. All of the equipment purchased for the new forensic courses is standard equipment that can be used for existing programs. New staff, at all levels, will *de facto* have the skills and expertise to be assimilated into existing departments and programs. If, for whatever reason, this new program does not succeed to attract students, the core forensic courses will be opened up to students who are not in the Honours Forensic Science Program but have the correct prerequisites and if necessary the less popular stream(s) will not be offered. In addition, the Crime Scene facilities can be leased out for use for Field Schools for training police officers (who now travel to Ontario for their training) and summer camps for High School students (as is done at UOIT). Summer camps will also function as a recruiting tool.

SECTION IX: Program Consultations and Evaluations:

9.1 Consultations:

From the onset members from the Forensic Science profession were consulted on several occasions regarding program structure, program outcomes and specific forensic science course offerings. Those consulted were as follows:

Dr. Thambirajah Balachandra – Chief Medical Examiner
Ms. Johanna Abbott – Director, Office of the Chief Medical Examiner
Mr. Wayne Greenlay – General Manager, Winnipeg RCMP Forensic Laboratory Services
Ms. Shirley Treacy – Forensic Toxicologist, Winnipeg RCMP Forensic Laboratory Services
Dr. Robert Meatherall – Clinical Toxicologist, St. Boniface General Hospital
Sgt. Bob Russell – Forensic Identification Section, Winnipeg Police Service
Sgt. Frank Weiss - Forensic Identification Section, Winnipeg Police Service
Sgt. Bob Green - Forensic Identification Section, Winnipeg Police Service
Staff Sgt. Bill Hasenpflug - Forensic Ident. Section, Winnipeg Police Service
Mr. Scott Young – Science Director, Manitoba Museum
Dr. Scott Fairgrieve - Chair, Department of Forensic Science, Laurentian University
Dr. Shari Forbes – Director, Forensic Science Programs, UOIT
Dr. Mark Sandercock - Manager, Edmonton RCMP Forensic Laboratory Service

Representatives from each department of the Faculty of Science, the Associate Dean of Arts Dr. Linda Wilson, Drs. Jason Leboe (Psychology), Robert Hoffa (Anthropology), Frank Cormier (Sociology), and Terry Galloway (Entomology) have been part of ongoing discussions. Ideas, comments, suggestions from all of the above individuals were taken into consideration when preparing this proposal.

Dr. Shari Forbes, UOIT, visited the Faculty of Science on April 26 and 27, 2007. She met with key individuals and gave her advice on the program.

The draft proposal and program map were circulated to all Faculties and Schools at the University of Manitoba. Input from interested Faculties was used to prepare the formal proposal. All statements of support are found in Appendix 1.

9.2 Evaluation of proposed program:

The program was evaluated by the following directors of similar programs and field experts. Statements are found in Appendix 1:

Dr. Scott Fairgrieve - Chair, Department of Forensic Science, Laurentian University
Dr. Shari Forbes – Director, Forensic Science Programs, UOIT
Dr. Mark Sandercock - Manager, Edmonton RCMP Forensic Laboratory Service
Mr. Wayne Greenlay – Manager, Winnipeg RCMP Forensic Laboratory Service

The proposed program was based on the FEPAC model curriculum (Appendix 4). Program structure and content was developed after analyzing existing B.Sc. programs offered by various Canadian Universities. See Appendix 4 for a list of websites for these programs.

9.3 Procedures for institutional evaluation:

On going program evaluation will follow standard practice used in the Faculty of Science. Any modifications to the program will be proposed by the Forensic Science Program Committee (see 9.3.1) and presented to the Faculty of Science Committee on Courses. The Faculty of Science Committee on Courses reviews all course and program changes and makes recommendations to the Faculty of Science Executive followed by approval by the Faculty Council. The University of Manitoba Senate Committee on Curriculum and Course Changes reviews all program changes and makes recommendations to Senate Executive and ultimately Senate.

9.3.1 Forensic Science Program Committee

The Program Committee will consist of:

a) the Forensic Science Program Director, who functions as Committee Chair
b) one faculty member from each of the Faculty of Science Departments of Chemistry, Physics, and Microbiology (ideally but not necessarily the instructors of the Forensic Biology, Chemistry, Physics and Toxicology courses)
c) one faculty member from the Department of Geological Sciences, Clayton H. Riddell Faculty of Environment, Earth and Resources, (ideally but not necessarily the instructor of Forensic Geoscience)
d) one member of the Forensic Science local community (ideally but not necessarily an instructor in the program)
e) an administrative assistant/student advisor acting as resource person (non-voting)

The committee will meet as required, to review the program, add/delete courses, develop new courses and make any other changes as the program evolves. This committee will regularly seek consultation from other faculties (specifically but not exclusively, the Faculty of Arts and the Faculty of Agriculture and Food Science) and local members of the forensic science profession (RCMP, Winnipeg Police, Fire Department, Chief Medical Examiner) to assess forensic course content and general program effectiveness.

See Appendix 5 for Terms of Reference for the Forensic Science Program Committee.

APPENDIX 1

Letters of Support
and
External Evaluations

UNIVERSITY OF MANITOBA | Faculty of Arts

Dean of Arts
310 Fletcher Argue Building
University of Manitoba
Winnipeg, Manitoba
Canada R3T 5V5
Telephone (204) 474-9271
Facsimile (204) 474-7590
Email: richard_sigurdson@umanitoba.ca

DATE: October 4, 2007

TO: Elizabeth Worobec, Associate Dean, Faculty of Science

FROM: Richard Sigurdson, Dean, Faculty of Arts

RE: **Proposed B.Sc. In Forensic Science (Honours) Program**

We have reviewed your draft proposal and program map for the B.Sc. in Forensic Science (Honours) program and are pleased to provide our comments.

The proposed program most certainly should attract the student who has a strong interest in the sciences and a career in Forensic Science or other science related disciplines. The fact that you envisage future expansion of the program to include a further Arts contribution will also be of interest to forensic related experts in the Faculty of Arts who wish to develop specific courses for the program.

While the program requirements-admission, continuance, program streams and budgetary requirements have been well articulated, we wish to raise a couple of concerns surrounding the Admission Requirements.

Dr. Steve Brickey, Head, Dept. of Sociology, and Frank Cormier, Instructor in Sociology with a Criminology specialty, reviewed your proposal. Both agree that the Admission Requirements for the program should include Introductory Sociology-SOC 1200 6 credit hours. They believe it is important for students to have completed this course which provides the foundation for most upper level Sociology courses including SOC 2510. Therefore they would not normally be prepared to waive the prerequisite for SOC 2510 or allow SOC 1200 to be taken concurrently with SOC 2510. Similarly, SOC 2510 is the prerequisite for SOC 2610 and again the Department would not be inclined to waive the prerequisite for SOC 2610. We would recommend that SOC 1200 replace the proposed University 1 Arts requirements.

In determining admissibility to the program, will the AGPA be calculated only on the basis of the 60 credit hour of 1000 and 2000 level common core courses? In other words, if the student has completed 87 credit hours of course work which includes the core courses, will the AGPA be calculated using the grades on the core courses only? You also note that a minimum Adjusted Grade Point Average of 3.0, with no F's or D's will be required. Does the restriction of "no F's or D's" refer to the core courses only or does it mean that a student may not have accumulated an "F" or "D" grade in any course? It may be useful to clarify these points in your proposal.

Thank you for the opportunity to comment on this excellent program. We would be pleased to discuss our concerns with you in person.

JS/mf

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. Michael Trevan, Dean, Faculty of Agricultural and Food Sciences

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

You may be aware that we have been working closely with Dr. Terry Galloway on this initiative. We hope that he will continue to participate in the implementation of this program acting as a mentor for FORS 4XXX Research Project students interested in his research field, and participating as a guest lecturer in FORS 2XXX and any of the 3000 level FORS courses, if he so desires. We also would like to invite any other interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the 3000 level FORS courses and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

Dr. Mostafa Fayek, Department of Geological Sciences, Clayton H. Riddell Faculty of the Environment, Earth and Resources has played an instrumental role in the planning of this program, providing a uniqueness not found in any other existing undergraduate Forensic Science program. To support this Earth Sciences aspect of our program we have incorporated SOIL 3600 Soils and Landscapes in Our Environment and SOIL 4130 Soil Chemistry and Mineralogy as required courses. We are now seeking approval from you for Forensic Science students to enroll in these courses. Students will likely be taking these courses in the 3rd and 4th years of their program. At this point in time we are not certain if this will greatly affect the enrolments in your

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courses. Ideally we would like an intake of up to no more than 30 students per year into our program, dependent on resources and space in required laboratories. Please review the draft program map for details on admission into the program.

I am certain that this program will not be static but will continue to evolve with respect to streams and course selections. With this in mind, we will welcome any new courses (e.g. Forensic Entomology) or streams proposed by members of your Faculty along with suggestions for relevant electives (you will note that we thus far have incorporated PLNT 3140 Introductory Cytogenetics as an elective).

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

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encs.

UNIVERSITY OF MANITOBA

MEMORANDUM

Faculty of Agricultural and Food Sciences
256 Agriculture Building, University of Manitoba
Winnipeg, MB Canada R3T 2N2

27 September 2007

TO: Dr. Elizabeth Worobec, Associate Dean, Faculty of Science

FROM: M.K. Pritchard, P.Ag., Associate Dean (Academic), Faculty of Agricultural and Food Sciences

SUBJECT: **Comments on proposal for BSC in Forensic Science (Honours) Program**

I am replying to your request for support from the Faculty of Agricultural and Food Sciences of the proposed Forensic Science program in the Faculty of Science. In addition to a discussion with members of our Curriculum Committee, I have solicited comments from the two departments in our faculty that would be most closely associated with this proposal, the Departments of Soil Science and Entomology.

The proposed program in Forensic Science recommends that two courses in Soil Science, SOIL 3600 (Soils and landscapes in our environment) and SOIL 4130 (Soil chemistry and mineralogy), be required courses. Both of these courses would make major contributions to the new program. You have suggested that a maximum of 30 students per year would enrol in the program if it proves popular with students. Assuming that this maximum is fulfilled, it would greatly increase the numbers in both of these two courses, but would still be manageable. Our Faculty would make the required adjustments (additional laboratory sections and teaching assistants for SOIL 3600) to support this increase in student numbers. The addition of 30 students to SOIL 4130 would invigorate this course because of current low enrolment. Our instructors would adjust the course to include relevant examples that would interest students in Forensic Science. There is no laboratory in this course at present but we may want to discuss whether a laboratory session needs to be included once the program is in place and once we have had a chance to monitor the new degree.

With respect to the course FORS 2XXX, Dr. Terry Galloway in the Department of Entomology is prepared to give 1 to 2 lectures. He is also willing to supervise one student at a time in FORS 4XXX. Given his commitment to other courses, it is not reasonable to expect high levels of participation by him – or other faculty in entomology - in this program, unless they obtain additional positions. The second paragraph of your letter overplays the level of support we can offer in this area. We are suggesting that students with more than a passing interest in insects take some of our entomology courses, and recommend the addition of our most accessible course, ENTM 2050 Introductory entomology, to the electives list for the Forensic Biology stream.

Although we question whether employment opportunities will be available to 30 graduates per year in this specialty, the Faculty of Agricultural and Food Sciences is supportive of this new proposal and would welcome students from this program into our courses.

cc. Dr. Brian Amiro, Dept. of Soil Science
Dr. Neil Holliday, Dept. of Entomology

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. Richard Sigurdson, Dean, Faculty of Arts

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

You may be aware that we have been working closely with Associate Dean Linda Wilson on this initiative and have received valuable input from Faculty members Rob Hoppa, Jason Leboe and Frank Cormier. We have incorporated SOC 2510 Criminology and SOC 2610 Sociology of Criminal Justice and Corrections as required courses for entry into the program and several Anthropology courses as electives. Dependent on what courses students take as their University 1 electives, we may be asking that a subset of prospective Forensic Science students be able to enter the two SOC courses without the SOC 1200 prerequisite. This would be assessed on a case by case basis by Faculty of Science Student Advisors. We also would like to invite any interested faculty members, including Drs. Cormier, Hoppa, Leboe, to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the 3000 level FORS courses and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

I am certain that this program will not be static but will continue to evolve with respect to streams and course selections. With this in mind, we will welcome any new courses (e.g. Forensic Memory) or streams (e.g. Forensic Psychology) proposed by members of your Faculty along with suggestions for relevant electives. We will also be supportive of any similar initiatives that may arise from the Faculty of Arts, such as a BA in Forensic Studies.

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Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

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encs.

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. Celia Rabinovitch, Director, School of Art

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

It is well known that the Forensic Artist plays an essential role in many crime scene investigations, particularly with respect to reconstruction and identification units. With this in mind, we will very much welcome any new courses or streams proposed by members of your School along with suggestions for relevant electives. We would also like to invite any interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the other FORS courses and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

EW/mas

UNIVERSITY OF MANITOBA | **School of Art**

203 FitzGerald Building
Winnipeg, Manitoba
Canada R3T 2N2
Telephone (204) 474-9367
Fax (204) 474-7605

17 September 2007

memo

To: Elizabeth Worobec, Associate Dean
Faculty of Science

From: Dr. Celia Rabinovitch CR
Director, School of Art

Subject: Review of Proposed BSc in Forensic Science (Honors)

I am writing in support of the Proposed BSc in Forensic Science. This is an innovative and rigorous proposal that should enhance the University of Manitoba and serve the Canadian population well nationally.

This innovative program can be further enhanced by contingent areas of study in the fine arts disciplines. Specifically, the School of Art offers courses in Video (STDO 2610 Video 1; STDO 3610 Video 2), that would aid in analysis of visual information and optics. Additionally, the School also offers courses in New Media (STDO 3950 New Media Design).

That would build visualization and reconstruction of movement patterns and probability of crime scenes through courses in its Graphic Design Studio (STDO 2630 Design Studio 1, STDO 2640 Design Studio 2, STDO 2650 Digital Design Technology, STDO 2660 History of Visual Communication 1, STDO 2670 Design Theory and Criticism 1, STDO 3930 Design Studio 3, STDO 3940 Design Studio 4, STDO 3960 History of Visual Communication 2, STDO 4840 Design Studio 5, STDO 4850 Design Studio 6, STDO 4860 Design Theory and Criticism 2 and STDO 4870 Production and Professional Practice). The School also offers rapid visualization in order to create scenario building and visual problem solving. All of these courses would build on the proposed BSc in forensic science to develop students who have unique skills in this specialization.

Thank you for the opportunity to respond to this carefully constructed proposal for your BSc in forensic science.

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

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

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

You may be aware that Mostafa Fayek has played an instrumental role in the planning of this program, providing a uniqueness not found in any other existing undergraduate Forensic Science program. To support the Earth Sciences aspect of this program we have incorporated GEOL 1340 The Dynamic Earth and GEOL 2060 Introduction to Geophysics as required courses for entry into the and several Geological Sciences courses as electives. At this point in time we are not certain if this will greatly affect the enrolments in these courses.

We hope that Dr. Fayek will continue to play a major role in the implementation of the program and will contribute by offering an upper level stream specific course, FORS 4XZZ Forensic Geoscience, acting as a mentor for FORS 4XXX Research Project students interested in his research field, and participating as a guest lecturer in FORS 2XXX and any of the 3000 level FORS courses, if he so desires. We also would like to invite any other interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the 3000 level FORS courses and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

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I am certain that this program will not be static but will continue to evolve with respect to streams and course selections. With this in mind, we will welcome any new courses or streams proposed by members of your Faculty along with suggestions for relevant electives.

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

EW/mas

UNIVERSITY OF MANITOBA

Clayton H. Riddell
Faculty of Environment,
Earth, and Resources

440 Wallace Building
Winnipeg, Manitoba
Canada R3T 2N2
General Office (204) 474-7252
Fax (204) 275-3147

25th October 2007

To: Dr. E. Worobec, Associate Dean, Faculty of Science
From: Dr. N.M. Halden, Interim Dean
Clayton H. Riddell Faculty of Environment, Earth, and Resources
Re: B.Sc. in Forensic Science

Thank you for the opportunity to review the proposal from the Faculty of Science regarding the Forensic Science Program Proposal. We believe it offers a unique opportunity for students in western Canada, creates a program distinct in the country because of the foundation of its curriculum in the Forensic Science Education Programs Accreditation Commission, and utilizes values and expertise already present at the U of M. We are sure there will be great interest in the program and that admission will be very competitive. The Program Committee and others have already extensively consulted numerous experts which reinforces the well thought out and systematic description of the program and courses.

