McMaster University **School of Graduate Studies**

1280 Main Street West
Hamilton, Ontario, Canada
L8S 4M2

Phone 905.525.9140
Ext. 23679
Fax 905.521.0689
http://graduate.mcmaster.ca/

April 8, 2011

To : Members of the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee

From : Medy Espiritu
Assistant Secretary & SynApps System Administrator

The next meeting of the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee will be held on **Friday, April 15, 2011** at **1:30 p.m.** in **MUSC-318**.

Listed below are the agenda items for discussion.

Please call extension 24204 or email *espiritu@mcmaster.ca*, if you are unable to attend the meeting.

A G E N D A

I. Minutes of the meeting of April 12, 2010

II. Business arising

III. Curriculum recommendations

Biology (Dr. Elizabeth Weretilnyk)

Change from Biology *6DD3 to Molecular Biology *6DD3
Change from Biology *6H03 to Molecular Biology *6H03
Change from Biology *6P03 to Molecular Biology *6P03

Course cancellations:
*6Y03 – Ecology of Inland Waters
764 – Ultrastructure of Cells

New course:
*6YY3 – Ecology and Management of Coastal Waters

Chemistry (Dr. Alex Adronov)

Request to cross-list a course:
*6PB3 – Computational Models for Electronic Structure and Chemical Bonding
*(to be cross-listed as CES *6PB3)*

Geography and Earth Sciences (Dr. Altaf Arain)

New courses:
*758 - Advanced Structural Geology
*759 – Numerical Modelling in Global Climatology

Course cancellations:
*6O03 – Environmental Isotope Geochemistry
*6Q03 – Sedimentary Geochronology
*6S03 – Advanced Topics in Spatial Statistics

Kinesiology (Dr. Stuart Phillips)

Course cancellation:
*716 – Skeletal Muscle Cell Biology and Clinical Myology

Mathematics (Dr. Nicholas Kevlahan)

Change in course requirements for the Ph.D. program – reduce course requirements for Ph.D. students who have already fulfilled the M.Sc. course requirements

Change in course requirements for the M.Sc. program – harmonize requirements for M-phimac students with regular M.Sc. (Project) students

New courses:
*749 – Mathematical and Computational Fluid Dynamics *(to be cross-listed as CES *749)*
#778 – Applied Computational Finance I
#779 – Applied Computational Finance II

Change in course title and description:
*711 – Model Theory

Course cancellations:
*773 – Applied Computational Finance

Statistics (Dr. N. Balakrishnan)

New course:
*721 – Statistical Modelling in Practice

Change in course description:
*770 – Statistics Seminar

Change in course requirements for the M.Sc. program – Statistics *770 will be a required course

Medical Physics (Dr. Tom Farrell)

Change in course title and description:
*770 – Medical Imaging Systems I *(to be cross-listed as Biomedical Engineering *770 and Electrical and Computer Engineering *780)*

Change in course description:
*776 – Introduction to Operational Health Physics

Request to cross-list a course:
Biomedical Engineering *702 – Medical Imaging Systems II
*(to be cross-listed as Medical Physics *702)*

Psychology (Dr. Patrick Bennett)

Course cancellation:
#721 – Scientific Ethics and Professional Issues

FACULTY OF SCIENCE GRADUATE CURRICULUM, POLICY, ADMISSIONS AND STUDY COMMITTEE
APRIL 12, 2010, 9:00 A.M.
MUSC-224

PRESENT: Dr. D. Welch (Chair), Dr. A. Bédard, Dr. A. Capretta, Ms. M. Chakra, Dr. K. Dalnoki-Veress, Dr. N. Kevlahan, Dr. B. Milliken, Mr. P. Self, Mrs. M. Espiritu (Assistant Secretary)

BY INVITATION: Dr. A. Adronov, Dr. M. Gibala

I. Minutes

The minutes of the meeting of April 13, 2009 were approved on a motion by Dr. Kevlahan, seconded by Dr. Milliken.

II. Business arising

There was no business arising from the minutes of the previous meeting.

III. Graduate Curriculum Revisions

Biology

Dr. Bédard reviewed the proposed cancellation of courses from the Department of Biology:
- *6U03 – Radiation Biology and Radiation Biophysics
- *751 – Fish Physiology

Dr. Bédard explained that the equivalent undergraduate course, 4UO3, has been transferred to the Department of Medical Physics. As such, the graduate course component will no longer be part of the Biology graduate courses.

Dr. Bédard stated that *751 has not been offered in over three years, and there are five other graduate physiology courses that are offered by the department.

Dr. Bédard moved, and Dr. Kevlahan seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the proposed cancellation of courses *6U03 and *751 in the Department of Biology."

The motion was **carried**.

Medical Physics

As there was no representative from the Department of Medical Physics and Applied Radiation Sciences, Dr. Bédard presented the proposal to transfer the course, *6U03 – Radiation Biology and Radiation Biophysics, from the Biology Department to the Medical Physics and Applied Radiation Sciences Department. Dr. Bédard explained that Dr. Andrew Rainbow will teach the course until his retirement.

