

REPORT TO ACADEMIC COUNCIL, APRIL 5, 2005

SCHOOL OF GRADUATE STUDIES

1. The School of Graduate Studies has reviewed the proposal for an *MSc in Biomedical Physics* listed below, and submits it to Academic Council for its approval for it to be sent to the Ontario Council on Graduate Studies for external review ('standard appraisal'). Vol. I of the brief ('The Program') is available for review in the office of the Secretary of Academic Council, and Volumes I & II ('The Program', and 'Curricula Vitae') are available for review in the office of the Dean of the School of Graduate Studies (EPH 439). Vol. I of the brief ('The Program') is also available for review at www.ryerson.ca/gradstudies/temp.
Username: gradstudies Password: 4ryerson

It is planned that the *MSc in Biomedical Physics* will be implemented in Fall 2006.

Motion

To approve the submission of the proposal for an *MSc in Biomedical Physics* to the Ontario Council for Graduate Studies for Standard Appraisal.

Note: Once a program is approved by OCGS, it is presented to the Board of Governors for approval. The Provost has final authority to determine whether a program may proceed.

RYERSON UNIVERSITY
Department of Physics
Master of Science in Biomedical Physics

EXECUTIVE SUMMARY

In Ontario and across the country, demands on the health care sector have reached unprecedented levels due mainly to the demographics of the Canadian population. In 2001, 12.7% of the Canadian population was over 65 years of age. This percentage is expected to increase to 14.4 % by 2011. Within the health care sector, cancer diagnosis/ management services employ the greatest number of professionals trained in medical physics. On the national scene it was estimated that in 2003, 75% of new cancer cases in men and 63% of new cancer cases in women occur in patients over 60 years of age. It is expected that this will increase substantially when the Baby Boomers (born 1946-1965) begin to reach 60 in 2006. This has and will continue to place increasing demand on diagnostic imaging and cancer treatment services in Canada. Cancer Care Ontario, the provincial integrated cancer care program, has been working to meet this increased demand through major capital expenditures to expand and modernize all cancer treatment facilities in the province, and to hire additional physicists. Delivery of high-quality medical care requires a large pool of highly-trained individuals who will function in a variety of health care delivery settings including hospitals and cancer centres. The rapidly growing and changing aspects of physics-based technologies such as 3D medical imaging and radiation treatment devices have placed extraordinary demands on graduate education and research in the medical physics discipline. Furthermore, with regulatory requirements for the safe storage, handling and transport of nuclear substances becoming ever more complex, and with the apparent resurgence of

the nuclear power industry in Ontario, there is a need for highly qualified personnel with expertise in radiation physics, radiobiology and health physics.

The proposed Master of Science Program in Biomedical Physics is designed to provide a high quality, professionally relevant graduate education for students considering careers in bio/health/medical physics, that recognizes the fundamental knowledge and skills set necessary for students to pursue career opportunities in these disciplines. Furthermore, the proposed program is aligned with Ryerson's mandate of applied professional education, and complements the new undergraduate Contemporary Science platform including a specialization stream in medical physics scheduled for roll out in 2006. Enhanced undergraduate and graduate science education and research in Biomedical Physics, will ensure our ability to attract and retain the best students and faculty and to ensure excellence in our professional programs.

The program meets all the requirements documented in Ryerson's Academic Plan (2003-2008) and it is aligned with Ryerson's strategic plan to develop as a "comprehensive university", one that has traditional strength in undergraduate programming and a spectrum of relevant masters and doctoral programs. The multidisciplinary program is designed: 1) to expose students, through coursework and research, to a variety of disciplines including physics, engineering, computer science and biology - a critical factor to the process of innovation in the medical field today; 2) to be state-of-the-art, combining courses, seminar discussions, and applied research focusing on the understanding, development and evaluation of novel physics-based technologies for the medical, biotechnology and environmental sectors; 3) to provide relevant education for graduates to enter the workforce or enter into Ph.D. programs in bio/health/medical physics, thereby stimulating economic and social development through the training of highly qualified personnel. This combined with Ryerson's close proximity to the Medical and Related Sciences (MaRS) Discovery District including several major teaching hospitals will provide uniquely accessible opportunities for students compared to graduate programs in other Canadian centres. Furthermore, the program will not place any financial burden on the university as evident by the current faculty's capacity to support graduate students through research grant funding and the Physics Department's capacity for offering Academic Assistant positions.