Given the growing awareness of the criminal nature of some pollution events, some Environment courses may also be relevant to their electives, specifically their Physical Evidence Electives. We suggest ENVR 3300 Methods in Ecotoxicology, ENVR 3550 Environmental Analysis, ENVR 4180 Ecotoxicological Risk Characterization. Possibly ENVR 4650 Advanced Issues in Environmental Law and Policy may also be relevant though that requires a prerequisite of ENVR 2650 Introduction to Environmental and Natural Resources Policy and Law.

Similarly GEOL 4280 Instrumental Methods in Geology may have some application as several instruments (X-ray diffraction, Electron microprobe and LA-ICP-MS) have been used recently by the RCMP and Winnipeg Police to assess naturally occurring materials. With reference to naturally occurring materials, the students may find a more sophisticated knowledge of mineralogy useful, beyond that given in first year.

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. Anthony Iacopino, Dean, Faculty of Dentisty

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

We realize the difficulty in allowing students outside of the Faculty of Dentistry to take Dentistry courses. Given the importance of dental evidence in identification, we will very much welcome any new courses or streams proposed by members of your Faculty along with suggestions for relevant electives. We would also like to invite any interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the other FORS courses and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

EW/mas

------- Forwarded message follows -------
From: "Anthony Iacopino" <iacopino@cc.umanitoba.ca>
To: <eworobe@ms.UManitoba.CA>
Subject: RE: Forensic Science Program
Date sent: Mon, 19 Nov 2007 12:26:03 -0600

Elizabeth,

The faculty of Dentistry is pleased to support your Forensic Science
Program. We will assist you with identifying a dental professional to
provide a general lecture on forensic odontology in the introductory survey
course and perhaps a more advanced lecture or two in the forensic investigation
(crime scene investigation) courses. Let me know if you need anything else.

Tony

Anthony M. Iacopino DMD PhD
Dean, University of Manitoba Faculty of Dentistry;
Professor, Restorative Dentistry

D113-780 Bannatyne Avenue
Winnipeg Manitoba R3E 0W2

Phone: 204-789-3249
Fax: 204-789-3912

Email: iacopino@cc.umanitoba.ca

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. Doug Ruth, Dean, Faculty of Engineering

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

The role of the Forensic Engineer is essential to many crime scene investigations, particularly with respect to accident reconstructions. With this in mind, we will very much welcome any new courses or streams proposed by members of your Faculty along with suggestions for relevant electives. We would also like to invite any interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the other FORS courses and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

EW/mas

The University of Manitoba
Office of the Dean
FACULTY OF ENGINEERING
Inter-Office Memorandum

DATE: 1 October 2007

TO: Elizabeth Worobec, Associate Dean, Faculty of Science

FROM: Dr. Doug Ruth, Dean

SUBJECT: ***Request to Review Proposed BSc in Forensic Science (Honours) Program***

I reviewed with interest the proposal for a Forensic Science program. I must confess to not knowing exactly what a Forensic Scientist would look like (I am not even a fan of CSI). However the program and streams offer a breadth and depth of course material that should prepare a student to analyze physical evidence and draw conclusions based on the resulting observations. I believe this would be a strong addition to the offerings at the University and would allow us to take a leadership position in Canada and perhaps the world.

Engineering would be very interested in contributing to this program, although some barriers exist. At present, courses in introduction to material science would be the most immediately applicable. Many courses in engineering would fit with the Forensic Physical Evidence stream. The barrier is that most advanced courses require a higher level of mathematics then contained in the core curriculum, in particular linear algebra and differential equations. This being said, I do believe that there is a potential for our Biosystem Engineering Program, in particular, to play a role in your program.

Please have Engineering in mind as this program develops. I am confident that we could contribute in the future, or perhaps some of the courses could be of interest to our students. A minor in Forensic Science could be of interest to many of our students.

DR/jt

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. Gustaaf Sevenhuysen, Dean, Faculty of Human Ecology

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

I am certain that this program will not be static but will continue to evolve with respect to streams and course selections. With this in mind, we will very much welcome any new courses or streams proposed by members of your Faculty along with suggestions for relevant electives. In particular, courses in Family Violence and Textile Science come to mind as being relevant examples. We would also like to invite any interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the other FORS courses and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

EW/mas

Faculty of Human Ecology

Office of the Dean

Room 208 Human Ecology Building
Tel: 474-9704 Fax: 474-7592

Interdepartmental Correspondence

Date: October 1, 2007

To: Dr. Elizabeth Worobec, Associate Dean, Faculty of Science

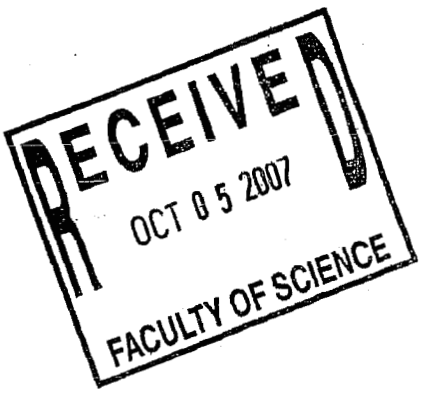
From: Dr. Gustaaf Sevenhuysen, Dean, Faculty of Human Ecology

Subject: Proposed Bsc in Forensic Science

Thank you for the opportunity to review the proposed Bsc in Forensic Science (Honours) program. The Faculty of Human Ecology supports this proposed program. There is strong potential for future collaboration.

After reviewing the proposed program and consulting with the relevant Department Heads I make the following comments:

- The Department of Family Social Sciences supports the proposed program. The Family Violence courses would be relevant electives for the streams as they would give students some background in social sciences and a perspective on their work that could help them to develop the understandings necessary to effect policy changes. Although students might not be thinking of that now, they may well be in positions where they can effect change in the future.
- The Faculty of Science could consider the Family Social Sciences Minor as an appropriate choice for students to help focus the electives in the program, especially as Science has already approved the Minor for the students in that Faculty.
- The Department of Textile Sciences may be able to provide support and instruction in the area of identification of fibres through the Textile Testing Service lab.



/pg

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. Glenn Feltham, Dean, I.H. Asper School of Business, Faculty of Management

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

I am certain that this program will not be static but will continue to evolve with respect to streams and course selections. With this in mind, we will very much welcome any new courses or streams proposed by members of your Faculty along with suggestions for relevant electives. We would also like to invite any interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the other FORS courses and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

EW/mas

UNIVERSITY OF MANITOBA | Asper School of Business
Faculty of Management

Glenn Feltham, PhD, MBA, LLB, CMA, FCM
Dean and CA Manitoba Chair in Business Leade
314 Drake Centre
181 Freedman Crescent
Winnipeg, Manitoba
Canada R3T 5V4
Telephone (204) 474-9209
Fax (204) 474-7928
glenn_feltham@umanitoba.ca

September 14, 2007

MEMORANDUM

TO: **Elizabeth Worobec, Associate Dean, Faculty of Science**

FROM: **Glenn Feltham**

SUBJECT: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

We have reviewed the draft proposal for the above-noted program and are in full support of its implementation. We believe this program would be a positive addition to the University of Manitoba's curriculum.

Thank you for the opportunity to review the proposal.

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. Harvey Secter, Dean, Faculty of Law

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

We realize the difficulty in allowing students outside of the Faculty of Law to take Law courses. To ensure that students in the Forensic Science program receive some background in this area we have opted to incorporate SOC 2510 Criminology and SOC 2610 Sociology of Criminal Justice and Corrections as required courses for entry into the program. However, we will very much welcome any new courses or streams proposed by members of your Faculty along with suggestions for relevant electives. We would also like to invite any interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the 3000 level FORS courses (in particular FORS 3XXY Evidence/Expert Witness) and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

EW/mas

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. Dean Sandham, Dean, Faculty of Medicine

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

I am certain that this program will not be static but will continue to evolve with respect to streams and course selections. With this in mind, we will welcome any new courses or streams proposed by members of your Faculty along with suggestions for relevant electives. I recall there being interest in the development of a 3 credit hours undergraduate Introductory Pharmacology course, an abridged version of PHAC 4020 Pharmacology Basics, which would be a welcomed addition. We would also like to invite any interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the 3000 level FORS courses and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

EW/mas

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. Dauna Crooks, Dean, Faculty of Nursing

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

Forensic Nursing is an emerging highly recognized field. With this in mind, we will very much welcome any new courses or streams proposed by members of your Faculty along with suggestions for relevant electives. We would also like to invite any interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the other FORS courses and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

EW/mas

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. David Collins, Dean, Faculty of Pharmacy

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

We realize the difficulty in allowing students outside of the Faculty of Pharmacy to take Pharmacy courses. With this in mind, we will very much welcome any new courses or streams proposed by members of your Faculty along with suggestions for relevant electives. We would also like to invite any interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the other FORS courses (in particular FORS 4XXZ Forensic Toxicology) and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

EW/mas

UNIVERSITY OF MANITOBA | Faculty of Pharmacy

Winnipeg, Manitoba
Canada R3T 2N2
Telephone (204) 474-9306
Fax (204) 474-7617

September 25, 2007

Dr. Elizabeth Worobec
Associate Dean
Faculty of Science
249 Machray Hall

Dear Dr. Worobec,

Thank you for the opportunity to review your proposed new BSc program in Forensic Science.

This looks to be an exciting program that I am sure some of my faculty will support. To this end I will raise it to their attention at an upcoming faculty meeting.

Sincerely,

David M. Collins, Ph.D.
Professor and Dean

DC/jo

THE UNIVERSITY OF MANITOBA
Faculty of Science
249 Machray Hall

INTER-DEPARTMENTAL CORRESPONDENCE

DATE: September 4, 2007

TO: Dr. David Witty, Dean, Faculty of Architecture
Dr. John Wiens, Dean, Faculty of Education
Dr. Jay Doering, Dean, Faculty of Graduate Studies
Dr. Jane Watkinson, Dean, Faculty of Kinesiology and Recreation Management
Dr. Edmund Dawe, Dean, School of Music
Dr. Robert Mullaly, Dean, Faculty of Social Work
Dr. Lori Wallace, Dean, Extended Education
Dr. Emily Etcheverry, Director, School of Medical Rehabilitation
Dr. Salme Lavigne, Director, School of Dental Hygiene
Dr. Christine Blais, Director, University 1

FROM: Elizabeth Worobec, Associate Dean, Faculty of Science

RE: **Request to Review Proposed BSc in Forensic Science (Honours) Program**

Please find attached the draft proposal and program map for the BSc in Forensic Science (Honours) and the course outline for FORS 2XXX Introductory Forensic Science. The Faculty of Science Committee on Courses recently approved this program and it will be reviewed by the Faculty of Science Executive and Council in the next few weeks. The Statement of Intent has been forwarded to Richard Lobdell for submission to COPSE. In preparation of the formal program proposal for submission to the various Senate committees, I am asking all faculties and schools to review the proposal and provide me with any comments and/or concerns which I will use to revise the attached draft.

I am certain that this program will not be static but will continue to evolve with respect to streams and course selections. With this in mind, we will very much welcome any new courses or streams proposed by members of your Faculty along with suggestions for relevant electives. We would also like to invite any interested faculty members to act as guest lecturers in FORS 2XXX Introductory Forensic Science or any of the other FORS courses and/or be mentors for students enrolled in FORS 4XXX Research Project/Thesis.

Thank you in advance for taking time to assist us in developing this unique interdisciplinary program. Please contact me (474-8310 or eworobe@cc.umanitoba.ca) if you have any queries or concerns. I would be pleased to meet with you, any interested/concerned faculty members, and/or your Faculty Council to discuss this program in person. If possible, I would appreciate your feedback, particularly regarding FORS 2XXX, by the end of September. Although it will take some time to fine tune the program, we would like to offer FORS 2XXX in the 2008/09 Regular session to any prospective students.

EW/mas

Date sent: **Tue, 25 Sep 2007 13:48:16 -0500**
From: **David Witty <wittyd@cc.umanitoba.ca>**
To: **eworobe@cc.umanitoba.ca**
Subject: **BSc Forensic Science Proposal**

Professor Worobec:

Please be advised that I have reviewed the a/n proposal. While our Faculty does not have any direct academic involvement, we believe that this is an important initiative and worthy of support.

Sincerely,

David Witty.

--

David R. Witty Ph.D., MRAIC, FCIP
Professor and Dean, Faculty of Architecture
201 Russell Building
University of Manitoba
Winnipeg, R3T 2N2
Tel: 204 474 6434

Date sent: Thu, 06 Sep 2007 11:12:34 -0400
From: "MARK Sandercock" <MARK.SANDERCOCK@rcmp-grc.gc.ca>
To: <eworobe@ms.UManitoba.CA>
Subject: Re: UM Forensic Science Program

Hi, Betty.

I read over the documents you sent and have a few comments. Please take or leave my comments as they best fit with what you are trying to convey in these documents.

In the document "Forensic Science Proposal Draft1", page 3 (under Employment Opportunities) is the sentence "Although some employers are specific forensic science laboratories the bulk are those requiring employees with substantial training in analytical sciences." I found the sentence structure confusing and had to re-read it a number of times. I am thinking that all employers of your students will desire them to have substantial training in analytical sciences. Perhaps something like the following will get the meaning across better. "While some potential employers will be forensic science laboratories, the bulk of the employers will be non-forensic laboratories that require employees with substantial training in analytical sciences."

In the same paragraph the word "is" is missing. "...any lab where analytical and quality control expertise required..." should read "...any lab where analytical and quality control expertise is required..."

Also on page 3, under "Program Fit with Manitoba Government Positioning" you place importance on "encouraging research and development in life sciences." Is this an initiative of the MB government? Other than skirmishes into the science of DNA, and toxicology of post-mortem tissues, I don't really see how forensic science and the life sciences fit together. I only ask this question because I am generally cautious about singling

out one area of research because then it implies the exclusion of other areas for research, or at least a decreased emphasis on other areas.

In the document "Forensic Science Proposal Draft2", on the last page, is listed "FORS 4XYZ Forensic Physics (3 cr. hrs lecture, 3 cr. hrs lab) TBA" Do you need some suggestions for topics in Forensic Physics? My suggestions will depend on what is considered "physics", but ballistic trajectories, traffic accident analysis, and optical microscopy (i.e. polarized light microscopy, interference microscopy) come to mind as simple examples of applied physics. The physics of electricity could be applied to the failure of electrical components which result in a fire. Some areas of spectroscopy could fall under physics such as visible spectroscopy (e.g. characterizing the colour of a microscopic material under either reflected or transmitted light through the use of diffraction gratings or CCD arrays). Engineering physics could be applied to forensic engineering (i.e. structural failure), but I don't know if you would want to broaden the program this far. There is a lot of mathematics and physics involved in modeling fire dynamics as well (e.g. flame spread, or smoke production and spread through a structure).

Same page, "FORS 4XZZ Forensic Geoscience (3 cr. hrs. lecture, 3 cr. hrs lab)"; I would recommend that you don't forget about microscopy, including polarized light microscopy (and what better place to learn about it than from a geologist who probably uses it more than most scientists). No matter where we get our new employees from we always have to teach them optics, basic microscopy and microscope care because the universities tend to ignore this technique in favour of instrumental methods and instrument theory. While instrumental methods are great and we should use them to advantage, there are those few materials that instruments can't identify

with any specificity and will never be able to identify as rapidly or accurately as a well-trained microscopist.

Cheers,

Mark

>>> "Elizabeth Worobec" <eworobe@ms.UManitoba.CA> 2007-09-05 8:56 AM >>>
Hi Mark,

I have attached the draft program proposal, program map and the course outline for the introductory course we will call FORS 2XXX until it is approved and gets a real number. These drafts were approved by our Faculty of Science Committee on Courses and will be discussed at our Faculty Executive and Council meeting next week. I have sent the same drafts to all faculties at our university and to our off campus consultants to get feedback prior to crafting the formal proposal which will wind its way through all the Senate committees and ultimately the Provincial Council on Post-Secondary Education (COPSE). COPSE gives the final okay and the $$ we will need to hire new staff and amass the resources to put on the program. We plan to offer the Intro. course next fall and take students into the program as of Fall 2009 (after completing the equivalent to their first two years).

When you have a chance, could you go through the drafts and send me your feedback?

Thank you so much, once again for your wonderful assistance!

Cheers!

Betty

Elizabeth Worobec, Ph.D.
Associate Dean (Student Affairs)
Faculty of Science
University of Manitoba
Winnipeg, Manitoba
Canada R3T 2N2
Phone: +1-204-474-8310
FAX: +1-204-474-7618

Subject: RE: UM Forensic Science Program
Date sent: Fri, 7 Sep 2007 10:35:35 -0400
From: "Shari Forbes" <Shari.Forbes@uoit.ca>
To: <eworobe@ms.UManitoba.CA>

Hi Betty,

Yes things have been crazy this week but thankfully I don't teach until Monday so have a few extra days to prepare.