Dr. Bédard moved, and Dr. Kevlahan seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the transfer of *6U03 – Radiation Biology and Radiation Biophysics to the Department of Medical Physics and Applied Radiation Sciences, as described in the document."

The motion was **carried**.

Kinesiology

Dr. Gibala discussed the proposed new course, *722 – Advances in Biomechanics and Electromyography. The objective of the course is to develop students' appraisal skills in reading primary research articles and research-based presentations, and scientific writing.

Dr. Kevlahan moved, and Ms. Chakra seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the new course, *722 – Advances in Biomechanics and Electromyography, as proposed by the Department of Kinesiology."

The motion was **carried**.

The Department of Kinesiology has also recommended a change in course requirements for its M.Sc. and Ph.D. programs. Dr. Gibala said the department wishes to remove course *703 as a course requirement for its M.Sc. and Ph.D. programs. In addition, the department recommends that M.Sc. and Ph.D. students be expected to maintain 75% attendance at departmental seminars while in the program. Dr. Gibala further explained that the seminar attendance is a requirement when students apply for travel funds.

Dr. Dalnoki-Veress moved, and Dr. Bédard seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the proposed changes to the course requirements for the M.Sc. and Ph.D. programs, as described in the document."

Referring to the document, a member suggested removing the statement, *"Failure to attain satisfactory attendance in accordance with these guidelines will affect a student's academic record that could prevent the student from graduating as scheduled,"* because if it is not a requirement it will be difficult for the department to convince students to attend. There was a comment as well that tying the seminar attendance to applications for travel funds is an internal policy in the department and does not need to be included in the calendar.

The motion was **carried**, subject to addressing the issues discussed above.

The Department of Kinesiology also proposed cancellation of course *703 – Seminars.

Dr. Kevlahan moved, and Dr. Dalnoki-Veress seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the cancellation of course *703 – Seminars."

The motion was **carried**.

Mathematics and Statistics

The Department of Mathematics and Statistics proposed changes to the course requirements and calendar description of its M.Sc. program in Mathematics. Dr. Kevlahan explained that during the 2009 OCGS review of the Mathematics M.Sc. and Ph.D. programs, the consultants recommended the following for the M.Sc. program:

- establish a more tangible distinction between the M.Sc. thesis option and the M.Sc. project option
- devise mechanisms by which a research/independent investigation component in the course-only M.Sc. program is guaranteed
- ensure that a course-only Master's student who does not finish in eight months is looked after academically between May and August

To address these issues, Dr. Kevlahan explained that the department proposed merging the project with the coursework option and adding a Major Research Project to the new project option. Dr. Kevlahan said that seven half courses are required for the new project option, and one of these courses is *790 – Major Research Project. He further said that students are expected to finish the requirements for the project option in eight months and the M.Sc. project to be completed in twelve months. Dr. Kevlahan added that all project students will have a faculty advisor through the course, *790, and this will address the need for supervision of those students who do not finish in eight months.

Dr. Kevlahan moved, and Dr. Bédard seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the proposed changes to the course requirements and calendar description for the M.Sc. program in Mathematics, as outlined in the document."

The motion was **carried**.

The department is also recommending three new courses and the cancellation of one course:

New courses:
*731 – Algebraic – Topology I
*732 – Algebraic – Topology II
*790 – Major Research Project

Course cancellation:
*763 – Algebraic Topology

Dr. Kevlahan explained that the department finds it impossible to cover in one term all the topics listed in the current description for Math *763 – Algebraic Topology. To address this issue, it was decided to create two new courses, *731 and *732, and cancel course, *763.

Dr. Kevlahan moved, and Dr. Milliken seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the new courses, *731 and *732, and the cancellation of *763, as described in the documents."

The motion was **carried**.

Chemistry

Dr. Adronov presented the curriculum recommendations from the Department of Chemistry. The department has recommended reducing the course requirement to zero for its Ph.D. program for the *Analytical, Organic and Physical Chemistry* sub-disciplines, while retaining the two-course (module) requirement for the *Inorganic Chemistry* sub-discipline. The change is consistent with the zero course requirements for the Ph.D. programs in Chemical Biology, Biochemistry and Biology. The change addresses the concern of having two students in the same research group with different course requirements for the program.

Dr. Capretta moved, and Dr. Dalnoki-Veress seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the recommendation of the Department of Chemistry to reduce the course requirement to zero for its Ph.D. program for the *Analytical, Organic and Physical Chemistry* sub-disciplines, as outlined in the document."

In response to a question, Dr. Adronov explained that students who do not possess a strong background in the field would be required by their supervisors to take additional courses.

The motion was **carried**.

In addition, the department requested the following curriculum changes:

New courses:
#781 – Spectroscopy
#784 – Physical Chemistry of Materials
#799 – Special Topics

Change in course number:
#723 – Symmetry, Physical Properties and Electronic Structure of Solids

Change in course title:
#743 – Inorganic, Structural Problems

Dr. Capretta moved, and Dr. Dalnoki-Veress seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the new courses (#781, #784, #799), change in course number for #723, and change in course title for #743."

The motion was **carried**.