The requirement for the M.Sc. degree in Biomedical Physics is successful completion of 5 course credits and a thesis course, equivalent to four course credits. Four of the five courses must be from the program courses (see Course Curriculum). The remaining course may be chosen from graduate courses in other relevant graduate programs at Ryerson (i.e. Electrical and Computer Engineering) or at other local universities. The student will consult with the thesis supervisor and the supervisory committee on appropriate selection of the 5 courses, based on the student's interests and thesis direction. The curriculum is structured to facilitate completion in two calendar years of full-time study. It is anticipated that the program will accept its first students in September 2006 (8 full-time students) and will have a steady-state enrolment of 18 students. Applicants must meet normal requirements for admission to the Ryerson School of Graduate Studies.

Course Curriculum:

PROGRAM COURSES
Statistics for the Health Sciences
Medical Diagnostic Techniques
Fundamentals of Radiation Physics

Radiation Therapy
Computational Methods in Biomedical Physics
Optical, Acoustic and Thermal Physics in Medicine
Radiation Protection and <u>Dosimetry</u>

As the program reaches a steady state, additional courses will be developed such as an experimental clinical course, and the potential for developing electives that may be of interest to students in other graduate degrees at Ryerson will be explored (i.e. Electrical and Computer Engineering).

The OCGS brief lists 7 tenure and tenure-track core faculty for the program, all in the Department of Physics, and 1 tenure faculty member from the Department of Computer Science. Over the next four years, the faculty resources in the Department of Physics in support of the new program will increase from 8 to 12 professors. One will come from the replacement of retiring physics faculty members outside Biomedical Physics and three are approved as part of the new Contemporary Science undergraduate programs and B.Sc. in Medical Physics at Ryerson. The normal teaching workload of the faculty members is 3-4 undergraduate courses per academic year. When the proposed graduate program is approved and implemented, core faculty members will normally teach 1 one-term graduate level course per academic year as part of their normal teaching workload. Hence, the expected teaching workload will be two undergraduate courses and one graduate course per academic year.

In summary, this new viable program is a natural evolution of the physics group at Ryerson, fuelled by the significant research investments and successes of our faculty, and a growing societal need for highly qualified personnel with expertise in bio/health/medical physics.

2. For information, SGS Council submits, from the Environmental Applied Science & Management program, a proposal to change thesis and project evaluations from a letter grade to a pass/fail, to be effective for theses and projects to be completed starting Winter 2005 term. These will include the following courses:

ES8080 Research Project
ES8090 Thesis

Maurice Yeates, Dean
Chair, School of Graduate Studies Council

Status of New Programs in Graduate Review Process (for programs planned for September, 2005)						
Approval or Action by	Responsibility	MA – Int Economics & Fin.	MA – Pub. Pol. & Administration	MN -- Nursing.	PhD Chem Eng	MA-ECS planned for 2006
Ryerson Review						
Dean - SGS	Letter of Intent (LoI) – including initial analysis of financial viability	X	X	X	X	X
SGS Program & Planning Comm	Reviews LOI to determine if program appears feasible.	X	X	X	X	X
Provost	Decides to proceed based on responses to LoI. Instructs sponsors to prepare OCGS program proposal.	X	X	X	X	X
Internal/External Consultant	An expert in the field from another university reviews the proposal. Sponsors re-draft if necessary.	X	X	X	X	X
Provost	Discusses proposal with Dean, sponsor.	X	X	X	X	X
P&P	Reviews draft OCGS brief in light of I/E report – recommends to Council SGS based on academic quality	X	X	X	X	X
Council, SGS	Reviews proposal	X	X	X	X	X
Academic Council	Reviews program proposal for academic quality and moves to proceed to OCGS	X	X	X	X	X
Ontario Council on Graduate Studies Review						
Appraisal Committee	7 senior faculty from across Ontario + Exec. Dir read brief and comment to Ryerson. Univ can advertise program.	X	X	X	X	X
External Consultants	2 or 3 selected, visit Ryerson for a two day period. Prepare reports for submission to OCGS, which sends reports to Ryerson.	X	X	X	X	
Ryerson	Responds to report(s)	X	X			
Appraisal Committee	Reviews report and response and presents recommendation to OCGS	X	X			