I have read over the proposals and they look great! I made a few suggestions on two of the documents but you can take them or leave them. Overall, the forensic science programs look very strong and you have done a wonderful job in preparing the streams. You must feel like an expert in forensic science by now!

I'm glad you have been communicating with Mark over the summer. He is a great guy and I knew he would be willing to help. Please let me know if there is anything else I can do to help. Good luck in getting the program approved. I'm sure you won't have any problems.

Regards,

Shari

-----Original Message-----
From: Elizabeth Worobec
[mailto:eworobe@ms.UManitoba.CA]
Sent: Wed 05/09/2007 10:59 AM
To: Shari Forbes
Cc:
Subject: UM Forensic Science Program

Hi Shari,

It has been such a long time since April - you, like us must be running around getting things ready for the first lecture!

I have attached the draft program proposal, program map and the course outline for the introductory course we will call FORS 2XXX until it is approved and gets a real number. These drafts were approved by our Faculty of Science Committee on Courses and will be discussed at our Faculty Executive and Council meeting next week. I have sent the same drafts to all faculties at our university and to our off campus consultants to get feedback prior to crafting the formal proposal which will wind its way through all the Senate committees and ultimately the Provincial Council on Post-Secondary Education (COPSE). COPSE gives the final okay and the $$ we will need to hire new staff and amass the resources to put on the program. We plan to offer the Intro. course next fall and take students into the program as of Fall 2009 (after completing the equivalent to their first two years).

When you have a chance, could you go through the drafts and send me your feedback?

Thank you so much, once again for your wonderful assistance! Also for connecting me with Mark Sandercock - we have been corresponding all summer! I'll also be sending him these documents for review.

Cheers!

Betty
Elizabeth Worobec, Ph.D.
Associate Dean (Student Affairs)
Faculty of Science
University of Manitoba
Winnipeg, Manitoba
Canada R3T 2N2

Forensic Chemistry (Trace Elements/Controlled Substances)

CHEM 2290	Chemical Energetics and Dynamics	3
CHEM 2280	Physical Chemistry	3
CHEM 2220	Organic Chemistry II: Reactivity and Synthesis	3
CHEM 2380	Chemistry of Main Group Elements	3
CHEM/MBIO 2370	Biochemistry 2: Catabolism, Synthesis and Pathways	3
FORS 4XYY	Forensic Chemistry	3
CHEM 4600	Advanced Chemistry Techniques	3
CHEM 3370	Symmetry, Spectroscopy and Structure	3
CHEM 3380	Inorganic Chemistry	3
FORS 4XZZ	Forensic Geoscience	3
		120 Total

Comment [EU1]: We often associate controlled substances with forensic toxicology, not forensic chemistry. Some universities will include controlled substances in forensic chemistry if they don't offer a separate forensic toxicology stream. Since you will be offering a separate stream it should probably be left out of the title or otherwise you will have to include toxicology components in the forensic chemistry stream. Could possibly just call it trace evidence or trace analysis.

Forensic Toxicology

CHEM 2280	Physical Chemistry	3
CHEM 2220	Organic Chemistry II: Reactivity and Synthesis	3
CHEM 2380	Chemistry of Main Group Elements	3
CHEM/MBIO 2370	Biochemistry 2: Catabolism, Synthesis and Pathways	3
MBIO 2100	General Microbiology A	3
ZOOL 2180	Introductory Toxicology	3
FORS 4XXZ	Forensic Toxicology	3
FORS 4XYY	Forensic Chemistry	3
CHEM 4600	Advanced Chemistry Techniques	3
ZOOL 4840	Environmental Toxicology	3
		120 Total

Comment [EU2]: Based on the [illegible] forensic chemistry outline, [illegible] beneficial for students to take a course in Pharmacology if you offer it. [illegible] probably more relevant than Forensic Chemistry (although pharmacology may be taught as part of your intro toxicology course).

Forensic Physical Evidence (Firearms/Impression Evidence etc.)

CHEM 2280	Physical Chemistry	3
CHEM 2290	Chemical Energetics and Dynamics	3
PHYS 2650	Mechanics	3
PHYS 2390	Theoretical Physics 1	3
PHYS 2490	Theoretical Physics 2	3
PHYS 2610	Circuit Theory and Electronics	3
PHYS 2600	Electromagnetic Field Theory	3
PHYS 3670	Classical Thermodynamics	3
PHYS 4520	Solid State Physics	3
FORS 4XYY	Forensic Chemistry	3
FORS 4XYZ	Forensic Physics	3
		123 Total

Introductory Forensic Science

Calendar Entry:

FORS 2XXX Introductory Forensic Science Cr. Hrs. 3 Survey course which introduces forensic science via a series of guest lectures provided by experts from within the university and from the community (e.g. Winnipeg Police, RCMP, Chief Medical Examiner, etc). Multidisciplinary topics will be covered including how a case is studied, use of scientific techniques in investigations, collection of evidence, the role of the expert witness, and presentation of evidence in court. *Prerequisites:* BIOL 1030 (C+), CHEM 1310 (C+) and MATH 1500 (C+).

Course Objectives:

This course is designed to provide a basic understanding and overview of key aspects of forensic science. Guest speakers will provide lectures on their expertise. Fundamental topics not covered by guest speakers will be presented by the course Instructor. Case studies will be used as examples. The Instructor will provide strategies for critical evaluation of case studies and forensic science literature. This course is required for entry into the B.Sc. Forensic Science (Honours) Program. Upper level Forensic Science courses will build on information presented in this course.

Course Content:

Topics to be covered will include, but not be exclusive to, the following, with the order dependant on the availability of guest speakers:

- Criminal justice and legal aspects of forensic science
- Role of the expert witness
- Crime scene investigation techniques
- Evidence collection and storage
- Analytical techniques – microscopy, spectroscopy, separation methods
- Statistics and probability
- Pathology
- Anthropology and odontology
- Entomology
- Serology
- Blood stain and splatter analysis
- DNA analysis and profiling
- Hair and fibre analysis
- Toxicology and drug identification
- Paint and glass analysis
- Fire and explosion investigations
- Digital evidence
- Document analysis
- Soil analysis

Comment [EU1]: The correct term is actually spatter (this was drilled into me as an undergraduate) but I think they have changed it now to be called bloodstain pattern analysis (BPA).

Date sent: Mon, 10 Sep 2007 10:53:08 -0400
From: "Scott Fairgrieve" <SFairgrieve@laurentian.ca>
To: <eworobe@ms.UManitoba.CA>
Subject: Re: U.Manitoba Forensic Program

Hi Betty,

Sorry to have taken so long to get back to you. I am sure you can appreciate the rush of the beginning academic year. I have finally had an opportunity to sit down and read through your documentation.

You have certainly put together a very ambitious program. It is clear to me that there are some items included that seem to be there for political reasons rather than forensic. The one glaring area that I see in this regard is that of Criminology. As you may be aware, the study of Criminology is set in examining the patterns of crime and the social/political and even to a certain extent psychological indicators that lead to these criminal patterns. In short, this is not forensic evidence and would never be allowed in a courtroom setting as it is not going to contribute to the prosecution of forensic cases. If at all possible I would suggest that you eliminate this so that your program is viewed in a more favourable light by the forensic science community. Police services use criminologists to assist in planning for personnel requirements and focusing logistical aspects of serving regions with indicators for changes in criminal behavioural patterns. At least, that is what is done in Ontario.

I would also note that crime scene recovery is usually done by forensic identification officers in police services. Many of these officers have no science backgroud and are not actually suppose to be doing any analytical work beyond that of fingerprint analysis. I agree that students should be made aware of crime scene recovery procedures. I just want you to make your students aware of the fact that in many jurisdictions they must become police officers first and then hope to get into ident.

I foresee the requirement of all students in your programs being required to complete an honours thesis as problematic. The logistics of having that many students pursue a thesis is truly daunting. You may wish to reconsider this based on how the projects are approached. I recall in

chatting with my mentor from UofT, Jerry Melbye who set up the forensic program there. They had an internship requirement for all 30 students each year at the Centre of Forensic Sciences. Some students were put in terrific placements, others were not. I know if one instance that a student wishing to do forensic entomology was put in the firearms section. Not a good match. My caution is that you will not be able to accommodate all of your thesis students in projects that are suitable to their area. Given the popularity of DNA what do you say to the 20 students who want to do a thesis in that area each year?

As for FEPAC: we have made changes to our various programs to meet the standards required by FEPAC. We are actually planning on going through FEPAC. However, it should be noted that FEPAC is designed for the US system. In their system, Forensic identification officers usually study forensic science at an institution and are hired as civilian crime scene technicians. They are not police officers as we see so often in the Canadian System. To that end, we envision a hybrid of the Canadian reality and that of FEPAC.

As for the courses, my only comment is that of FORS 2XXX Introductory Forensic Science. I do not see any labs listed with this course. I would hope that in time this could be addressed.

Anyway, that is my two cents on it; take it or leave it.

Best of luck,

Scott

Dr. Scott Fairgrieve, Ph.D.
Associate Professor,
Chair, Dept. of Forensic Science
Director, Forensic Osteology Laboratory
Laurentian University

(705) 675-1151 Office ext. 4209
Lab ext. 4371
Secure Lab Fax (705) 671-3853

Forensic Dept. Page http://forensicscience.laurentian.ca (http://forensicscience.laurentian.ca/)

>>> "Elizabeth Worobec" <eworobe@ms.UManitoba.CA> 05/09/2007 11:19 am >>>
Hi Scott,

It has taken many months but we finally have our proposal for a BSc Honours Forensic Science working its way through the administrative levels.

Can a trouble you to take some time to look at our program and send me your feedback? I have attached a copy of our Statement of Intent, which we sent to the Provincial Council of Post Secondary Education, the actual program map and the course outline for the intro course. These three drafts were approved last week by the Faculty of Science Committee on Courses and will be reviewed by the Faculty of Science Executive and Council later on this month.

I have also sent the same documents to all faculties and schools at UMan., to our off campus expert consultants, Shari Forbes at UOIT and Mark Sandercock (RCMP Forensic Labs in Edmonton) for feedback. Once I have gathered all the comments I will craft the formal proposal which will travel through the various Senate committees, the Board of Governors and COPSE (who has the final say

and will provide the money for new staff and resources). We will offer the Intro. Forensic Science course in the Fall of 2008 and hope to have students enter the program as of Fall 2009 after completing the equivalent to the first two years. At UMan. students must complete University 1 before moving into their target faculties. I wish we could have direct entry from High School as you have but that just does not happen here (and is a bit of a sore point!).

Thank you in advance for you assistance! I hope our program will be as scientifically solid as the ones offered by your Department!

Regards,

Betty
Elizabeth Worobec, Ph.D.
Associate Dean (Student Affairs)
Faculty of Science
University of Manitoba
Winnipeg, Manitoba
Canada R3T 2N2
Phone: +1-204-474-8310
FAX: +1-204-474-7618

Date sent: Thu, 08 Nov 2007 12:15:13 -0500
From: "Shirley Treacy" <SHIRLEY.TREACY@rcmp-grc.gc.ca>
To: <eworobe@ms.UManitoba.CA>
Subject: Forensic Science Progam

Betty,

As requested...regarding support for this proposal, you have my personal support on the Forensic Toxicology course (ie; giving lectures, mentoring students on projects, etc).

Shirley Treacy

From: **"fpweiss" <fpweiss@mts.net>**
To: **<eworobe@ms.umanitoba.ca>**
Subject: **Re: UM Forensic Science Program**
Date sent: **Thu, 15 Nov 2007 22:20:11 -0600**

Betty,

A thousand apologies for not responding to your email long ago. Unfortunately our computer was out of commission for several weeks in September and this email was missed. Even though it is to late to forward suggestions, I did review your proposal and I was unable to think of anything further to add. Your proposal was very thorough. How is the program proceeding?

Frank Weiss

----- Original Message -----
From: "Elizabeth Worobec" <eworobe@ms.UManitoba.CA>
To: <fpweiss@mts.net>; <Johanna.Abbott@gov.mb.ca>; <whasenpflug@winnipeg.ca>; <rrussell@winnipeg.ca>; <meather@cc.umanitoba.ca>; <scyoung@manitobamuseum.ca>; <shirley.treacy@rcmp-grc.gc.ca>; <Thambirajah.Balachandra@gov.mb.ca>; <wayne.greenlay@rcmp-grc.gc.ca>
Sent: Tuesday, September 04, 2007 8:38 AM
Subject: UM Forensic Science Program

> Hello,
>
> I realize that is has been many months since you have heard

> from me. The wheels of administration run slowly! Regardless,
> I am very pleased to announce that last week the Faculty of
> Science Committee on Courses approved the go ahead of the
> Bachelor of Science Honours in Forensic Science. I have
> attached the draft proposal, program map and the outline for the
> first course, FORS 2XXX Introductory Forensic Science. I will
> not go into the details here as it is all spelled out in the
> attachments. I have also forwarded our Statement of Intent to
> the Committee on Post-Secondary Education (COPSE), the
> Provincial committee that must give us the blessing to prepare a
> formal proposal.
>
> In preparation for putting together the formal proposal (which
> will not look much different than the draft) I am ciruclating
> these documents to all units at the University of Manitoba to
> receive feedback which will aid me in crafting the final
> proposal. This is the standard practise. I am also asking the
> same of you. Each of you have been instrumental in developing
> this program and your feedback will be extremely helpful. For
> example, are we rnissing some key components or courses?
>
> I also am asking for your continued involvement in the
> program, as guest lecturers in the Forensic specific courses, as
> mentors for the 4th year research project, and/or as ongoing
> consultants. I would also like to extend my invitation to
> colleagues within your units to participate in any of these roles.
>
> I will also be sending these documents to Dr. Shari Forbes,
> UOIT, which may of you met with earlier this year, Dr. Mark
> Sandercock, Edmonton RCMP Forensic Laboratories (whom I
> have met via Shari), and Dr. Scott Fairgrieve (Director of the
> Forensic Program at Laurentian University) to gather their
> comments.
>
> The formal proposal will have to pass through three Senate
> Committees, Senate itself, the Board of Governors and COPSE
> before it will be finally approved. I am hoping we will be
> accepting our first students in the fall of 2009 but we will be

> offering FORS 2XXX, the first forensic course next fall (Sept.
> 2008). Again this will take many months but I hope to be able to
> contact each of you in the New Year regarding participation in
> FORS 2XXX.
>
> One of the major outcomes will be hiring an Assistant or
> Associate Professor to co-ordinate the program and teach some
> the courses. We also expect to hire at least one more
> Instructor/Professor in the next year. Again, I will be asking for
> your input in contacting qualified individuals who may be
> interested in these positions.
>
> I thank you for your ongoing support. Please feel free to contact
> me by email or phone. I will ask for responses by the first week
> of October if possible. I may need something more formal at a
> later date to accompany the formal proposal but right now I am
> looking for general feedback.
>
> Warm regards,
>
> Betty
>
> Elizabeth Worobec, Ph.D.
> Associate Dean (Student Affairs)
> Faculty of Science
> University of Manitoba
> Winnipeg, Manitoba
> Canada R3T 2N2
> Phone: +1-204-474-8310
> FAX: +1-204-474-7618
>

> The following section of this message contains a file attachment
> prepared for transmission using the Internet MIME message format.

Subject: **U of M Forensic Science Program**
Date sent: **Mon, 19 Nov 2007 17:14:27 -0600**
From: **"Abbott, Johanna (JUS)" <Johanna.Abbott@gov.mb.ca>**
To: **<eworobe@ms.UManitoba.CA>**
Copies to: **"Balachandra, Thambirajah (JUS)" <Thambirajah.Balachandra@**
"Ring, Chris (JUS)" <Chris.Ring@gov.mb.ca>

Elizabeth:

This is to confirm that The Office of the Chief Medical Examiner supports the new U of M Forensic Science Program. Both the Chief Medical Examiner, Dr. Balachandra, and I are prepared to participate in the program and provide whatever assistance you may require.

We can both be reached through Dr. Balachandra's administrative assistant, Ms Chris Ring-Chubaty at 945-0571.

Look forward to working with you.

Johanna Abbott

Director

Office of the Chief Medical Examiner

Phone: (204) 945-7855

Fax: (204) 945-2442

Date sent: Thu, 22 Nov 2007 18:11:37 -0500
From: "Wayne Greenlay" <wayne.greenlay@rcmp-grc.gc.ca>
To: <eworobe@ms.UManitoba.CA>
Subject: Re: Forensic Science Progam

Betty,

I support the development of a Forensic Science course and program at the University of Manitoba. I and others from the Winnipeg lab may be available to give presentations on selected topics as part of the Forensic Science course or the other courses offered as part of the program.

As discussed, it is unlikely that RCMP lab staff who work in areas other than Toxicology Services will be able to take a lead or major role in the development and presentation of courses, in large part, because they work in the RCMP laboratories outside of Manitoba.