In addition, the department requested to cancel the following courses: 600-level courses - *6A03, *6B03, *6F03, *6Q03, *6S03 (total 5 courses)
700-level courses - #704, #705, #706, #710, #712,#713, #714, #715, #720, #722, #723, #724, #726, #731, #732, #733, #735, #738, #739, #742, #744, #747, #748, #750, #751, #755, #756, #757, #759, #761, #762, #766, #767, #768, #771, #774, #775, #777, #779, #780, #782, #783, #790 (total 43 courses)

Dr. Kevlahan moved, and Dr. Milliken seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the cancellation of the above mentioned courses."

The motion was **carried**.

Upon reviewing the proposed new 600-level courses and the changes to existing 600-level courses, the curriculum committee noted that the information pertaining to the method of evaluation for these courses is not sufficient. It was then decided to postpone approval of these courses. Dr. Welch said an e-mail ballot will be conducted among the members once the information requested by the committee has been received.

Psychology

The Department of Psychology requested to change the description of course *770 – Advanced Analysis of Survey Data, and convert it to a half course.

Dr. Milliken moved, and Dr. Dalnoki-Veress seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the changes recommended for course *770, as mentioned above."

The motion was **carried**.

Geography and Earth Sciences

In the absence of a representative from the School of Geography and Earth Sciences, Dr. Welch presented the following curriculum changes:

New course:
*757 – Advanced Statistical and Data Driven Methods in Hydrology

Change to half course and description:
*770 – Advanced Analysis of Survey Data

Course cancellation:
*708 – Research and Communications in GeoScience
*723 – Research and Communications in Human Geography

Dr. Millken moved, and Dr. Dalnoki-Veress seconded,

"that the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approve the proposed curriculum changes from the School of Geography and Earth Sciences, as mentioned above."

The motion was **carried**.

There was no other business, and the meeting adjourned at 10:15 a.m.

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** course changes. All sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	BIOLOGY			
COURSE TITLE	Molecular Evolution			
COURSE NUMBER	6DD3	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (x)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	G.B. Golding, B. Evans and J. Stone			
PREREQUISITE(S)				

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:** Molecular Evolution			
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***			
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**	
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**			
OTHER	X	**EXPLAIN:** Change from Biology 6DD3 to Molecular Biology 6DD3 (Reason: to be consistent with undergraduate course code and name - same course description and information as previous calendar listing).			

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.
Same as previous listing of 6DD3

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.
Same as previous listing of 6DD3

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

Same as for previous listing of 6DD3

2. EXPECTED ENROLMENT:

Same as for previous listing of 6DD3

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Same as for previous listing of 6DD3

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

As mentioned above, the only change is in the name (currently listed as *6DD3 should be *Mol. Biol. 6DD3 - same title: Molecular Evolution - same workload as 6DD3 previously listed.

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

Same as for previous listing of 6DD3.

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Jianping Xu (jpxu@mcmaster.ca) Email: Extension: 27934 Date: February 18, 2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

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RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

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DEPARTMENT/PROGRAM	BIOLOGY			
COURSE TITLE	Molecular Biology of Cancer			
COURSE NUMBER	6H03	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (x)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	A. Bédard and P. Whyte			
PREREQUISITE(S)				

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:** Molecular Biology of Cancer			
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***			
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**	
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**			
OTHER	X	**EXPLAIN:** Changedfrom Biology 6H03 to Molecular Biology 6H03 (Reason: to be consistent with undergraduate course code and name - same course description and information as previous calendar listing).			

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

Same as for previous listing for 6H03.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

Same as for previous listing for 6H03.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

Same as for previous listing for 6H03.

2. EXPECTED ENROLMENT:

Same as for previous listing for 6H03.

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Same as for previous listing for 6H03

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the <u>Extra Work</u> to be required of graduate students, i.e., exams, essays, etc.)

As mentioned above, the change is in the name (currently listed as *6H03 should be *Mol. Biol. 6H03 - same title: Molecular Biology of Cancer) - workload same as previous 6H03 information.

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

Same as for previous listing for 6H03.

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Jianping Xu (jpxu@mcmaster.ca) Email: Extension: 27934 Date: February 18, 2011

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DEPARTMENT/PROGRAM	BIOLOGY			
COURSE TITLE	Medical Microbiology			
COURSE NUMBER	6P03	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (x)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	J.P. Xu			
PREREQUISITE(S)				

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:** Medical Microbiology			
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***			
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**	
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**			
OTHER	X	**EXPLAIN:** Change from Biology 6P03 to Molecular Biology 6P03 (Reason: to be consistent with undergraduate name and course code - same course description and information as previous calendar listing).			

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.
Same as previous listing for 6P03

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.
Same as previous listing for 6P03

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

Same as previous listing for 6P03

2. EXPECTED ENROLMENT:

Same as previous listing for 6P03

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Same as previous listing for 6P03

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

As mentioned above, the only change is in the name (currently listed as *6P03 should be *Mol. Biol. 6P03 - same title: Medical Microbiology - same workload as previously 6P03 listing information.

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

Same as previous listing for 6P03.

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

Same as previous listing for 6P03.