	(All graduate Deans in Ontario)					
OCGS Executive Director	Informs Ryerson of decision, provides letter required by Ministry for funding claim. OCGS meeting.	X	X			
Further Procedures						
Board of Governors	Program is presented to Board of Governors for approval of financial viability.		X			
Ministry	The Program is presented to the Ministry for approval		X			
Provost	Provost decides about implementation		X			

Status of New Programs in Graduate Review Process (for programs planned for September, 2006)						
Approval or Action by	Responsibility	MA – MSW 2006 or 2007	MSc – Biomed. Physics PhD	MBA /MSc – Mgmt Tech & Innov	MBA – Global Business	MSc Molecular Science
Ryerson Review						
Dean - SGS	Letter of Intent (LoI) – including initial analysis of financial viability	X	X	X	X	X
SGS Program & Planning Comm	Reviews LOI to determine if program appears feasible.	X	X	X	X	X
Provost	Decides to proceed based on responses to LoI. Instructs sponsors to prepare OCGS program proposal.		X	X	X	X
Internal/External Consultant	An expert in the field from another university reviews the proposal. Re-draft if necessary.		X	X	X	
Provost	Discusses proposal with Dean, sponsor.		X	X		
P&P	Reviews draft OCGS brief in light of I/E report – recommends to Council SGS based on academic quality		X			
Council, SGS	Reviews proposal		X			
Academic Council	Reviews program proposal for academic quality and moves to proceed to OCGS					
Ontario Council on Graduate Studies Review						
Appraisal Committee	7 senior faculty from across Ontario + Exec. Dir read brief and comment to Ryerson. Univ can advertise program.					
External Consultants	2 or 3 selected, visit Ryerson for a two day period. Prepare reports for submission to OCGS, which sends reports to Ryerson.					
Ryerson	Responds to report					
Appraisal Committee	Reviews report and response and presents recommendation to OCGS (All graduate Deans in Ontario).					

OCGS Executive Director	Informs Ryerson of decision, provides letter required by Ministry for funding claim. OCGS Meeting.					
Further Procedures						
Board of Governors	Program is presented to Board of Governors for approval of financial viability.					
Ministry	The Program is presented to the Ministry for approval					
Provost	Provost decides about implementation					

GRADUATE COURSE CHANGE FORM - 1

APPROVALS AND SIGNATURES:

Program Director (following approval by Program Committee)

Name: **Dr. Ruth Panofsky**

Signature: _____

Date: _____

Chair, Affected Department(s)

Name: **John Cook, Chair of the Department of English**

Signature: _____

Date: _____

Name: N/A

Signature: _____

Date: _____

Dean, Teaching Faculty

Name **Dr. Carla Cassidy, Dean of the Faculty of Arts**

Signature: _____

Date: _____

Dean, Graduate Studies (following approval by the SGS Programs and Planning Committee and SGS Council)

Programs and Planning Committee Approval Date:

Name **Dr. Maurice Yeates**

Signature: _____

Date: _____

SGS Council Approval Date:

Name **Dr. Maurice Yeates**

Signature: _____

Date: _____

Secretary of Academic Council

Name **Dr. Diane Schulman**

Signature: _____

Date: _____

COURSE CHANGE FORM - 2

School of Graduate Studies

Graduate Program: **Joint Graduate Program in Communication and Culture**

Initiating School/Department: **School of Graduate Studies**

Approval of VP Academic: _____

Dr. Errol Aspevig

Course Number	Course Title	Mark with "X"			Required/ Elective	Credits	Programs Affected	Implement Date	Purpose of Change
		Amended	Deleted	Added					
CC tba	Cultures of Sexuality and Gender			X	Elective (Media & Culture)	One	GCAC, GCAP, GCDC	2004- 2005	<p>For over 20 years now, sexuality and gender studies has remained one of the most popular and innovative areas of scholarship in the area of cultural studies. The Graduate Programme in Culture and Communications, however, does not currently offer a course on the subject. Some core courses can touch on the subject as part of their general survey, but only CC8927/COCU 6096: "Reading Film" and CC8975/COCU 6511: "Race and Gender in Digital Technology" explicitly address gender issues. Neither explicitly addresses sexuality. Moreover, both courses address gender only through a particular medium (film or the digital), but this course will introduce students to a <i>range</i> of media and cultures over roughly a 200-year period. The issue-based approach of the course, moreover, encourages students not just to address gender representation within a medium, but to recognize that various media, cultures, and languages are themselves constructed through gender and sexuality. This approach allows a fresh perspective into the graduate programme in general.</p> <p>This course is proposed in response to an increasing demand from students in the programme for a course on sexuality and gender.</p>