Wayne

Wayne R.A. Greenlay
General Manager
Forensic Laboratory Services
'An integral part of Canada's National Police Service'

Address:
621 Academy Road
Winnipeg, MB R3N 0E7
Phone: (204) 984-3142
Fax: (204) 983-5625
Cell: (204) 791-0955
Email: wayne.greenlay@rcmp-grc.gc.ca

From: "Bob Meatherall" <meather@cc.umanitoba.ca>
To: <eworobe@ms.UManitoba.CA>
Subject: Re: Forensic Science Program
Date sent: Sat, 24 Nov 2007 16:47:01 -0600

Betty:
I am happy to contribute, where appropriate, by delivering a lecture or two. Grading the assignments would be difficult unless the TA has read the paper or viewed the CSI episode. The reference material should be submitted with the assignment and sufficient time allocated for the TA to read / view the material. This will have a cost impact.

Bob

2007-12-09
Winnipeg, Manitoba

Elizabeth Worobec, Ph.D.
Associate Dean (Student Affairs)
Faculty of Science
University of Manitoba
eworobe@ms.UManitoba.CA

Elizabeth

It was a pleasure meeting you two weeks ago. I am sorry I didn't get back to you sooner but it was very hectic at work and at home with all the seasonal commitments. I am very excited about being given this opportunity to become involved in the Forensic Science Program. Frank and I met last Thursday and spent more then a couple of hours hashing out supply requirements for the program.

I wish to express my commitment to the program. Be that lesson planning, lectures, setting up mock crime scenes and in any other capacity that I may be of assistance to the program. I see this as an excellent opportunity to give back to the community and share in the knowledge I have gained over my past thirty-one years as a police officer, with the last seventeen years being spent in the Forensic field.

As I stated in our first meeting I am still currently employed with the City of Winnipeg Police Service. I am planning to retire in April of 2009. I would like to let you know that this date is not carved in stone and that I could retire in January of the same year if need be.

As I left Frank with tallying up the costs and writing out a presentable supply list he asked me to include his commitment to this endeavor. Both of us are quite excited about this and look forward in being involved in a world class program such as you envisioned.

Bob Green
rgreen@winnipeg.ca
256-0853 (home)
986-6218 (work)

PS...I will send you my home email address once we get our computer up and running.

APPENDIX 2

Library Statement

UNIVERSITY OF MANITOBA | Sciences and Technology Library

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

Date: June 22, 2007

To: Dr. E. Worobec, Associate Dean, Faculty of Science

From: Judy Harper, Head, Sciences and Technology Library JAH.

Re; **Forensic Science Undergraduate Program**

I have assessed the University of Manitoba Libraries' resources in response to the proposed plan to introduce a 4-year undergraduate Forensic Science program in the Faculty of Science. It is my understanding that this program will be composed of existing courses offered by the Faculty of Science, as well as several other faculties, and a number of new forensic science courses.

The Libraries' collections can support the proposed new program with the following additions:

- ongoing funds of $440/ year to purchase the electronic backfiles of *Journal of Forensic Sciences*
- one-time funds of $6,800 to bring the forensic science monograph collection up to the required level
- ongoing funds of $1,500/year to support the continuing monograph information needs

Background

While the University of Manitoba Libraries has not been supporting a separate Forensic Science program there are a number of related collections already available in the Elizabeth Dafoe Library, the Law Library and the Neil John MacLean Health Sciences Library because of programs already being offered in areas such as criminology and the medical and legal aspects of forensics. There are also a few items currently available in the Sciences and Technology Library collection although there has not been any active collecting in this area.

Introduction

A recently published book, Holt's 2006 *Guide to Information Sources in the Forensic Sciences* (see Appendix 1 for details) was used as the major source to check both monographs and journals because of its timeliness and comprehensiveness.

ISI's *Journal Citation Reports (JCR),* which provides a ranked list of journals by citation impact factor (an indicator of how often, on average, an article in a journal published in the two previous years is cited by other articles in the current year) was also used to access the journal collection

A second book, James and Nordby's *Forensic Science: An Introduction to Scientific and Investigative Techniques*, 2nd ed., (see Appendix 1 for details) was also used to check monograph references because it is the major textbook for several courses offered in the Forensic Science program at University of Ontario Institute of Technology. Several other sources were used to assess the monograph collection as well. (See Appendix 1 for the complete list).

Checking Results

Monographs

The monograph references found in seven books were used to check the strength of the monograph holdings in the University of Manitoba Libraries. The results were assessed based on the Libraries' Collection Assessment Guidelines (below).

Percentage of Items Held by UML	Level	Description
30-49%	3a	Undergraduate instruction support
50-64%	3b	Upper undergrad. instructional support
65-79%	3c	Master's level instructional support
80-94%	4	Doctoral and independent research
95-100%	5	Comprehensive support

The results of the checking are shown in the following table:

Title	Total Number of References Checked	Number Available at UML	% at UML
Buckleton: Forensic DNA Evidence Interpretation	63	23	37%
Gennard: Forensic Entomology	25	14	56%
Holt: Guide to Information Sources in the Forensic Science	224	72	32%
Houck: Fundamentals of Forensic Science	106	39	37%
Houck: Forensic Science: Modern Methods of Solving Crime	44	13	30%
James: Forensic Science: An Introduction to Scientific and Investigative Techniques	302	136	45%
Levine: Principles of Forensic Toxicology	88	55	63%
Total	852	352	41%

These results (41%) indicate that the University of Manitoba Libraries' forensic science monograph collection is at an undergraduate instruction support level. It should be at least at 50% (an upper undergraduate instruction support level) to provide information resources for a four-year program. An additional $6,800 is needed in order to bring the monograph collection to the desired level. According to Holt's book which divides the monographs into subject categories, the weakest areas where more books should be purchased are the following: forensic chemistry and toxicology, crime scene investigation, criminalistics and trace evidence, DNA analysis, pathology, photography and imaging, and questioned documents.

Journals

The University of Manitoba Libraries currently receives eight (89%) of the nine journal titles listed in ISI's *Journal Citation Reports* section "Medicine, Legal" .

Thirty-eight titles listed in the "core forensics journals" section and 11 titles listed in the "interdisciplinary journals covering forensic science topics" of Holt's book were also checked. Of these, the University of Manitoba Libraries currently receives 18 of the 38 titles (47%) and 11 of the 11 titles (100%). Taken together the UML currently subscribes to 29 of 49 (55%) of the titles.

One important title found on both lists is the *Journal of Forensic Sciences*. This title is available at UML in print from volume 15, 1970 - volume 38, 1993 and electronically from 2006 to the present. The ongoing cost to purchase the backfiles electronically to fill in the gap from 1994-2005 would be $440 Canadian per year. With this addition, the journal collection at the University of Manitoba Libraries is sufficient to support this new undergraduate program in forensics.

It should be noted that the journal collection is as strong as it is as a result of the electronic journal packages that the Libraries has acquired over the last six years.

Indexes and Abstracts

The interdisciplinary nature of forensic science is evident from the variety of sources that index the literature. The following indexes and abstracts are available in the University of Manitoba Libraries and would be of use to students in this program:

Biological Abstracts (1969 - present)
Criminal Justice Abstracts (1968 - present)
Embase (which contains Excerpta Medica. Section 49: Forensic Science Abstracts) (1980 - present)
Index to Legal Periodicals and Books (1981 - present)
PsycInfo (1887 - present)
PubMed (1966 - present)
SciFinder Scholar (1907 - present)
Scopus
Toxline (1997 - present)
Web of Science (1980 - present)

Other Library Services

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

Document Delivery

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

RefWorks

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

UMLinks

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

Conclusion

The Libraries' journal collection can support the proposed undergraduate program in Forensic Science with the addition of the backfiles of *Journal of Forensic Sciences* at cost of $440/year. The Libraries' monograph collection needs a one-time expenditure of $6,800 to bring this collection up to the desired level and ongoing funds of $1,500 per year.

cc J. Horner, Coordinator, Collections Management

Appendix 1

Buckleton, J. et al. *Forensic DNA Evidence Interpretation.* Boca Raton, Florida: CRC Press, 2005.

Gennard, D.E. *Forensic Entomology.* Chichester, England: John Wiley & Sons Ltd., 2007.

Holt, C. *Guide to Information Sources in the Forensic Sciences.* Westport, Connecticut: Libraries Unlimited, 2006.

Houck, M. and J. Siegel. *Fundamentals of Forensic Science.* San Diego, California: Elsevier, 2006.

Houck, M.M. *Forensic Science: Modern Methods of Solving Crime.* Westport, Connecticut: Praeger, 2007.

James, S.H. and J.J. Nordby, ed. *Forensic Science: An Introduction to Scientific and Investigative Techniques.* 2nd ed. Boca Raton, Florida: CRC Press, 2005.

Levine, B. *Principles of Forensic Toxicology.* 2nd ed., rev. and updated. Washington, District of Columbia: AACC Press, 2006.

THE UNIVERSITY
OF MANITOBA
LIBRARIES

LIBRARY SUPPORT STATEMENT FOR PROPOSED COURSE CHANGES

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

NAME OF PROGRAM

Faculty: Science

Department:

Course no. and name: Forensic Science Undergraduate Program

SUPPORT STATEMENT PREPARED BY: Judy Harper (Bibliographer)

APPROVED BY: Jan Horner
Coordinator, Collections Management

Director of Libraries

DATE: June 22, 2007

UNIVERSITY OF MANITOBA

APPENDIX 3

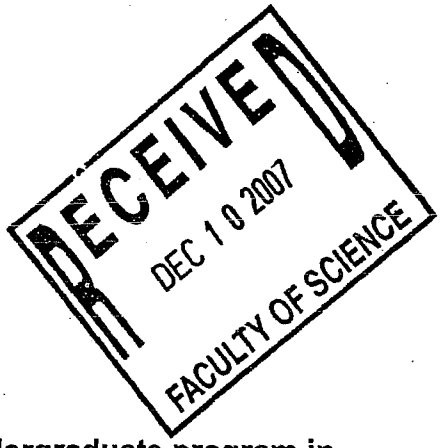
Information Services and Technology Statement

UNIVERSITY OF MANITOBA | Information Services And Technology

IST
Information Services and Technology

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

December 6, 2007



Dr. Elizabeth Worobec
Associate Dean (Student Affairs)
Faculty of Science

Dear Dr. Worobec:

Thank you for sending me the proposal for the undergraduate program in Forensic Science.

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

Sincerely,

G E Miller
Executive Director IST

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

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

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

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

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

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

APPENDIX 4

Website Reference List
and
FEPAC Accreditation Standards

Website Reference List

Model Curriculum and Accreditation:

American Association of Forensic Sciences:
http://www.aafs.org

Forensic Science Education Program Accreditation Commission (FEPAC):
http://www.aafs.org/default.asp?section_id=aafs&page_id=committees&subpage_id=fepac

U.S. National Institute of Justice: Education and Training in Forensic Science Guide:
http://www.aafs.org/pdf/NIJReport.pdf

Canadian Forensic Science Programs:

BCIT: http://www.bcit.ca/study/programs/845bbtech
http://www.bcit.ca/study/programs/845cbtech
http://www.bcit.ca/study/programs/845dbtech
http://www.bcit.ca/study/programs/525gascert
http://www.bcit.ca/study/programs/525eascert
http://www.bcit.ca/study/programs/525aascert
http://www.bcit.ca/study/programs/525hascert
http://www.bcit.ca/study/programs/525bascert
http://www.bcit.ca/study/programs/525fascert

Laurentian University: http://forensicscience.laurentian.ca
Mt. Royal College: http://www.mtroyal.ca/healthcomm/ashs/fore.shtml
St Mary's University:
http://www.smu.ca/academic/science/forensics/welcome.html
Simon Fraser University:
http://www.sfu.ca/criminology/ugrad/advisory/ForensicsatSFU.html
Trent University: http://www.trentu.ca/academic/forensicscience/
University of Toronto- Mississauga:
http://www.erin.utoronto.ca/regcal/WEBGROUP89.html
U. Ontario Institute of Technology (UOIT): http://www.science.uoit.ca/forensicscience/index.html
UOIT also has a Digital Forensics specialization in their B.Sc. (Honours) Comp. Sci. and a Forensic Physics specialization in their B.Sc. (Honours) Physics programs. Check under the respective departments for details.
University of Windsor: http://web4.uwindsor.ca/forensic

Other:

University of N. Dakota: http://www.und.nodak.edu/dept/forensic/courses.html

Canadian Society of Forensic Sciences: http://ww2.csfs.ca/

Anderson, Gail. 2007. All you ever wanted to know about forensic science but didn't know who to ask. http://ww2.csfs.ca/contentadmin/UserFiles/File/Booklet2007.pdf

American Academy of Forensic Sciences

1948

Forensic Science Education Programs Accreditation Commission (FEPAC)

ACCREDITATION STANDARDS

Adopted by FEPAC – May 16, 2003
Approved by the AAFS Board of Directors – August 9, 2003
Revised by FEPAC – August 23, 2007

FORENSIC SCIENCE EDUCATION PROGRAMS ACCREDITATION COMMISSION

ACCREDITATION STANDARDS

Table of Contents

4.2 Undergraduate Admission Requirements

At a minimum, a high school diploma or GED shall be required for admission into a forensic science undergraduate program. Additionally, a program or process shall be in place to assist and advise entering students to ensure that they have the requisite background in science and mathematics for success in the degree.

4.3 Curriculum

No course may be used to satisfy more than one of the standards.

4.3.1 General Curricular Requirements

The undergraduate program in forensic science shall offer a coherent curriculum that reflects the mission and goals of the program and provides the student with the appropriate skills requisite for the bachelor's degree.

The curriculum shall, at a minimum, ensure that each student:

1. obtain a thorough grounding in the natural sciences;
2. build upon this background by taking a series of more advanced science classes; and,
3. develop an appreciation of issues specific to forensic science through course work and laboratory-based instruction.

The program shall have clear procedures for assessing and documenting each student's progress toward fulfillment of these objectives.

4.3.2 Specific Curricular Requirements

The specific curricular requirements that follow are based on the fact that most forensic scientists work in areas such as drug analysis, trace analysis, firearms and toolmarks, and forensic biology. Students seeking to work in alternative areas of forensic science, such as computer analysis, latent print recovery and comparison, or crime scene reconstruction, will require other curricula or further training.

Because certain forensic science disciplines require more rigorous coursework than the minimum described below, in particular, more biology and chemistry, the program shall ensure that its curriculum is adequate to prepare students for specialization in sub disciplines of forensic science such as forensic biology, forensic chemistry, toxicology, or pattern evidence examination.

The curriculum shall include the following minimum components:

4.3.2.1 Natural Science Core Courses

Biology: at least one course, which includes an associated laboratory, in biology for science majors (4 semester hours).

Physics: at least two courses, each of which includes an associated laboratory, in physics for science majors (8 semester hours). Note: Calculus-based physics is preferred but not required.

Chemistry: at least four courses, each of which includes an associated laboratory. Two of the courses shall be in general chemistry for science majors (8 semester hours), and two shall be in organic chemistry for science majors (8 semester hours).

Mathematics: at least one course in differential and integral calculus (3 semester hours) and at least one course in statistics (3 semester hours).

4.3.2.2 Specialized Science Courses

A minimum of 12 additional semester hours in more advanced coursework in chemistry or biology. These classes shall be consistent with the degree program and shall meet the needs of students specializing in sub disciplines of forensic science. At least two of the classes shall include laboratory training.

Specialized science courses from any of the following (minimum 12 credit hours; includes minimum of 2 laboratory courses):

- Biochemistry
- Molecular biology
- Genetics
- Population genetics
- Inorganic chemistry
- Analytical/quantitative chemistry
- Physical chemistry
- Instrumental analysis
- Cell biology
- Pharmacology
- Calculus II
- Microbiology

For programs offering a track in forensic biology/DNA, the curriculum must satisfy the minimum educational requirements for an analyst as specified in the FBI Quality Assurance Standards for Forensic DNA Testing Laboratories. Required courses must cover the subject areas of biochemistry, genetics, and molecular biology. Those subject areas must be an integral part of the courses, cover the underlying scientific principles, and total a minimum of nine cumulative semester hours (or equivalent). Course work with titles other than biochemistry, genetics, and molecular biology shall demonstrate compliance with this standard through the course *syllabi* or other documentation. In addition, course work in population genetics is desirable.

4.3.2.3 Forensic Science Courses

A minimum of 15 semester hours in forensic science coursework that covers the following topics: courtroom testimony; introduction to law; quality assurance; ethics, professional practice, background; evidence identification, collection, processing; and, a survey of forensic science.