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Jianping Xu (jpxu@mcmaster.ca) Email: Extension: 27934 Date: February 18, 2011

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DEPARTMENT/PROGRAM	Biology			
COURSE TITLE	Ecology of Inland Waters			
COURSE NUMBER	6Y03	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	Dr. P. Chow-Fraser			
PREREQUISITE(S)				

NATURE OF RECOMMENDATION *(PLEASE CHECK APPROPRIATE BOX)*

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION	X	**PROVIDE THE REASON FOR COURSE CANCELLATION:** The instructor changed the nature and content of the course - this course is being replaced by Biology 6YY3 as per attached separate form.				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)
2. EXPECTED ENROLMENT:
3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):
4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the <u>Extra Work</u> to be required of graduate students, i.e., exams, essays, etc.)
5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).
6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?
PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE: Name: Jianping Xu jpxu@mcmaster.ca Email: Extension: 27934 Date: February 18, 2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

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DEPARTMENT/PROGRAM	Biology			
COURSE TITLE	Ultrastructure of Cells			
COURSE NUMBER	764	**COURSE CREDIT**		
		FULL COURSE (x)	**HALF COURSE ( )**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	Dr. J.R. Jacobs			
PREREQUISITE(S)				

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:** Ultrastructure of Cells.				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION	Y	**PROVIDE THE REASON FOR COURSE CANCELLATION:** Cancellation due to lack of interest and support of transmission EM equipment.				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)
2. EXPECTED ENROLMENT:
3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):
4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the <u>Extra Work</u> to be required of graduate students, i.e., exams, essays, etc.)
5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).
6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?
PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE: Name: Jianping Xu jpxu@mcmaster.ca Email: Extension: 27934 Date: February 18, 2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** course changes. All sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	BIOLOGY			
COURSE TITLE	Ecology and Management of Coastal Waters			
COURSE NUMBER	6YY3	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	Dr. P. Chow-Fraser			
PREREQUISITE(S)				

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE	X	**DATE TO BE OFFERED:** September 2011	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?** N **IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**				
OTHER		**EXPLAIN:** PLEASE NOTE THIS COURSE IS REPLACING BIOLOGY 6Y03 (Ecology of Inland Water) This new course will be offered in alternate years.				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

Understanding key ecological processes to manage coastal waters sustainably. Topics include use of physical and biotic indicators to assess impacts of human activities.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

Please see above.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

Same as Biology 6Y03

2. EXPECTED ENROLMENT:

Same as Biology 6Y03 ?

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Same as Biology 6Y03 - lectures and lab work.

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Same as Biology 6Y03

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

Same as Biology 6Y03.

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

Same as Biology 6Y03.

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Jianping Xu (jpxu@mcmaster.ca) Email: Extension: 27934 Date: February 18, 2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

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2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	School of Computational Engineering and Science			
COURSE TITLE	Computational Models for Electronic Structure and Chemical Bonding			
COURSE NUMBER	chem6PB3	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	Dr. Paul Ayers			
PREREQUISITE(S)	Registration in a graduate program			

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**				
OTHER	X	**EXPLAIN:** The course is currently offered in the Department of Chemistry and Chemical Biology. It is proposed to cross-list this course in the School of Computational Engineering and Science (see below for justification)				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

The Existing Graduate Calendar Description for the Course CHEM6PB3: Modern computational methods for studying atoms, molecules, and materials.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

The course offers an introduction to applications of quantum many-body problems in computational chemistry.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

The course will be useful for students interested in computational chemistry and physics.

2. EXPECTED ENROLMENT:

2 (in CES)

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Weekly lectures (3 hours per week)

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

The course evaluation is based on mid-term exams, a final exam, and projects. The largest portion of the grade is a major project (50% or more of the mark) that stretches over the majority of the term. Graduate student assessment is the same as undergraduates, but the project is more intense (target: research-level computations), the final report is longer (target: publication-quality), and the grading standards are more stringent.

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

This is a proposal for cross-lisitng a course

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

Yes, see correspondence attached

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Dr. Bartosz Protas Email: bprotas@mcmaster.ca Extension: x24116 Date: February 8, 2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

From: Brian McCarry <mccarry@mcmaster.ca>
Subject: Re: Cross-listing the Course CHEM 6PB3 in CES
Date: Mon, 14 Feb 2011 07:56:54 -0500
To: Bartosz Protas <bprotas@mcmaster.ca>
Cc: Alex Adronov <adronov@mcmaster.ca>, "Vargas-Baca, Ignacio (vargasi)" <vargasi@mcmaster.ca>

Dear Bartosz:

I had circulated your request to my Associate Chairs of Undergraduate and Graduate Studies. We agree that there is no problem cross-listing this course. However, the course is only offered every other year so students should be aware that it will not always be available every year.