GRADUATE COURSE CHANGE FORM - 1

APPROVALS AND SIGNATURES:

Program Director (following approval by Program Committee)

Name: **Dr. Ruth Panofsky** _____

Signature: _____

Date: _____

Chair, Affected Department(s)

Name: **Currently unknown - TBA** _____

Signature: _____

Date: _____

Name: **N/A** _____

Signature: _____

Date: _____

Dean, Teaching Faculty

Name **Currently unknown - TBA** _____

Signature: _____

Date: _____

Dean, Graduate Studies (following approval by the SGS Programs and Planning Committee and SGS Council)

Programs and Planning Committee Approval Date:

Name **Dr. Maurice Yeates** _____

Signature: _____

Date: _____

SGS Council Approval Date:

Name **Dr. Maurice Yeates** _____

Signature: _____

Date: _____

Secretary of Academic Council

Name **Dr. Diane Schulman** _____

Signature: _____

Date: _____

ADDITIONAL COMMENTS: If the course change form does not accommodate all the necessary information, explanation, or background pertaining to the proposed change(s), please provide additional commentary here.

COURSE CHANGE FORM - 2

School of Graduate Studies

Graduate Program: **Joint Graduate Program in Communication and Culture**

Initiating School/Department: **School of Graduate Studies**

Approval of VP Academic: _____

Dr. Errol Aspevig

Course Number	Course Title	Mark with "X"			Required/ Elective	Credits	Programs Affected	Implement Date	Purpose of Change
		Amended	Deleted	Added					
CC tba	Culture and the Canadian Publishing Industry			X	Elective (Politics & Policy)	One	GCAC, GCAP, GCDC	2004- 2005	This course focuses on the whole picture of one contemporary medium in Canadian culture—a medium that is often seen as central to English Canadian cultural identity - is both important on its own for an understanding of Canadian culture and can serve as an important contrast for understanding other cultural and communications media. For many students, particularly those coming into the Communication & Culture program with a literary background, the course will give a bridge to understanding larger issues of culture and communication that begins with a medium with which they feel themselves to be familiar at an academic level. The course will also explore matters of medium theory and of the shape of the cultural and public spheres explored in core courses and will relate closely to the issues explored historically and theoretically in CC8936/COCU 6107 3.0 <i>The Cultural Conditions of Authorship</i> .

GRADUATE COURSE CHANGE FORM - 1

APPROVALS AND SIGNATURES:

Program Director (following approval by Program Committee)

Name: Dr. Ngok-Wah Ma

Signature: _____

Date: _____

Chair, Affected Department(s)

Name: Dr. A. Sadeghian

Signature: _____

Date: _____

Name: _____

Signature: _____

Date: _____

Dean, Teaching Faculty

Name Dr. Stalin Boctor

Signature: _____

Date: _____

Dean, Graduate Studies (following approval by the SGS Programs and Planning Committee and SGS Council)

Programs and Planning Committee Approval Date:

Name Dr. Maurice Yeates

Signature: _____

Date: _____

SGS Council Approval Date:

Name Dr. Maurice Yeates

Signature: _____

Date: _____

Secretary of Academic Council

Name Dr. Diane Schulman

Signature: _____

Date: _____

ADDITIONAL COMMENTS: If the course change form does not accommodate all the necessary information, explanation, or background pertaining to the proposed change(s), please provide additional commentary here.

COURSE CHANGE FORM - 2

School of Graduate Studies

Graduate Program: Computer Networks

Initiating School/Department: Department of Electrical and Computer Engineering

Approval of VP Academic: Dr. Errol Aspevig

Course Number	Course Title	Mark with "X"			Y/N	Credits	Programs Affected	Implement Date	Purpose of Change
		Amended	Deleted	Added	Required Elective?				
CN8841	Content-aware Networking			X	N	1	GNSC GNEP GNEM	Sept. 2005	Additional Elective