Of these 15 hours, 9 semester hours shall involve classes in forensic chemistry, forensic biology, physical methods, or microscopy and contain a laboratory component. Forensic science internships or independent study/research may be used to fulfill up to 6 hours of this requirement.

4.3.2.4 Advanced Courses

A minimum of 19 advanced semester hours are required in courses that provide greater depth beyond an introductory level in the program. An undergraduate degree in forensic science should be an interdisciplinary degree that includes substantial laboratory work and an emphasis on advanced (upper level) coursework in chemistry, biology, or an area related to forensic science. Students may use these

advanced courses to begin to specialize along a forensic science discipline track, such as forensic biology or forensic chemistry.

4.4 Program Director

The program director shall be a full-time employee of the academic institution, appropriately qualified, and provide leadership in forensic science education, research, and scholarly activities so that students are adequately prepared for forensic science practice.

4.5 Faculty

The faculty shall be able to support fully the program's mission, goals, and objectives. Specifically, faculty members and other instructional personnel shall be appropriately qualified, by education and experience, and adequate in number to implement the instructional program. In addition, the number of faculty members shall be sufficient to ensure the offering, on a regular basis, of the full range of courses needed for the degree program.

At least 50 percent of the full-time science faculty teaching courses in the forensic science program shall have an appropriate doctoral degree; faculty members with working experience in a forensic science laboratory are preferred. The scientific and educational capabilities of the faculty should be distributed over the major areas of the program.

Full-time faculty members shall oversee all coursework and ensure its applicability to the program's mission, goals, and objectives.

The program shall have well-defined policies and procedures to recruit, appoint, and promote qualified faculty, to evaluate the competence and performance of faculty, and to support the professional development and advancement of faculty.

4.6 Success with Respect to Student Achievement

The program shall demonstrate that its graduates have a basic foundation in the scientific and laboratory problem-solving skills necessary for success in a modern crime laboratory. The program may do this through the use of a formal, objective tool, such as the American Board of Criminalistics Forensic Science Aptitude Test, or an appropriate pre-graduation assessment measurement.

The program shall also document its record of student performance, as measured by degree completion rates, job placement rates, employer satisfaction, and any additional outcome measures the program may use to assess student progress and achievement. These records shall be maintained for at least five years after student graduation.

4.7 Professional Involvement

The program shall provide service to the forensic science profession and to the community through some combination of communication, collaboration, consultation, technical assistance, continuing education programs, and any other means it may have for sharing the program's professional knowledge and competence. The purpose of this involvement is to provide opportunities for faculty and students to contribute to the advancement of the field of forensic science, and to maintain program currency and credibility with practitioners and forensic science laboratory administrators.

Table 1: Sample Curricula for Forensic Science Undergraduate Degrees

	Biology	*Chemistry/Trace/Controlled Substances*	*Toxicology*	*Firearms/QD/Prints*
University General Education (36-40 hrs)	Courses required by the university, which may include language, humanities, social sciences, technical writing, computer science, and public speaking. The actual number of credit hours required will vary with the university and some of the courses below may count toward fulfilling this requirement.			
Natural Science Core (34-38 hrs)	Biology I, II* Calculus General Chemistry* I,II Organic Chemistry* I,II Physics* I,II Statistics	Biology I* Calculus General Chemistry* I,II Organic Chemistry* I,II Physics* I,II Statistics	Biology I* Calculus General Chemistry* I,II Organic Chemistry* I,II Physics* I,II Statistics	Biology I* Calculus General Chemistry* I,II Organic Chemistry* I,II Physics* I,II Statistics
Specialty Core (12 hrs)	Biochemistry Genetics Instrumental Analysis Molecular Biology	Analytic Chemistry Quantitative* Inorganic Chemistry Instrumental Analysis Physical Chemistry	Analytic Chemistry Quantitative* Biochemistry Instrumental Analysis Physical Chemistry	Inorganic Chemistry Instrumental Analysis Optics/Lasers Physical Chemistry
Forensic Science Core (6 hrs)	Forensic Science Survey Forensic Professional Practice*	Forensic Science Survey Forensic Professional Practice	Forensic Science Survey Forensic Professional Practice	Forensic Science Survey Forensic Professional Practice
Forensic Laboratory Science (9 hrs)	Forensic Biology* Internship Microscopy* Physical Methods*	Forensic Chemistry* Internship Microscopy* Physical Methods*	Forensic Chemistry* Internship Microscopy* Physical Methods*	Internship Microscopy* Physical Methods*
*Additional Courses** (19 hrs)*	Cell Biology Introduction to Criminal Justice Legal Evidence Microbiology Population Genetics Public Speaking Immunology	Advanced Instrumental Analysis Drugs Introduction to Criminal Justice Legal Evidence Analytical Toxicology Materials Science Pharmacology Public Speaking	Advanced Instrumental Analysis Drugs Introduction to Criminal Justice Legal Evidence Analytical Toxicology Pharmacology Public Speaking	Crime Scene Introduction to Criminal Justice Legal Evidence Materials Science Public Speaking

* Laboratory courses (Up to 6 credits of laboratory requirement can be replaced with an internship).
** Electives listed here are not exhaustive and students may wish to tailor courses according to their areas of concentration.
*** This course includes ethics, testimony, evidence, chain of custody, etc.

Note: These examples are based on a minimum of 120 semester hours to obtain a degree. Credit hours as described above are meant to indicate semester credit hours.

APPENDIX 5

Terms of Reference
Forensic Science Program Committee

Terms of Reference (November 2007)
Forensic Science Program Committee

Purpose: To ensure the continuous development and revision of the B. Sc. Honours in Forensic Science Program.

Membership:

a) the Forensic Program Director, who functions as Committee Chair
b) one faculty member from each of the Faculty of Science Departments of Chemistry, Physics, and Microbiology (ideally but not necessarily the instructors of the Forensic Biology, Chemistry, Physics and Toxicology courses)
c) one faculty member from the Department of Geological Sciences, Clayton H. Riddell Faculty of Environment, Earth and Resources, (ideally but not necessarily the instructor of Forensic Geoscience)
d) one member of the Forensic Science local community (ideally but not necessarily an instructor in the program)
e) an administrative assistant/student advisor acting as resource person (non-voting)

Term of Membership:

No fixed terms of membership for faculty members but will be commensurate with active participation in the program. Members will be appointed by the Dean of Science, in consultation with the Program Director.

Duties and responsibilities:

The Committee shall:

a) review the overall functionality of the program on an annual basis.
b) add/delete courses, develop new courses and make any other changes to the program as needed.
c) review and revise admission procedures as required.
d) review and revise program structure as required, including assessment of forensic science minors for other programs and minors from other programs for forensic science students.
e) review and revise the curriculum of existing courses as required.
f) review and revise regulations for continuation and graduation as required.
g) to actively seek consultation from other faculties (specifically but not exclusively, the Faculty of Arts and the Faculty of Agriculture and Food Science) and local members of the forensic science profession (e.g. RCMP, Winnipeg Police, Fire Department, Chief Medical Examiner) to assess forensic course content and general program effectiveness.

Meetings:

The Committee shall meet twice annually or as required to meet deadlines for submission of material to the Faculty of Science Committee on Courses (currently late June, late August and late January). The quorum shall be 50% of the voting membership plus one.

APPENDIX 6

Outlines for New Forensic Science Courses

(Approved by Senate December 5, 2007)

FORS 2XXX
Introductory Forensic Science

Calendar Entry:

FORS 2XXXW Introductory Forensic Science Cr. Hrs. 3 Survey course which introduces forensic science via a series of guest lectures provided by experts from within the university and from the community (e.g. Winnipeg Police, RCMP, Chief Medical Examiner, etc). Multidisciplinary topics will be covered including how a case is studied, use of scientific techniques in investigations, collection of evidence, the role of the expert witness, and presentation of evidence in court. *Prerequisites:* BIOL 1030 (C+), CHEM 1310 (C+) and MATH 1500 (C+).

Course Objectives:

This course is designed to provide a basic understanding and overview of key aspects of forensic science. Guest speakers will provide lectures on their expertise. Fundamental topics not covered by guest speakers will be presented by the course Instructor. Case studies will be used as examples. The Instructor will provide strategies for critical evaluation of case studies and forensic science literature. This course is required for entry into the B.Sc. Forensic Science (Honours) Program. Upper level Forensic Science courses will build on information presented in this course.

Course Content:

Topics to be covered will include, but not be exclusive to, the following, with the order dependant on the availability of guest speakers:

- Criminal justice and legal aspects of forensic science
- Role of the expert witness
- Crime scene investigation techniques
- Evidence collection and storage
- Analytical techniques – microscopy, spectroscopy, separation methods
- Statistics and probability
- Pathology
- Anthropology and odontology
- Entomology
- Serology
- Blood stain and spatter analysis
- DNA analysis and profiling
- Hair and fibre analysis
- Toxicology and drug identification
- Paint and glass analysis
- Fire and explosion investigations
- Digital evidence
- Document analysis

- Soil analysis
- Use of isotope analyses
- Firearms and ballistics
- Fingerprints
- Impression analysis (e.g. footwear, tires)
- Roles of various experts in the community

Required Textbook: to be assigned by Instructor. Potential textbooks include:

Houck, M.M. and Siegel, J.A. 2006. Fundamentals of Forensic Science. Academic Press.

James, S.H. and Nordby, J.J. (Editors), 2005. Forensic Science: An Introduction to Scientific Investigative Techniques 2nd edition. CRC Press

Evaluation:

Assignment #1 Critical Review of a Forensic Case (due first week in October)	10%
Assignment #2 Critical Review of a CSI TV Episode (due last week of November)	15%
Mid-term examination (Mid-October)	25%
Final examination (TBA - December Exam Series)	50%

Resource Implications:

Library: see attached library report

Classroom delivery costs: Minimal – stationary, duplicating costs similar to other non-laboratory courses

Supplies: no cost

Teaching: initially the equivalent to a sessional lecturer stipend ($5000) until the Program Director is hired. Program Director will have this course onload.

- TA Grader/Markers at 1/30 students to mark assignments (30 min/assignment x 2 x $18/hr = $540/TA)
  - dependent upon enrolment but could be as many as 5-7 TAs ($2700-$3780)

FORS 3XXX
Introductory Forensic Identification

Calendar Entry:

FORS 3XXX Introductory Forensic Investigation Cr. Hr. 3 (Lab Required) This is the first practical introduction to the crime scene. The theory and practice of the following will be covered: crime scene protocols, management, reconstruction, and record keeping; image collection, storage and enhancement; chain of custody; preservation of evidence. Registration restricted to Honours Forensic Science students. *Prerequisites*: FORS 2XXX (B), CHEM 2470 (B), CHEM 2210 (B) MBIO/CHEM 2360 (B).

Course Objectives:

Students will receive theoretical instruction and practical training in all the processes used during a crime scene investigation. Students will learn techniques for the search, recovery (e.g. fingerprints, tool marks and footprints), collection, and storage of evidence (e.g. hair, fibres, paint) along with legal aspects of collection, preservation and documentation of evidence.

Course Content:

Topics to be covered include:

- Legal requirements for Canadian criminal investigations; taking statements, effective notations
- Crime scene forensic photography
- Classes of crime scenes (e.g. break-and-enter, fires, explosions, vehicular incidents)
- Collection of evidence
- Recovery and storage of trace materials
- Routine analysis of trace materials – analytical and microscopic techniques
- Imprint identification and recovery
- Fingerprint analysis
- Collection of impression evidence
- Footwear analysis
- Tool mark analysis
- Quality control of data collection
- Writing meaningful investigative reports

Required Textbook(s) and Resources: to be assigned by the Instructor. Example texts:

Houck, M.M. and Siegel, J.A. 2006. Fundamentals of Forensic Science. Academic Press.

James, S.H. and Nordby, J.J. (Editors), 2005. Forensic Science: An Introduction to Scientific Investigative Techniques 2nd edition. CRC Press

Meloen, C., R. James and R. Saferstein. 2006. Criminalistics: An Introduction to Forensic Science. Laboratory Manual. Prentice Hall.

Saferstein, R. 2006. Criminalistics: An Introduction to Forensic Science. Prentice Hall.

Evaluation: as determined by the Instructor. Suggested evaluation includes:

Mid-term Examination	20%
Lab reports	10%
Investigative Report	20%
Crime Scene Practical Examination	20%
Final Examination	30%

Statement from the Library:
See Appendix 2 of the Forensic Science Program Proposal for the statement from the Head of the Sciences and Technology Library outlining required library resources.

Statement of Additional Costs:
This course is part of the newly proposed Forensic Science Program. Resources required for the delivery of all new program courses are described in the program proposal.

Statement from Other Departments:
This course is part of the newly proposed Forensic Science Program. See Appendix 1 of the Forensic Science Program proposal for letters of support for the program

FORS 3XXY
Forensic Evidence and the Expert Witness

Calendar Entry:
FORS 3XXY Forensic Evidence and the Expert Witness Cr. Hr. 3 (Lab Required). This course explores the role of the Forensic Scientist in providing information in the context of the Canadian legal system. Rules and procedures governing the collection and admissibility of evidence will be covered along with the reliability of evidence. Students will receive practical instruction via mock court presentations and preparation of court reports. Registration restricted to Honours Forensic Science students. *Prerequisites*: FORS 3XXX (B).

Course Objectives:
Students will learn how the Canadian legal system influences the practices of the Forensic Scientist. Students will learn the rules for collection of evidence, what constitutes reliable evidence, and how to formulate analyses of evidence into meaningful court reports. Using case studies, and mock court scenarios, students will learn how to present evidence. Ethical issues will be addressed.

Course Content:
Topics to be covered include:

- Various types of forensic expert witnesses
- Proper procedures and rules for evidence (see below) collection
- Reliability of forensic evidence including:
    - DNA, trace evidence, fingerprints, ballistics, tool marks, blood spatter, blood analyses, voice analysis, polygraphs, entomology, odontology, breathalyzers data, arson, explosives, pathology, documents, hand writing, impressions
- Ethical issues facing forensic specialists
- Preparing court statements and reports
- Presenting evidence in court

Required Textbook(s) and Resources: to be assigned by the Instructor.
Saferstein, R. 2006. Criminalistics: An Introduction to Forensic Science. Prentice Hall.
White, P. 2004. Crime Scene to Court – The Essentials of Forensic Science. The Royal Society of Chemistry

Evaluation: as determined by the Instructor. Suggested evaluation includes:

Mid-term Examination	20%
Mini-assignments (case studies)	5%
Witness statement	10%
Mock court presentation	10%
Performance in Moot Court scenario	25%
Final Examination	30%

Statement from the Library:
See Appendix 2 of the Forensic Science Program Proposal for the statement from the Head of the Sciences and Technology Library outlining required library resources.

Statement of Additional Costs:
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Statement from Other Departments:
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FORS 3XXZ
Advanced Forensic Investigation

Calendar Entry:
FORS 3XXZ Advanced Forensic Investigation Cr. Hr. 3 (Lab Required). This course focuses on the in depth study of the practical aspects of criminal investigations. Students will build on the basic search and collection skills acquired in FORS 3XXX Introductory Forensic Investigation and court report writing and presentation skills acquired in FORS 3XXY Forensic Evidence and the Expert Witness. Various types of crime scenes will be used for the search, collection, and basic analysis of evidence. Analyses will be used to prepare court reports and/or presented in mock court settings. Registration restricted to Honours Forensic Science students. *Prerequisites*: FORS 3XXY (B), CHEM 3590 (B), GEOL 2060, and SOIL 4130.

Course Objectives:
This course encompasses all aspects of forensic investigation, from the search and recovery of evidence through laboratory analyses and presentation in court. Students will learn more advanced methods for analysis of evidence in preparation for stream specific courses. Students will learn how to determine what evidence must be collected, proper collection and correct analysis of evidence with the goal of preparing reports and presenting data gathered in court.

Course Content:
Topics to be covered include:

- Basic procedures for laboratory analysis
- Quality assurance protocols
- Trace evidence analysis: hair, glass, paint
- Firearm identification and examination, ballistics
- Vehicular investigations: paint, glass, serial numbers
- Arson investigations: analysis of debris, accelerant determinations
- Explosion investigations
- Outdoor crime scenes: entomology, post-mortem changes, weathering and environmental effects, etc.
- Sex and age determinations – human skeletal anatomy
- Comparison studies of footwear, tool marks, tire marks, handwriting
- Blood spatter patterns analysis and modeling
- Document analysis
- Use of presumptive and confirmatory tests for body fluids and stains
- Report preparation and mock court presentations

Required Textbook(s) and Resources: to be assigned by the Instructor. Potential textbooks:
Meloen, C., R. James and R. Saferstein. 2006. Criminalistics: An Introduction to Forensic Science. Laboratory Manual. Prentice Hall.
Saferstein, R. 2006. Criminalistics: An Introduction to Forensic Science. Prentice Hall.
White, P. 2004. Crime Scene to Court – The Essentials of Forensic Science. The Royal Soc. Chem.