Brian

Brian E. McCarry
Stephen A. Jarislowsky Chair in Environment and Health
Professor and Chair, Department of Chemistry and Chemical Biology
Acting Chair, Department of Biology
Director, Occupational and Environmental Health Laboratory (OEHL)
McMaster University
1280 Main Street West
Hamilton, ON CANADA L8S 4M1
T: +1 905-525-9140 x24504
F: +1 905-522-2509
E: mccarry@mcmaster.ca

For Chemistry and Chemical Biology inquiries, contact Cathy Bottos (bottosc@mcmaster.ca or 905-525-9140 x24504)
For Biology inquiries, contact Kathy Greaves (greaves@mcmaster.ca or x24400)
For OEHL inquiries, contact Lorraine Shaw, Manager (shawl@mcmaster.ca or x22923)
For Clean Air Hamilton inquiries, contact Brian Montgomery (Brian.Montgomery@hamilton.ca or 905-546-2424 x1275)

On 13/02/11 10:49 PM, "Bartosz Protas" <bprotas@mcmaster.ca> wrote:

> Dear Professor McCarry,
>
> I beg your pardon for bothering you with this matter again. I was wondering if it would be perhaps possible to obtain your opinion about the possibility of cross-listing the course CHEM 6PB3 in the School of Computational Engineering & Science. The reason I am following up on this is because the deadline for submitting this information to the

School of Graduate Studies is at the end of this week. Thank you very much indeed!

Sincerely,

Bartek Protas

On Tue, 08 Feb 2011 12:11:03 -0500
"Bartosz Protas" <bprotas@mcmaster.ca> wrote:
> Dear Dr. McCarry,
>
> I am contacting you as regards the graduate course "Computational Models for Electronic Structure and Chemical Bonding" (CHEM 6PB3) offered by Dr. Ayers. We would like to have this course cross-listed in the School of Computational Engineering and Science (http://computational.mcmaster.ca) which would allow our students to take this course for credit (I expect that approx. 1-2 students from our program might be interested in taking this course in any given year). As required by the School of Graduate Studies, I am writing to inquire if you would be agreeable to having the course CHEM 6PB3 cross-listed in CES. If I could provide any additional information, please do not hesitate to let me know. Thank you very much.
>
> With my best regards,
>
> Bartek Protas
> Director, School of Computational Engineering and Science
>
>
>
> Bartosz Protas
> Department of Mathematics & Statistics
> McMaster University
> Hamilton, Ontario, CANADA L8S 4K1
> Phone: +1 (905) 525 9140 ext. 24116
> Fax: +1 (905) 522 0935
> Email: bprotas@mcmaster.ca
> URL: www.math.mcmaster.ca/bprotas
>
>
>

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

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2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	School of Geography and Earth Science			
COURSE TITLE	Advanced Structural Geology			
COURSE NUMBER	758	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	Dr. Ulrich Riller			
PREREQUISITE(S)	Structural Geology (3Z03) or equivalent course			

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE	X	**DATE TO BE OFFERED:** Term 1	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?** YES **IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? NO **IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.**

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

The aim of this course is to acquaint students with the process-oriented interpretation of various structural geological or related data sets as well as major structural geological or tectonic concepts. Each student in this course will individually conduct a project that is based either on a given structural data set or published material, which will be selected together with the instructor in the beginning of the course. The project is expected to be directed towards elucidating a specific geological process based on structural reasoning, calculations or modelling. The progress of the project will be regularly discussed among course participants and the instructor. This allows each student to follow up on the development of other students' projects and, thus, to discuss possible thematic links.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

Major topics include but are not restricted to the (1) concept of transpression, (2) montain building processes, (3) feedback mechanism between climate, erosion and rock deformation, (4) mechanical behaviour of rocks during deformation, (5) interpretation of strain and fabric patterns, (6) relationship between deformation, melt migration and eruption, i.e., volcanotectonics, (7) neotectonics and (8) generation of economic resource depasits. The course will be based on analysing structural geological data sets and on information gleaned from published papers.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

The course complements other courses in geophysics, geochemistry, hydrology and surface processes.

2. EXPECTED ENROLMENT:

5 - 10 graduate students

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

The course will be held as a seminar. Each student in this course will individually conduct a project that is based either on a given structural data set or published material, both of which will be selected together with the instructor in the beginning of the course. The project is expected to be directed towards elucidating a specific geological process based on structural reasoning, calculations or modelling. The progress of the project will be regularly discussed among course participants and the instructor. This allows each student to follow up on the development of other students' projects and, thus, to discuss possible thematic links.

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Evaluation will be based on the following deliverables of the course: (1) an oral presentation on the scope of the structural project to be addressed, (2) submission of a report encompassing project scope as well as presentation and interpretation of data, and (3) an oral presentation of project results and geological implications.
Oral presentation of project scope: 10%
Report: 50%
Oral presentation of project results: 40%

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

No

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

The course is intended for students of SGES

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Ulrich Riller Email: rilleru@mcmaster.ca Extension: 26365 Date: December 19, 2008

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/December 2006

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

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3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	School of Geography and Earth Sciences			
COURSE TITLE	Numerical Modelling in Global Climatology			
COURSE NUMBER	*759	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	Howard Barker			
PREREQUISITE(S)	Any undergraduate course in climatology.			

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE	X	**DATE TO BE OFFERED:** Term 2 2010-11	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?** YES **IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? NO **IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.**

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

This course will focus on numerical modeling in modern climatology.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

This course will focus on numerical modelling in modern climatology. Emphasis will be on the concept of climatic feedback processes and how to go about modelling them. Auto-regressive, predator-prey, DaisyWorld,and ID global energy balance models will be used to demonstrate feedback mechanisms. Comprehensive global climate models (GCMs) will be discussed qualitatively. Standard hypothesis tests and time series analyses will be applied to data produced in-class.