Evaluation: as determined by the Instructor. Suggested evaluation includes:

Mid-term Examination	20%
Lab reports	20%
Court Reports and presentations	20%
Final lab examination	10%
Final Examination	30%

Statement from the Library:
See Appendix 2 of the Forensic Science Program Proposal for the statement from the Head of the Sciences and Technology Library outlining required library resources.

Statement of Additional Costs:
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Statement from Other Departments:
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FORS 4XXX
Forensic Science Research Project

Calendar Entry:
FORS 4XXX Forensic Science Research Project Cr. Hr. 6 (Lab Required). Students carry out independent forensic science based research in their area of interest under the supervision of a faculty member or an external forensic professional. Results will be presented as an interim oral report and a written journal style paper. Registration restricted to Year 4 Honours Forensic Science students. *Prerequisites*: FORS 3XXZ (B).

Course Objectives:
Students will be able to apply the knowledge and skills learned in the program to a research project in their area of interest, presumably in, but not restricted to their stream (Biology, Chemistry, Toxicology or Physical Evidence). Students will get first hand experience in experimental design and implementation. Research findings and results will be presented as an oral conference-style report in February. The final report will be written in a style acceptable for publication in an applicable journal (e.g. Journal of Forensic Science).

Course Content:
Students will carry out independent research under the supervision of a faculty member or forensic science professional and present results as an oral report and as a journal paper.

Required Textbook(s) and Resources: Readings to be assigned by the Instructor.

Evaluation: Suggested evaluation includes:

First term attendance, participation and notebook	20%
Second term attendance, participation and notebook	20%
Independence and initiative	20%
Oral presentation (conference-style, February)	10%
Final written report (journal article)	30%

The oral presentation and final report will be graded by a panel of faculty members, including the designated supervisor. The supervisor will grade attendance, participation, completeness of notebook and extent of independence and initiative.

Statement from the Library:
See Appendix 2 of the Forensic Science Program Proposal for the statement from the Head of the Sciences and Technology Library outlining required library resources.

Statement of Additional Costs:
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Statement from Other Departments:
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FORS 4XXY
Forensic Biology

Calendar Entry:
FORS 4XXY Cr. Hrs. 3 (Lab Required) The recovery and analysis of body fluids and other biological specimens will be the main focus of this course. Analyses include identification and comparison of genetic markers, genotyping, immunological testing, biomolecule identification, blood grouping, plant and insect identification. DNA databanks will be used and DNA profiling examined. Basic forensic pathology will be covered as pertaining to the cause, manner and time of death. The use of biological analyses as evidence in a courtroom will be examined. *Prerequisites:* FORS 3XXZ (B), BOTN 2460 (B), CHEM/MBIO 2370 (B), and MBIO 3410 (B) or consent of instructor.

Course Objectives:
Students will learn state-of-the art techniques for isolating and analyzing DNA and other biomolecules from biological specimens, primarily but not exclusively from humans. DNA databases, databanks and other forms of bioinformatics will be used for identification and comparisons. Students will learn basic principles and techniques in forensic entomology, botany and pathology. Students will be able to write technical court reports and be able to present their findings in a courtroom setting.

Course Content:

- Role of the Forensic Biologist in death investigations
- Review of biological sample collection and preparation
- Current standards, quality control and accreditation
- Overview of human genetics; population genetics, lineage markers
- DNA extraction, purification, amplification
- DNA fingerprinting and DNA profiling techniques: RFLP, STR, SNP, etc.
- Bioinformatics, DNA databases and databanks
- Blood typing, immunological testing, immunoassays
- Basic forensic entomology – post-mortem analysis
- Basic forensic pathology post-mortem analysis
- Basic forensic botany; use in tracking movements
- Limitations – contamination, mixed samples, degraded samples
- Presentation of DNA and other biological analyses in court

Required Resources: To be assigned by the Instructor. Potential textbooks include:
Inman, K. and N. Rudin. 2002. An Introduction to Forensic DNA Analysis (3rd Ed.) CRC Press.
Li, R. 2008. Forensic Biology. Taylor & Francis Group.

Evaluation: As determined by the Instructor. Suggested evaluation includes:

Midterm examination	20%
Lab reports	20%
Court reports and presentations	20%
Final Lab examination	10%
Final examination	30%

Statement from the Library:
See Appendix 2 of the Forensic Science Program Proposal for the statement from the Head of the Sciences and Technology Library outlining required library resources.

Statement of Additional Costs:
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Statement from Other Departments:
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FORS 4XXZ
Forensic Toxicology

Course Instructors:

Lecture: **Mrs. Shirley Treacy**
Forensic Toxicologist, Winnipeg RCMP Forensic Laboratory
Laboratory: **TBA**

Calendar Entry:
FORS 4XXZ Cr. Hrs. 3 (Lab Required) The role of the Forensic Toxicologist in criminal and death investigation will be studied. Emphasis will be placed on the use of analytical and chemical procedures for the detection of drugs and poisons in body fluids and tissues. *Prerequisites:* FORS 3XXZ Advanced Forensic Identification (B), CHEM 2220 Organic Chemistry II: Reactivity and Synthesis (B) and ZOOL 2180 Introductory Toxicology (B), or consent of the instructor.

Course Objectives:
Student should demonstrate proficiency in:

- Evaluation of a range of analytical techniques used in forensic toxicology.
- Critical evaluation of all factors that affect toxicity.
- Interpretation of case studies with respect to toxicology.
- Identification and quantification of drugs given a variety of results.
- Calculation of Blood Alcohol concentrations.
- Presenting and defending toxicological results in a court setting.

Course Content:

- Role of toxicology in death investigations
- Introduction to toxicology and dose response relationships
- Drug abuse – classes of drugs, drug profiling
- Overview: Identification and laboratory examination of drugs
- Absorption, distribution, metabolism and excretion of drugs/toxic compounds
- Extraction from biological samples (tissues and body fluids)
- How putrefaction can interfere with identification
- Potential problems when interpreting postmortem drug concentrations
- Analytical methods and techniques (e.g. GC, HPLC, Immunoassay, GC/MS, derivitization, etc) for drug detection and identification
- Determine Blood Alcohol Concentrations
- Effective presentation of toxicological findings in court

Evaluation: As determined by the Instructor. Will include both laboratory and lecture components.

Required Resources:
To be assigned by the Instructor. Potential textbooks include:
Cole, M.D and B. Caddy. The Analysis of Drugs of Abuse: An Instruction Manual. CRC Press (1996)
Stine, K. and T.M. Brown. Principles of Toxicology. CRC Press 2000

Statement from the Library:
See Appendix 2 of the Forensic Science Program Proposal for the statement from the Head of the Sciences and Technology Library outlining required library resources.

Statement of Additional Costs:
This course is part of the newly proposed Forensic Science Program. Resources required for the delivery of all new program courses are described in the program proposal.

Statement from Other Departments:
This course is part of the newly proposed Forensic Science Program. See Appendix 1 of the Forensic Science Program proposal for letters of support for the program

FORS 4XYY
Forensic Chemistry

Calendar Entry:
FORS 4XYY Forensic Chemistry Cr. Hrs. 3 (Lab Required) Analysis of various forms of forensic evidence using instrumental and analytical chemistry techniques. Biological and physical evidence will be examined including human remains, paint, fibres, fire and explosion remains, etc.
Prerequisites: FORS 3XXZ (B), CHEM 3590 (B) or consent of instructor.

Course Objectives:
Student should demonstrate proficiency in:

- Evaluation of a range of instrumental analytical techniques used in forensic chemistry.
- Interpretation of case studies with respect to forensic chemistry.
- Identification and quantification of analytical results.
- Presenting and defending forensic analytical results in a court setting.

Course Content:

- Chain of custody
- Trace analysis (microscopy, fiber, glass analysis)
- Atomic Absorption and Atomic Emission spectroscopy
- Inductively Coupled Plasma-Optical Emission Spectroscopy
- Quality Assurance/Quality Control
- Quantification, case studies
- Scanning Electron Microscopy, paint analysis, gunshot/primer analysis
- Types of accelerants, activated charcoal method, SPME
- Extraction methods, conformation methods (GC/MS, LC/MS)
- Principles of FT-IR, GC/MS, LC/MS and electrophoresis as applied to forensics

Evaluation: Student evaluation will involve assignments, tests and final exams. Writing and oral skills will also be assessed. The laboratory component will carry a significant portion of the assessment.

Required Resources: To be assigned by the Instructor. Potential textbooks include:
Ho, Analytical Methods in Forensic Chemistry (Ellis Horwood, 1990)
Forensic and Analytical Chemistry of Clandestine Phenethylamines (CND Analytical Inc., Auburn, AL; 1994)

Statement from the Library:
See Appendix 2 of the Forensic Science Program Proposal for the statement from the Head of the Sciences and Technology Library outlining required library resources.
Statement of Additional Costs:
This course is part of the newly proposed Forensic Science Program. Resources required for the delivery of all new program courses are described in the program proposal.
Statement from Other Departments:
This course is part of the newly proposed Forensic Science Program. See Appendix 1 of the Forensic Science Program proposal for letters of support for the program

FORS 4XYZ
Forensic Physics

Calendar Entry:
FORS 4XYZ Cr. Hrs. 3 (Lab Required) This course introduces the student to forensic applications of physics, via the study of selected topics. Students will study the physics behind investigative methods used to gather evidence and reconstruct crime events. *Prerequisites*: FORS 3XXZ (B), PHYS 2650 (B), PHYS 3670 (B) or consent of instructor. PHYS 3430 and PHYS 2390 are recommended.

Course Objectives:
Students who successfully complete the course will have reliably demonstrated the ability to:

1. understand the physics underlying the motion of a bullet or other projectile, vehicular collisions, blood spatter analysis, and explosions.
2. apply physics concepts to investigate crime and accident scenes.
3. apply a number of analytical and numerical techniques in order to model and reconstruct physical processes involving crime and accident scenes .
4. choose appropriate laboratory techniques to investigate exhibits.
5. critically evaluate published articles, methods and studies on the applications of physics to crime scene investigations.
6. understand the physics underlying the motion of a bullet or other projectile, vehicular collisions, blood spatter analysis, and explosions.
7. apply physics concepts to investigate crime and accident scenes.
8. apply a number of analytical and numerical techniques in order to model and reconstruct physical processes involving crime and accident scenes.
9. choose appropriate laboratory techniques to investigate exhibits.
10. critically evaluate published articles, methods and studies on the applications of physics to crime scene investigations.

Course Content:

- **Ballistics**
  - Firearms: history and development
  - Internal and external ballistics
  - Flight modeling for bullets and missiles
  - Terminal/wound ballistics and distance of firing
- **Vehicular accident reconstruction**
  - Forensic mechanics
  - Accident dynamics
  - Driving hazard and collision modeling
  - Accident reconstruction
- **Bloodstain analysis**
  - Introduction to fluid mechanics
  - Fluid mechanics of blood
  - Impact spatter groups and patterns
  - Bloodstain analysis
  - Reconstruction
- **Physics of investigative techniques**
  - Spectrometry with light

- Mass Spectrometry
- Nondestructive testing techniques
    - X-rays
    - Ultrasound
    - Alpha-particle, neutron scattering

- **Physics of explosions**
    - Physics of explosion hazards
    - Gas phase explosions
    - Aircraft explosions
    - Explosion modeling
    - Recovery of material from the scene of an explosion
    - Analysis of explosives by physics methods (Infrared Spectroscopy, Mass Spectrometry)

Required Resources: To be assigned by the Instructor. Potential textbooks include:
Engineering Analysis of Vehicular Accidents, Randall K. Noon, CRC Press, Boca Raton, Florida (1994)
Firearms, the Law and Forensic Ballistics. T.A.Warlow. 2nd Edition, Taylor and Francis. (2004)
Forensic Engineering Reconstruction of Accidents, John Fiske Brown, Kenneth S. Obenski, Thomas R. Osborn, Charles C Thomas Publisher LTD, Springfield, Illinois. (2002)
Forensic Fire Scene Reconstruction, D.J.Icove and J.D.DeHaan. Pearson Prentice Hall, Upper Saddle River, N.J. (2004)
Forensic Investigation of Explosions, Ed. By A.Beveridge. CRC Press, Boca Raton, Florida (1998)
Mathematical Modelling: Classroom Notes in Applied Mathematics, Ed. By M.S.Klamkin. SIAM, Philadelphia (1987)
Modern Exterior Ballistics: The Launch and Flight Dynamics of Symmetric Projectiles, R.L.McCoy, Schiffer Publishing, Atglen, PA. (2005)
Silent Evidence: Firearms Forensic Ballistics and Toolmarks - Cases from Forensic Science, C.Meyers, Parkway Publishers. (2004)
Techniques for Crime Scene Investigation. B. Fisher. 2nd Ed. CRC press, USA. (1999)
The Encyclopaedia of Forensic Science. B. Lane. Headline. (1993)
The Forensic Science Handbook, vol. 1 and 2. R. Saferstein. Englewood Cliffs. Prentice Hall (1998)
Vehicular Accident Investigation and Reconstruction. D.J.Van Kirk, CRC Press, Boca Raton, Florida (2001)
Blood Dynamics, A. Wonder, Elsevier/Academic Press, 2001.

Evaluation: As determined by the Instructor. Suggested evaluation includes: assignments (10%), project with oral and written report (20%), mid-term examination (20%) and final examination (50%).

Statement from the Library:
See Appendix 2 of the Forensic Science Program Proposal for the statement from the Head of the Sciences and Technology Library outlining required library resources.

Statement of Additional Costs:
This course is part of the newly proposed Forensic Science Program. Resources required for the delivery of all new program courses are described in the program proposal.

Statement from Other Departments:
This course is part of the newly proposed Forensic Science Program. See Appendix 1 of the Forensic Science Program proposal for letters of support for the program

From: **"David Deutscher" <ddeutsc@cc.umanitoba.ca>**
To: **<eworobe@ms.UManitoba.CA>**
Subject: **Re: Forensic Science Course**
Date sent: **Wed, 5 Dec 2007 12:21:42 -0600**

Betty:

I took a look at the outline. The only area we might deal with is the part of presenting evidence. However, you would be dealing with it from the point of view of the witness and we would deal with it from the point of view of the lawyer. I can't see how this course would in any way conflict with what we are doing at the Law Faculty.

David Deutscher
----- Original Message -----
From: "Elizabeth Worobec" <eworobe@ms.UManitoba.CA>
To: <ddeutsc@cc.umanitoba.ca>
Sent: Wednesday, November 28, 2007 12:31 PM
Subject: Forensic Science Course

> Hello David,
>
> Thank you for returning my call and agreeing to review the
> courses outline for one of the courses we are proposing. I
> have attached the course outline for FORS 3XXY Forensic
> Evidence and the Expert Witness. Any feedback is
> welcomed! Also, if you or any of your colleagues are
> interested in speaking in any of our new Forensic Science
> courses (the one attached being most applicable) please let
> me know!
>
> The entire suite of new courses along with the new
> program will likely be submitted to the Senate Committee
> on Curriculum and Courses Changes in early February
> 2008. The course in question will be offered for the first
> time in Winter Session of 2010. CCCC will want to know
> if the extent of overlap, if any, with LAW 2600 Evidence.

>
> Thanks again! Let me know if you need any further
> information.
>
> Betty
> Elizabeth Worobec, Ph.D.
> Associate Dean (Student Affairs)
> Faculty of Science
> University of Manitoba
> Winnipeg, Manitoba
> Canada R3T 2N2
> Phone: +1-204-474-8310
> FAX: +1-204-474-7618
>

> The following section of this message contains a file attachment
> prepared for transmission using the Internet MIME message format.
> If you are using Pegasus Mail, or any other MIME-compliant system,
> you should be able to save it or view it from within your mailer.
> If you cannot, please ask your system administrator for assistance.
>
> ---- File information ----------
> File: FORS 3XXY.doc
> Date: 28 Nov 2007, 12:16
> Size: 29696 bytes.
> Type: Unknown
>

From: **"Robert D. Hoppa, PhD" <hoppard@cc.umanitoba.ca>**
To: **<eworobe@ms.UManitoba.CA>**
Subject: **RE: Forensic Biology Course Outline**
Date sent: **Thu, 29 Nov 2007 14:55:37 -0600**

Hi Betty
I don't think I actually saw a version of this specific course before. However, I would say there is zero overlap with ANTH 3730 (Forensic Anthropology).

rob

Robert D. Hoppa, PhD
Associate Professor and Canada Research Chair
Department of Anthropology
435 Fletcher Argue Bldg
University of Manitoba
Winnipeg, Manitoba
Canada R3T 5V5
Phone: (204) 474-6329
Fax: (204) 474-7600
Homepage
Bioanthropology Digital Image Analysis Laboratory (BDIAL)

-----Original Message-----
From: Elizabeth Worobec [mailto:eworobe@ms.UManitoba.CA]
Sent: Thursday, November 29, 2007 11:25 AM
To: hoppard@ms.UManitoba.CA
Subject: Forensic Biology Course Outline

Hi Rob,

As per our phone conversation today, please find attached the draft course outline for Forensic Biology. Georg Hausner has also looked at it and found

it to be suitable.
Could you take a peek at it and let me know if it looks appropriate and if there may be any overlap with the course you teach?