It is strongly recommended to have 1st yr. calculus, a 1st year course in physics, astronomy, or engineering, some experience with comuter proramming is helpful (e.g. PHYS 2G03) (this could not be added to the prerequisites space)

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

Students should emerge from the course with an appreciation for the governing roles of water and radiation in determining global climate and climatic change, an understanding of the hierarchy of models used in modern climatology, hands-on experience with numerical models, and the experience of presenting results based on models.

2. EXPECTED ENROLMENT:

5 - 10 students per session

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

This course will consist of lectures, computer labs/assignments, and a conference-style presentation delivered by each student on a topic of their choice selected from a provided list. Short fortran programs will be provided - students are expected to alter them, explore their properties, and summarize results. Computer labs will be merged with assigned problem sets. Student presentations will be - 20 minute talks with 10 minutes for questions. A final exam will round-out the course.

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Problem sets 20%, Comuter labs 30%, Seminar 20%, Examination 30%

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

No

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

No

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Dr. Howard Barker Email: howard.barker@ec.gc.ca Extension: Date: September 15, 2010

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/December 2006

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

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3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	SGES			
COURSE TITLE	Earth Sciences			
COURSE NUMBER	6O03	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	Slater			
PREREQUISITE(S)				

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?** NO **IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? NO **IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.**

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION	X	**PROVIDE THE REASON FOR COURSE CANCELLATION:** This course is no longer being offered by SGES as a fourth level undergraduate course 4O03 therefore it will not be available as a graduate course as 6O03.				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

It no longer does

2. EXPECTED ENROLMENT:

1 - 2 grad students now and then

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Extra assignment

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Ann Wallace Email: wallann@mcmaster.ca Extension: 23535 Date: January 20/11

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

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3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	SGES			
COURSE TITLE	Earth Sciences			
COURSE NUMBER	6Q03	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	Slater			
PREREQUISITE(S)				

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?** NO **IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? NO **IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.**

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION	X	**PROVIDE THE REASON FOR COURSE CANCELLATION:** This course is no longer being offered by SGES as a fourth level undergraduate course 4Q03 therefore it will not be available as a graduate course as 6Q03.				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

A

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

It no longer does

2. EXPECTED ENROLMENT:

1 - 2 grad students now and then

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Ann Wallace Email: wallann@mcmaster.ca Extension: 23535 Date: January 20/11

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** course changes. All sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	SGES			
COURSE TITLE	Advanced Topics in Spatial Statistics			
COURSE NUMBER	6S03	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)				
PREREQUISITE(S)				

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? NO **IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.**

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION	X	**PROVIDE THE REASON FOR COURSE CANCELLATION:** This course was offered by Dr. Grocke who left our School 3 years ago. We would like to clear this course off the calendar as we do not have someone here to offer it.				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

An exploration of current issues in environmental policy, ethics and law .

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

It no longer does

2. EXPECTED ENROLMENT:

1 - 2 grads every other year

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Ann Wallace Email: wallann@mcmaster.ca Extension: 23535 Date: January 20/11

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** course changes. All sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	KINESIOLOGY			
COURSE TITLE	Skeletal Muscle Cell Biology and Clinical Myology			
COURSE NUMBER	716	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	M TARNOPOLSKY			
PREREQUISITE(S)				

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:** Instructor will no longer be offering this course.				
OTHER	X	**EXPLAIN:** Instructior no longer has the time or resources to offer this course. Another instructor within Kin is offering a similar course.				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)
2. EXPECTED ENROLMENT:
3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):
4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the <u>Extra Work</u> to be required of graduate students, i.e., exams, essays, etc.)
5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).
6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?
PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE: Name: S PHillips Email: phillis@ Extension: 24465 Date: February 2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT	Mathematics & Statistics
NAME OF PROGRAM	PhD in Mathematics

PROGRAM DEGREE	**Ph.D. (X)**	**M.A. ( )**	**M.A.Sc. ( )**	**M.B.A. ( )**	**M. Eng. ( )**	**M.Sc. ( )**	**Diploma Program ( )**	**Other *(Specify)***

NATURE OF RECOMMENDATION *(PLEASE CHECK APPROPRIATE BOX)*

CHANGE IN ADMISSION REQUIREMENTS		**CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE**		**CHANGE IN COURSE REQUIREMENTS**	X

CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR	X	**EXPLAIN:** Reduce course requirements for PhD students who have already fulfilled the MSc course requirements.
OTHER		**EXPLAIN:**

DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:

The minimum course requirement for the Ph.D. is four one-term courses beyond the Master's degree and acceptable to the department.

PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE *(Attach additional pages if space is not sufficient.)*

The minimum course requirement for PhD students is reduced from four one-term courses beyond the MSc level to two one-term courses.