Thank you!

Betty
Elizabeth Worobec, Ph.D.
Associate Dean (Student Affairs)
Faculty of Science
University of Manitoba
Winnipeg, Manitoba
Canada R3T 2N2
Phone: +1-204-474-8310
FAX: +1-204-474-7618

April 9, 2008

Report of the Senate Committee on Curriculum and Course Changes on a Proposal to Introduce a Bachelor of Science (Honours) in Forensic Science Degree

Preamble

1. The terms of reference for the Senate Committee on Curriculum and Course Changes (SCCCC) are found on the website at: http://www.umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/497.htm.

2. The Senate Committee on Curriculum and Course Changes considered a proposal to introduce a Bachelor of Science (Honours) in Forensic Science Degree at its meeting on April 9, 2008.

Observations

1. This program will provide students with a strong basic science background and specialization in Forensic Chemistry, Toxicology, Biology or Physical Evidence. The majority of courses are delivered by the Faculty of Science with some required courses from the Faculties of Arts, Agricultural and Foods Sciences and the Clayton H. Riddell Faculty of the Environment, Earth and Resources.

2. Core courses in crime scene investigation will be co-taught by university instructors and forensic specialists from, for example, RCMP Forensic Laboratory Services, Winnipeg Police Forensic Identification Unit and the Chief Medical Examiner's Office.

3. Each of the four streams is designed to provide graduates with the training required to pursue a career in the given scientific discipline, forensic-based or not, to seamlessly enter a graduate program, forensic-based or not, or to enter professional degree programs (e.g. medicine, dentistry, pharmacy, law, education).

4. No comparable programs exist in Manitoba. Within Canada, an Honours B.Sc. offered by the University of Manitoba will draw students from western Canada, northwestern Ontario and the northern United States but its uniqueness will likely attract students from across Canada.

5. Predicted enrolment is 30 students per year.

6. Letters of support and external evaluations have been received from the Office of the Chief Medical Examiner, Winnipeg RCMP Forensic Laboratory Services, Winnipeg Police Services, Manitoba Museum, the Faculties of Arts, Agricultural and Food Sciences, Dentistry, Engineering, Human Ecology, Law, Medicine, Nursing, Pharmacy, Architecture, School of Art, Asper School of Business, Clayton H. Riddell Faculty of Environment, Earth and Resources. Representatives from the following departments have been involved in the development of this proposal: Psychology, Anthropology, Sociology and Entomology, in addition to all departments in the Faculty of Science.

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

7. The proposed curriculum was based on the Forensic Science Education Programs Accreditation Commission (FEPAC) set up by the American Academy of Forensic Sciences.

8. The Faculty is proposing the introduction of eight new courses: **FORS 3XXX Introductory Forensic Investigation (3), FORS 3XXY Forensic Evidence/Expert Witness (3), FORS 3XXZ Advanced Forensic Identification (3), FORS 4XXX Forensic Science Research Project (6), FORS 4XXY Forensic Biology (3), FORS 4XXZ Forensic Toxicology (3), FORS 4XYY Forensic Chemistry (3),** and **FORS 4XYZ Forensic Physics (3).**

Recommendation

The Senate Committee on Curriculum and Course Changes recommends THAT:

> **Senate approve and recommend to the Board of Governors, the proposal to introduce a Bachelor of Science (Honours) Degree in Forensic Science.**

Respectfully submitted,

Professor H. Frankel, Acting Chair
Senate Committee on Curriculum and Course Changes

Faculty of Science

Course introductions:

FORS 3XXX Introductory Forensic Investigation Cr.Hrs. 3 (Lab Required) +3
This is the first practical introduction to the crime scene. The theory and practice of the following will be covered: crime scene protocols, management, reconstruction, and record keeping; image collection, storage and enhancement; chain of custody; preservation of evidence. Registration restricted to Honours Forensic Science students. Prerequisites: FORS 2000 (B), CHEM 2470 (B), CHEM 2210 (B), and MBIO/CHEM 2360(B).

FORS 3XXY Forensic Evidence/Expert Witness Cr.Hrs. 3 (Lab Required) +3
This course explores the role of the Forensic Scientist in providing information in the context of the Canadian legal system. Rules and procedures governing the collection and admissibility of evidence will be covered along with the reliability of evidence. Students will receive practical instruction via mock court presentations and preparation of court reports. Registration restricted to Honours Forensic Science students. Prerequisites: FORS 3XXX (B).

FORS 3XXZ Advanced Forensic Identification Cr.Hrs. 3 (Lab Required) +3
This course focuses on the in depth study of the practical aspects of criminal investigations. Students will build on the basic search and collection skills acquired in FORS 3XXX Introductory Forensic Investigation and court report writing and presentation skills acquired in FORS 3XXY Forensic Evidence and the Expert Witness. Various types of crime scenes will be used for the search, collection, and basic analysis of evidence. Analyses will be used to prepare court

reports and/or presented in mock court settings. Registration restricted to Honours Forensic Science students. Prerequisites: FORS 3XXY (B), CHEM 3590 (B), GEOL 2060, and SOIL 4130.

FORS 4XXX Forensic Science Research Project Cr.Hrs. 6 (Lab Required) +6
Students carry out independent forensic science based research in their area of interest under the supervision of a faculty member or an external forensic professional. Results will be presented as an interim oral report and a written journal style paper. Registration restricted to Year 4 Honours Forensic Science students. Prerequisite: FORS 3XXZ (B).

FORS 4XXY Forensic Biology Cr.Hrs. 3 (Lab Required) +3
The recovery and analysis of body fluids and other biological specimens will be the main focus of this course. Analyses include identification and comparison of genetic markers, genotyping, immunological testing, biomolecule identification, blood grouping, plant and insect identification. DNA databanks will be used and DNA profiling examined. Basic forensic pathology will be covered as pertaining to the cause, manner and time of death. The use of biological analyses as evidence in a courtroom will be examined Prerequisites: FORS 3XXZ (B), BOTN 2460 (B), CHEM/MBIO 2370 (B), and MBIO 3410 (B) or consent of instructor.

FORS 4XXZ Forensic Toxicology Cr.Hrs. 3 (Lab Required) +3
The role of the Forensic Toxicologist in criminal and death investigation will be studied. Emphasis will be placed on the sue of analytical and chemical procedures for the detection of drugs and poisons from body fluids and tissues. Prerequisites: FORS 3XXZ (B), CHEM 2220 (B), and ZOOL 2180 (B) or consent of instructor.

FORS 4XYY Forensic Chemistry Cr.Hrs. 3 (Lab Required) +3
Analysis of various forms of forensic evidence using instrumental and analytical chemistry techniques. Biological and physical evidence will be examined including human remains, paint, fibres, fire and explosion remains, etc. Prerequisites: FORS 3XXZ (B), CHEM 3590 (B) or consent of instructor.

FORS 4XYZ Forensic Physics Cr.Hrs. 3 (Lab Required) +3
This course introduces the student to forensic applications of physics, via the study of selected topics. Students will study the physics behind investigative methods used to gather evidence and reconstruct crime events. Prerequisites: FORS 3XXZ (B), PHYS 2650 (B), PHYS 3670 (B) or consent of instructor.

/mb

May 26, 2008

Report of the Senate Planning and Priorities Committee on the proposal to introduce a Bachelor of Science (Honours) in Forensic Science Program

Preamble

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

2. The Faculty of Science has approved its proposed Bachelor of Science (Honours) in Forensic Science Program and it recommends that Senate approve this new degree program.

Observations

1. The proposed program seeks to provide an interdisciplinary degree program in Forensic Science which would provide students with a strong basic science background and possible specializations in Forensic Chemistry, Toxicology, Biology and Physical Evidence. While the majority of the courses are delivered by the Faculty of Science, the program will also include required courses from the Faculty of Arts, Faculty of Agricultural and Food Sciences, and the Clayton H. Riddell Faculty of the Environment, Earth, and Resources.

2. The program is being proposed to meet the increasing need for well trained scientists to work in areas of Forensic Biology (DNA analyses), Chemistry (trace evidence) and Toxicology (Drug, Alcohol, etc.). The proposal indicates that potential employers would be laboratories such as RCMP Forensic Laboratory Services, police services (forensic identification units, fire investigation units), medical examiners and coroner's offices, insurance investigation units, and government agencies such as immigration and customs. The technologists in all of these areas require a minimum of a B.Sc. Honours in a related discipline.

3. The committee noted that the Program will require a significant amount of new resources to fully implement the proposed program. This would include 3 FTE academic positions, 5 sessional instructors, 1 lab steward 2, 0.5 office assistant, 23 teaching assistanceships, for total staff costs $381,000 with a one time start up staff cost of $200,000. In addition the proposed program would require a $90,000 of one time funding to develop a crime scene house and a crime scene garage with an annual maintenance fee of $5,000. Finally, the proposed program would require $391,500 for new equipment and $50,000 for annual replacement and maintenance of equipment. The total one time start up costs for the program would be $826,000 and the annual on going baseline cost for the program would be $500,900.

4. The committee noted that the Director of Libraries has indicated that the Libraries' collections could support the proposed new program with the following additions: an additional expenditure of $6800 to fortify its monograph collection; an additional annual

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

maintenance cost of $400 per year for an e-subscription to the Journal of Forensic Sciences and up to $1500 per year for continued monograph additions.

5. The committee noted that the proposed program will require a significant amount of additional laboratory space to implement the program as proposed. It was assured by the Faculty of Science that space would be made available as part of the additional laboratory space which will be allocated to the Faculty of Science as part of "Project Domino".

6. The committee noted letters of support for the proposed program were received from many Faculties including the Faculties of Arts, Architecture, Agricultural and Food Sciences, the Clayton H. Riddell Faculty of the Environment, Earth, and Resources, Dentistry, Education, Engineering, Fine Arts, Law, Medicine, and Nursing.

Recommendations:

The SPPC recommends THAT:

Senate approve and recommend to the Board of Governors that it approve the proposed Bachelor of Science (Honours) in Forensic Science Program. The Senate Planning and Priorities Committee recommends that the Vice-President (Academic) not implement the program until he is satisfied that there would be sufficient space and sufficient new funding to support the ongoing operation of the program.

Respectfully submitted,

Norman R. Hunter, Chair
Senate Planning and Priorities Committee

June 4, 2008

Report of the Senate Committee on Approved Teaching Centres with Respect to Cross-Registered Courses and Instructors for 2008-2009

Preamble

1. The terms of reference for the Senate Committee on Approved Teaching Centres (SCATC) are found on the web at: http://umanitoba.ca/admin/governance/governing_documents/governance/sen_committees/494.htm2.

2. Since last reporting to Senate, the Senate Committee on Approved Teaching Centres has considered the lists of proposed courses and instructors as submitted by William and Catherine Booth College (WCBC), and Prairie Theatre Exchange (PTE) for cross-registration with the University of Manitoba in 2008-09.

Observations

1. **William and Catherine Booth College**

   The attached list shows all cross-registered courses and proposed instructors as submitted by WCBC for the year 2008-09. Approval has been received from appropriate departments in the Faculty of Arts.

2. **Prairie Theatre Exchange**

   Attached is a list of the courses and instructors submitted by the Prairie Theatre Exchange for cross-registration at the University of Manitoba for 2008-09. Approval has been received from the Department of English, Film, and Theatre for the courses and instructors proposed.

Recommendations:

The Senate Committee on Approved Teaching Centres recommends that Senate approve the Approved Teaching Centre instructors and courses listed in Appendix A of this report.

Respectfully submitted,

Senate Committee on Approved Teaching Centres

/mb

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

Cross-Registered Courses to be offered at ATCs for 2008-09, with Proposed Instructors

U of M Dept, School or Faculty	Course No.	WCBC	PTE
Faculty of Arts			
English, Film, & Theatre	ENGL 1200	Michael Boyce, Ph.D.	
	THTR 2170		Daina Leitold/ Heather Jordan/ Hope McIntyre/ Deb Patterson/ Tom Soares/ Stephen Sim/ Brenda MacLean
	THTR 2180		Daina Leitold/ Heather Jordan/ Hope McIntyre/ Deb Patterson/ Tom Soares/ Stephen Sim/ Brenda MacLean
	THTR 2490		Daina Leitold/ Heather Jordan/ Hope McIntyre/ Deb Patterson/ Tom Soares/ Stephen Sim/ Brenda MacLean
History	HIST 1390	Lloyd Penner, Ph.D.	
	HIST 1400	Lloyd Penner, Ph.D.	
Psychology	PSYC 1200	Joseph Campbell, Ph.D.	
Religion	RLGN 1120	Jonathan Dyck, Ph.D.	
	RLGN 2160	Roy Jeal, Ph.D.	
	RLGN 2170	Roy Jeal, Ph.D..	
	RLGN 3780	Roy Jeal, Ph.D..	
	RLGN 3800	Donald Burke, Ph.D.	
Sociology	SOC 1200	Cheryl Albas, Ph.D.	

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/vpresearch

MEMORANDUM

TO: Mr. Jeff Leclerc, University Secretary

FROM: Joanne C. Keselman, Vice-President (Research)
and Chair, Senate Committee on University Research

DATE: May 28, 2008

SUBJECT: Proposals to establish Professorships in Marketing and Supply Chain Management

Attached, please find proposals to establish Professorships in Marketing and Supply Chain Management. The Dean of Asper School of Business, the Vice-President (Academic) and Provost, and the Senate Committee on University Research (SCUR), have endorsed this proposal, in accordance with the University's policy on Chairs and Professorships,

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.

JCK/nis
Encl.

4.4

UNIVERSITY OF MANITOBA | Office of the Vice-President (Academic) & Provost

208 Administration Building
Winnipeg, Manitoba
Canada R3T 2N2
Telephone (204) 480-1408
Fax (204) 275-1160

May 1, 2008

TO: Joanne Keselman, Vice-President (Research)

FROM: Robert Kerr, Vice-President (Academic) & Provost RK/sw RK

SUBJECT: Professorships in Marketing & Supply Chain Management

---

I have received from Glenn Feltham, Dean, Asper School of Business proposals for the establishment of Professorships in Marketing and Supply Chain Management.

I am in support of these proposals and request that you present it to the Senate Committee on University Research for consideration and recommendation to Senate. If you have any questions or concerns with the attached, I would be pleased to meet with you to discuss.

encl.

c. Dr. G. Feltham
Mr. J. Leclerc

UNIVERSITY OF MANITOBA | Asper School of Business
Faculty of Management

Glenn Feltham, PhD, MBA, LLB, CMA, FCMA
Dean and CA Manitoba Chair in Business Leadership
314 Drake Centre
181 Freedman Crescent
Winnipeg, Manitoba
Canada R3T 5V4
Telephone (204) 474-9209
Fax (204) 474-7928
glenn_feltham@umanitoba.ca

MEMORANDUM

DATE: **30 April 2008**

TO: **Jeff Leclerc, University Secretary, 312 Administration Building**

FROM: **Glenn Feltham**

SUBJECT: **APPROVALS - PROFESSORSHIPS**

As specified under the University Governance Policy on Chairs and Professorships, I hereby submit the following request to the Senate Committee on Honorary Degrees, in accordance with University policy, Naming of Chairs and Professorships, for recommendation to Senate:

To establish a Professorship in Marketing and a Professorship in Supply Chain Management.

I have attached rationale for the two requests.

The positions are fully funded, endorsed by the respective donors and have been reviewed by the Vice-President (External).

Thank you for your consideration.

Copy: Dr. R. Kerr, Vice-President (Academic)
Dr. J. Keselman, Vice-President (Research)

Proposal to Establish a Professorship in Marketing
In
The I.H. Asper School of Business
As required under University of Manitoba Governance

Type of Appointment:

Professorship

Name of Professorship:

Professorship in Marketing. A proposal to name the professorship will be submitted separately.

Purpose of Professorship:

The holder of the Professorship in Marketing will provide leadership in the introduction of marketing concepts into the undergraduate and graduate marketing curriculum; and will encourage and stimulate research and programming in marketing at the Asper School of Business and at the University of Manitoba. In addition, the Professorship in Marketing will develop a research agenda and, where applicable, support graduate students.

Funding:

The Professorship will be established in recognition of a $320,000 gift made to the University in 1985 by Nabisco Brands Inc. The funds have been placed in the University Investment Trust advised endowment account. As of March 31, 2008, the total market value is in excess of $2 million ($2,063,587). $500,000 of unspent capital will be allocated to the Professorship.

Qualifications:

The Professorship in Marketing will be used to appoint, within the Faculty, a business educator who:

1) is a senior academic in the midst of a distinguished teaching and research career who can provide intellectual leadership in some specialization within the field of Marketing. This individual may be either a new or existing faculty member at the full or associate professor level.

2) is at the forefront of his/her field in Marketing.

3) has demonstrated a high level of performance in their teaching and research activities and has a well established reputation for research and publication.

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

4) is prepared to devote his or her efforts to furthering research and teaching activities in the School with special emphasis on the Canadian context.

The appointee is not eligible to hold a F. Ross Johnson Fellowship while a holder of the Professorship.

Term of Appointment:

The term of the appointment will be on a five-year renewable basis.

Selection Committee:

Will consist of:

- The Dean of the I.H. Asper School of Business or his/her designate as Chair
- The Head of the Department of Marketing
- A marketing professor from a university outside of Manitoba.

The selection and appointment of an individual to the Professorship will be conducted in accordance with normal University policy and/or the provisions of the relevant Collective Agreement. The appointee shall be a full-time employee of the University of Manitoba.

Support for the Appointment

An annual income generated by the endowment provided by Nabisco Brands Inc., will be available to support the activities of the Professorship in Marketing. This income can be used to fund research and other projects and related travel and expenditures in support of promoting academic excellence in the field on Marketing, including the stipends of scholarly assistants. The holder may receive up to half the annual income in the form of a stipend.

The fiscal year, for the purposes of the Professorship, will coincide with the University's fiscal year. Any unspent income at the end of each fiscal year shall be reinvested into the principal of the endowment fund.

Reporting and Acknowledgement

The holder of the Professorship shall submit an annual report on his or her activities to the Dean by April 30th following each year the Professorship is held. If the professorship is named, the title "F. Ross Johnson Professor of Marketing" shall appear on business cards, stationary, and all other university publications and like materials relating to the holder. Any research and conference papers or other public communication published by the individual holding this Professorship will include this title.

The laws of Manitoba and Canada and the policies and by-laws of the University of Manitoba apply to this Agreement. In spite of any provision of this Agreement, the University shall, at all times, operate in accordance with academic processes approved by

the University Senate, and the academic freedom of its faculty members shall be maintained to the fullest.

REVISED: 06 May 2008

Proposal to Establish a Professorship in Supply Chain Management
In
The I.H. Asper School of Business
As required under University of Manitoba Governance

Type of Appointment:

Professorship

Name of Professorship:

The Professorship in Supply Chain Management. A proposal to name the professorship has been submitted separately.

Purpose of Professorship:

The Professorship in Supply Chain Management will be held by an established academic in the Department of Supply Chain Management who is a leading expert in transportation, logistics and supply chain management. The holder of the Professorship in Supply Chain Management will be expected to provide leadership in issues in transportation, supply chain management within the Asper School of Business and in the broader business community in Manitoba as well as Canada. The Holder will encourage and stimulate research and programming in the Department of Supply Chain Management at the Asper School of Business and at the University of Manitoba. In addition, the holder of the Professorship will develop a research agenda and support graduate students.

Funding:

The Professorship will be established in recognition of a $750,000 gift made to the University in 2006 by CN. The funds have been placed in the University Investment Trust advised endowment account.

Qualifications:

1. To assure the necessary standing and ongoing importance of the Professorship, the incumbent to be selected should have enjoyed tenure at The University of Manitoba or another university and be well regarded in the selected field, for at least five years. He or she should have a proven record in their chosen specialization and should already have gained a significant reputation in academic circles and preferably beyond. The Professorship will be expected to perform at a high level of academic achievement. Some measures of such achievements will include:
   - Peer reviewed publications
   - Ability to attract grant funds from recognized academic funding sources, e.g. SSHRC, NSERC, etc.

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

- Ability to attract research partners (both academic and industry) that provide both access and funding.
- Supervise graduate students at the PhD and M Sc level.

Term of Appointment:

The term of the appointment will be on a three-year renewable basis to provide flexibility and the capacity, over time, to adapt the work and focus of the professorship to the requirements of a dynamic environment.

Selection Committee:

Will consist of:

- The Dean of the I.H. Asper School of Business or his/her designate as Chair
- The Head of the Department of Supply Chain Management. In the event the Department Head is a candidate for the Professorship, the Dean will appoint another tenured academic staff member from the Department of Supply Chain Management to serve on the selection Committee.
- A representative of the donor, CN. This will give CN an opportunity to communicate to the Asper School of Business its views about candidates for the appointment or reappointment of the Professorship, recognizing that final decision remains with the university.

The selection and appointment of an individual to the Professorship will be conducted in accordance with normal University policy and/or the provisions of the relevant Collective Agreement. The appointee shall be a full-time employee of the University of Manitoba.

Support for the Appointment

An annual income generated by the endowment provided by CN, will provide a minimum of 20% of salary and benefits to support the activities of the Professorship. This income can be used to fund research and other projects and related travel and expenditures in support of promoting academic excellence in the field supply chain management. The remaining annual endowment income will support graduate fellowships in the Department of Supply Chain Management.

The fiscal year, for the purposes of the Professorship, will coincide with the University's fiscal year. Any unspent income at the end of each fiscal year shall be reinvested into the principal of the endowment fund.

Reporting and Acknowledgement

The holder of the Professorship shall submit an annual report on his or her activities to the Dean and to CN by April 30th following each year the Professorship is held. If the professorship is named, the title "CN Professor of Supply Chain Management" shall

appear on business cards, stationary, and all other university publications and like materials relating to the holder. Any research and conference papers or other public communication published by the individual holding this Professorship will include this title.

The laws of Manitoba and Canada and the policies and by-laws of the University of Manitoba apply to this Agreement. In spite of any provision of this Agreement, the University shall, at all times, operate in accordance with academic processes approved by the University Senate, and the academic freedom of its faculty members shall be maintained to the fullest.

12 June 2008

Report of the Guidelines and Policy Committee of the Faculty of Graduate Studies (FGS) on FGS regulations and policies from its meeting on January 15, 2008. AH. # 1

Preamble

The Guidelines and Policy Committee is responsible for reviewing specific changes to Faculty of Graduate Studies (FGS) regulations and policies and makes recommendations to the Faculty Executive of Graduate Studies. The Committee met on January 15, 2008 and made the following recommendation.

"Admission" (section 4) of the Faculty of Music Supplemental Regulations

"Applicants must normally hold a four-year music degree from an institution recognized by the Faculty of Graduate Studies; however, after completing an admissions screening process, the Faculty of Music may recommend to the Faculty of Graduate Studies a small number of highly experienced and gifted individuals who do not hold the required degree. These may include graduates of conservatory diploma programs taken in residence or individuals whom the Faculty of Music considers to be qualified for admission by virtue of professional experience and academic and musical ability as demonstrated in the admissions process. It is expected that the number of students admitted per year in this second category normally will not exceed 15% of the total number of students admitted into the Master's of Music program over the previous five-year period.

Individuals who may apply for admission to the Master of Music include:

a) persons who have completed a four-year undergraduate music degree program recognized by the Faculty of Graduate Studies and comparable to the Bachelor of Music at the University of Manitoba with a minimum of 3.0 GPA in the last 60 credit hours (or their equivalent);

b) those who hold a conservatory diploma which is offered in residence or who have meaningful professional experience and are able to demonstrate:

- the requisite skill and talent in their area of proposed major practical study, and
- an ability to meet the academic standards of the M.Mus. program.

These qualifications are to be demonstrated by audition/interview and the presentation of a portfolio detailing relevant experience/professional activity and either evidence of successful academic work at the university level or other post-secondary training or successful completion of the Miller Analogies Test.

N.B. Students holding both a three-year diploma (or degree) and the Post-Baccalaureate Diploma in Performance (PBDP) fall into two groups and will be assessed as follows:

1. Students who hold both a three-year diploma (or degree) which is recognized by the Faculty of Graduate Studies and also the PBDP are considered to have the equivalent to the four-year music degree and therefore fall into category a) above, i.e., not considered in the 15% quota.

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

2. Students who hold both a three-year diploma (or degree) which is not recognized by the Faculty of Graduate Studies and the PBDP are not considered to have the equivalent to the four-year degree and therefore fall into category b) above, i.e., considered in the 15% quota.

Because of the non-degree exceptional admission option, all music applicants will initially be evaluated by the Faculty of Music and then screened by the Faculty of Graduate Studies.

Recommendation

The Guidelines and Policy Committee of the Faculty of Graduate Studies recommends that the Faculty Council of Graduate Studies endorse the Faculty of Music's admission regulations as stated above and forward to Senate for Approval.

CARRIED. (Approved, Friday. May 23, 2008)

Preamble
The Guidelines and Policy Committee is responsible for reviewing specific changes to Faculty of Graduate Studies (FGS) regulations and policies and makes recommendations to the Faculty Executive of Graduate Studies. The Committee met on April 17, 2008 and made the following recommendations.

Infectious Diseases/Medical Microbiology Ph.D. Track: 18 Credit Hours

The following is presented in the Dept. of Medical Microbiology supplemental regulations:

"Candidates for the Infectious Diseases/Medical Microbiology Ph.D. degree (herein referred to as the ID/MM Track) will have completed the following requirements in lieu of a traditional M.Sc. degree. They will already hold an M.D. degree, will have completed a Residency, and must have demonstrated research experience (as approved by the Department's Graduate Studies Committee). All admissions to this Track will be provisional, pending successful completion of an initial 6 credit hours of Medical Microbiology courses at the 7000 level within the first year of admission. Once successfully admitted, all candidates are required to complete an additional 12 credit hours of 7000 level course work as part of their degree requirements."

Observations
The ID/MM Track requires the completion of 18 credit hours in partial fulfillment of the Ph.D. degree as opposed to 24 credit hours required by the Faculty of Graduate Studies.

The rationale for the reduced number of credit hours is that entering students have already completed a course-intensive M.D. (Medical Doctor) degree. Fewer required courses in the ID/MM Ph.D. Track will allow students to apply their clinical experience to a heavy research focus, an environment which students have been exposed to in the residency component of their M.D. degree.

The ID/MM Track aims to parallel the style of the MD/PhD (joint Medical Doctor/Doctor of Philosophy program) and responds to a recommendation in the department's graduate program review regarding the Government of Canada's call for more Clinician Scientists.

Recommendation
The Guidelines and Policy Committee of the Faculty of Graduate Studies recommends that the Faculty Council of Graduate Studies endorse the reduced number of credit hours of the Infectious Diseases/Medical Microbiology Ph.D. Track in the Dept. of Medical Microbiology, Faculty of Medicine and forward to Senate for approval.

CARRIED. (Approved Friday, May 23, 2008)

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

Preamble

The Guidelines and Policy Committee is responsible for reviewing specific changes to Faculty of Graduate Studies (FGS) regulations and policies and makes recommendations to the Faculty Executive of Graduate Studies. The Committee met on November 21, 2007 and made the following recommendation.

[Note: the bolded sentence in the paragraph below undermines the minimum regulation of the "Proficiency in English" section of the FGS Academic Guide and therefore must be approved by Senate to stand. The Academic Guides states that "A successfully completed English Language Proficiency Test is required of all applicants unless they have received a high school diploma or university degree from Canada or one of the countries listed on the *English Language Proficiency Test Exemption List.*"]

Proficiency in English, Section 1.1 of the Collège universitaire de Saint-Boniface (CUSB) Faculty of Education Supplementary Regulations

"The language of instruction and communication at CUSB is French. Students admitted to CUSB must be sufficiently proficient in French to be able to understand classroom lectures, to write assignments and to participate in classroom discussions in French. All coursework must be written in French, as well as theses, practicum reports and comprehensive examinations. **International students admitted to the M.Ed. Program at CUSB will not be required to complete an English Language Proficiency Test.** However, they must have a knowledge of written English in order to understand the regulations and policies of the Faculty of Graduate Studies as well as assigned course readings in English."

Recommendation

The Guidelines and Policy Committee of the Faculty of Graduate Studies recommends that the Faculty Council of Graduate Studies endorse CUSB Education's supplemental regulation with respect to Section 1.1, "Proficiency in English."

CARRIED. (Approved, Friday, May 23, 2008)

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

Preamble

The Guidelines and Policy Committee is responsible for reviewing specific changes to Faculty of Graduate Studies (FGS) regulations and policies and makes recommendations to the Faculty Executive of Graduate Studies. The Committee met on April 17, 2008 and made the following recommendations.

Revisions to the Academic Guide: Instructions for Ph.D. Examiners

The Dean of the Faculty of Graduate Studies has received queries from a number of internal and external examiners looking for guidance as to how to categorize a thesis that is not well-written. The original table focused primarily on research content and did not provide a mechanism to deal with writing and structural problems in the thesis. This shortcoming has been rectified (see att.) A thesis that requires major structural changes or major rewriting can now be assigned a fail and will not be permitted to advance to defense.

Recommendation

The Guidelines and Policy Committee of the Faculty of Graduate Studies recommends that the Faculty Council of Graduate Studies endorse the revisions to the Academic Guide regarding instructions for Ph.D. examiners.

CARRIED. (Approved Friday, May 23, 2008)

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

PhD Thesis Categories

Category	Description	Implications
1	The thesis represents a distinct contribution to the candidate's field of research and it is acceptable as it stands (or with minor revisions to either content, structure, or writing style)	▪ thesis has **not** received final approval ▪ candidate **may proceed** to their oral examination
2	The thesis has merit since it makes a contribution to the candidate's field; however, there are research-related concerns that have the potential to be dispelled in the oral examination. The structure and writing are acceptable or require only minor revisions.	
3	The thesis has some merit, but it is not acceptable in its current state since it requires major revisions to one or more of its core components, *viz.*, research content, structure, and writing style.	▪ candidate has **failed** attempt and **cannot proceed** to oral examination
4	The thesis is unacceptable with respect to its core components, *viz.*, research content, structure, and writing style.	

Preamble

The Programs and Planning Committee (PPC) of the Faculty of Graduate Studies has the responsibility of reviewing new programs, program changes, and course changes and makes recommendations to FGS Executive. PPC held a meeting on Jan. 22, 2008 and made the following recommendations:

PROGRAM CHANGES

Master of Science Designation of Degree Major in Kinesiology; Faculty of Kinesiology & Recreation Management

Recommendation

The Programs and Planning Committee of the Faculty of Graduate Studies recommends that the Faculty Council of Graduate Studies endorse the Master of Science Designation of Degree Major in Kinesiology of the Faculty of Kinesiology & Recreation Management and forward to Senate for approval.

CARRIED. (Approved Friday, May 23, 2008)

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

MEMORANDUM

To: Faculty of Graduate Studies

From: Phillip Gardiner, Graduate Program Chair

Date: December 14, 2007

Re: Master of Science: Designation of Degree Major

In 1950 a Department of Physical Education, Recreation and Athletics was established at the University of Manitoba. The purpose of this unit was to provide physical education courses for the various schools and faculties and to direct, organize and supervise the intramural and intercollegiate athletic programs.

In February 1964, the Senate of the university approved the establishment of a three-year program leading to the degree Bachelor of Physical Education.

In June 1966, the status of School of Physical Education was achieved.

Senate approved the establishment of a Master of Physical Education degree program in May of 1979 to be offered through the Faculty of Graduate Studies.

In May 1982 the School of Physical Education became the Faculty of Physical Education and Recreation Studies.

In 1990 the Master of Physical Education was changed to the Master of Science. The Faculty of Graduate Studies then referred to the degree as a Master of Science with a major in Physical Education.

In the spring of 1998, a four-year degree program, the Bachelor of Exercise and Sport Science, was approved by the Council on Post-Secondary Education (COPSE). The Graduate Committee of the Faculty of Physical Education and Recreation Studies then voted to reflect the Master of Science degree as a Master of Science in Exercise and Sport Science. This reference was for advertising the program only. The Faculty of Graduate Studies continued to refer to the degree as a Master of Science with the major as Physical Education.

In December 2005, Senate approved the recommendation to change the name of the undergraduate degree of Bachelor of Exercise and Sport Science degree (BESS) to a Bachelor of Kinesiology degree (BKin) effective October 2006. The Graduate Committee then voted to reflect the Master of Science as a Master of Science with a focus in Kinesiology.

In March 2007, the Board of Governors approved the recommendation to rename the Faculty of Physical Education and Recreation Studies to the Faculty of Kinesiology and Recreation Management effective July 1, 2007.