RATIONALE FOR THE RECOMMENDED CHANGE:

The current policy requires students who have completed an MSc in mathematics to complete a minimum of 10 one-term courses during their PhD and MSc studies. This minimum is inappropriate given the range of appropriate courses currently offered and the fact that essentially all PhD students enter through the MSc programme (either by transferring or completing an MSc).

PROVIDE IMPLEMENTATION DATE: ***(Implementation date should be at the beginning of the academic year)***

Fall 2011

ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.

PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR:

The minimum course requirement for the PhD is two one-term courses beyond the MSc acceptable to the department.

CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Nicholas Kevlahan Email: kevlahan@mcmaster.ca Extension: 23412 Date: 2011-01-20

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/December 2006

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT	Mathematics & Statistics
NAME OF PROGRAM	MSc in Mathematics

PROGRAM DEGREE	**Ph.D. ( )**	**M.A. ( )**	**M.A.Sc. ( )**	**M.B.A. ( )**	**M. Eng. ( )**	**M.Sc. (X)**	**Diploma Program ( )**	**Other *(Specify)***

NATURE OF RECOMMENDATION *(PLEASE CHECK APPROPRIATE BOX)*

CHANGE IN ADMISSION REQUIREMENTS		**CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE**		**CHANGE IN COURSE REQUIREMENTS**	
CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR	X	**EXPLAIN:** Harmonize requirements for M-phimac students with regular MSc (project) students.			
OTHER		**EXPLAIN:**			

DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:

M.Sc. Degree
Applicants will be considered for admission to the M.Sc. program if they have a B+ average in the final year of an honours Bachelor's degree in Mathematics, or in a related area. They may apply to follow one of three options. In all options, at most two one-term 600-level courses may be used to fulfill the course requirement.

A. Thesis option
A candidate for the M.Sc. with thesis must complete a minimum of six one-term graduate courses and submit a thesis written under the supervision of a faculty member and based on original research. The thesis is defended in an oral examination. The duration of this option is normally 20 months.

B. Project Option
A candidate for the MSc with project must complete a minimum of seven one-term graduate courses, one of which is required to be Math 790 (Major Research Project). The duration of this option is normally 12 months.

C. Transfer Option
A candidate may transfer directly to the Ph.D. program without completing an M.Sc. by first registering for the thesis option and then submitting an application for transfer after 12 to 20 months. This option requires completion of six one-term graduate courses, one written comprehensive exam, submission of a research proposal, and a statement from the supervisor. Successful applicants may apply all accumulated credits to the Ph.D. degree, but are still required to complete four one-term courses beyond the M.Sc. once registered in the Ph.D. program. Unsuccessful applicants must choose one of the other options.

Each candidate for the M.Sc. is required to choose no fewer than four 700-level courses in Mathematics, and the remaining courses may include up to two one-term courses at the graduate level from a cognate subject, with the entire programme of coursework subject to departmental approval. Students intending to do doctoral work are expected to complete two of the two-term course sequences from Algebra 701/702, Analysis 721/722, and Applied Math 741/742. Students in the project option M.Sc. in Mathematical Finance may complete MATH *772 in lieu of MATH *790.

PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE *(Attach additional pages if space is not sufficient.)*

M-phimac students will now be required to take the project course Math 790, as all other MSc (project) students are currently required to do.

RATIONALE FOR THE RECOMMENDED CHANGE:

The format of the M-phimac option has been changed to be compatible with the requirements of the regular MSc (project) option.

PROVIDE IMPLEMENTATION DATE: *(Implementation date should be at the beginning of the academic year)*

Fall 2011

ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.

PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR:

M.Sc. Degree
Applicants will be considered for admission to the M.Sc. program if they have a B+ average in the final year of an honours Bachelor's degree in Mathematics, or in a related area. They may apply to follow one of three options. In all options, at most two one-term 600-level courses may be used to fulfill the course requirement.

A. Thesis option
A candidate for the M.Sc. with thesis must complete a minimum of six one-term graduate courses and submit a thesis written under the supervision of a faculty member and based on original research. The thesis is defended in an oral examination. The duration of this option is normally 20 months.

B. Project Option
A candidate for the MSc with project must complete a minimum of seven one-term graduate courses, one of which is required to be Math 790 (Major Research Project). The duration of this option is normally 12 months.

C. Transfer Option
A candidate may transfer directly to the Ph.D. program without completing an M.Sc. by first registering for the thesis option and then submitting an application for transfer after 12 to 20 months. This option requires completion of six one-term graduate courses, one written comprehensive exam, submission of a research proposal, and a statement from the supervisor. Successful applicants may apply all accumulated credits to the Ph.D. degree, but are still required to complete four one-term courses beyond the M.Sc. once registered in the Ph.D. program. Unsuccessful applicants must choose one of the other options.

Each candidate for the M.Sc. is required to choose no fewer than four 700-level courses in Mathematics, and the remaining courses may include up to two one-term courses at the graduate level from a cognate subject, with the entire programme of coursework subject to departmental approval. Students intending to do doctoral work are expected to complete two of the two-term course sequences from Algebra 701/702, Analysis 721/722, and Applied Math 741/742.

CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Nicholas Kevlahan Email: kevlahan@mcmaster.ca Extension: 23412 Date: 2011-01-20

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** course changes. All sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
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DEPARTMENT/PROGRAM	Mathematics & Statistics			
COURSE TITLE	Mathematical and computational fluid dynamics			
COURSE NUMBER	749	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	To be assigned			
PREREQUISITE(S)	None			

NATURE OF RECOMMENDATION *(PLEASE CHECK APPROPRIATE BOX)*

NEW COURSE	X	**DATE TO BE OFFERED:** Fall 2011	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?** No **IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? No **IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.**

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**				
OTHER	X	**EXPLAIN:** This course is to be cross listed with Computational Engineering & Science as CES *749				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

Mathematical properties of the Euler and Navier-Stokes equations for fluid flow, boundary layers, non-Newtonian fluids and turbulence. Numerical methods for the solution of the equations of fluid dynamics, focusing on finite volume, finite difference and spectral methods. Advanced topics include non-uniform grids, multigrid methods and adaptive methods.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

This course provides an introduction to both the mathematical analysis of the equations of fluid flow, as well as an introduction to advanced computational methods for solving these equations.

Proposed texts: Wesseling "Principles of Fluid Dynamics", Chorin and Marsden "A Mathematical Introduction to Fluid Mechanics".

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

Fluid dynamics is a major research area in the mathematics graduate programme. This course would provide a foundation for the mathematical theory and computational aspects of research in fluid dynamics. The subject matter of this new course has been taught successfully as a topics course for several years. As with the topics course, it is anticipated that this course will also be popular with graduate student from other programmes, such as Physics & Astronomy and Mechanical Engineering.

2. EXPECTED ENROLMENT:

10-15

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Lectures.

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Assignments, exams. The assignments will include a computational component. A "typical" breakdown is 60% from 4 assignments, and 40% from a take-home final exam. However, we allow individual instructors to determine the details of the assessment method, and the instructor is not bound to follow any particular marking system. In addition, the instructor for a particular graduate course is not fixed, and typically changes every year or two.

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

No.

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Nicholas Kevlahan Email: kevlahan@mcmaster.ca Extension: 23412 Date: 2011-01-11

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/December 2006

From: "Hans U. Boden" <boden@math.mcmaster.ca>
Subject: Re: Cross-listing MATH 749 in CES
Date: Mon, 14 Feb 2011 12:10:17 -0500
To: Bartosz Protas <bprotas@mcmaster.ca>

Bartek,
Yes, I support the crosslisting of Math 749
Hans

On 2011-02-14, at 10:30 AM, Bartosz Protas wrote:

> Hi Hans,
>
> I am writing as regards the proposal to cross-list the course MATH 749 "Mathematical and Computational Fluid Dynamics" in the School of Computational Engineering and Science. I wonder if you approve this request (we must have the departmental support to be able to submit the request to SGS). Thanks a lot!
>
> Bartek
>
>
> Bartosz Protas
> Department of Mathematics & Statistics
> McMaster University
> Hamilton, Ontario, CANADA L8S 4K1
> Phone: +1 (905) 525 9140 ext. 24116
> Fax: +1 (905) 522 0935
> Email: bprotas@mcmaster.ca
> URL: www.math.mcmaster.ca/bprotas
>
>
>
>

Hans U. Boden, Chair	Hamilton Hall 218E
Mathematics & Statistics	905.525.9140 ext.23417
McMaster University	fax 905.522.0935
Hamilton, Ontario	boden@mcmaster.ca
L8S 4K1 Canada	www.math.mcmaster.ca/boden

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** course changes. All sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	Mathematics and Statistics			
COURSE TITLE	Applied Computational Finance I			
COURSE NUMBER	778	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE ( )**	**QUARTER (MODULE) (X)**
INSTRUCTOR(S)	To be assigned			
PREREQUISITE(S)	None			

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE	X	**DATE TO BE OFFERED:** Fall 2011 (first half)	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?** No **IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**			
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***			
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**	
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**			
OTHER		**EXPLAIN:**			

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

Introduction to scientific computing: floating-point arithmetic, error analysis. Lattice methods: binomial trees; numerical methods for parabolic PDEs; applications to option pricing.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

The course develops computational skills in financial mathematics, and is mandatory for students in the Masters in Financial Mathematics (M-PhiMac) program. The text is likely to be Numerical Methods in Finance by Paolo Brandimarte

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

The course Math773 is already a required course in the M-PhiMac program. It is being deleted and replaced by two quarter courses, math 778 and 779 in order to deliver the material in the first half of each of the fall and winter terms. This timing will better balance the workload for students in the program. Math778/779 provide computational training that is necessary for students seeking professional opportunities in financial mathematics.

2. EXPECTED ENROLMENT:

15

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Lectures

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Students will submit assignments, possibly a small project, and a final exam. A "typical" breakdown is 60% from 4 assignments, and 40% from a take-home final exam. However, we allow individual instructors to determine the details of the assessment method, and the instructor is not bound to follow any particular marking system. In addition, the instructor for a particular graduate course is not fixed, and typically changes every year or two.

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

No

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

No

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Nicholas Kevlahan Email: kevlahan@mcmaster.ca Extension: 23412 Date: 2011-01-26

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** course changes. All sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	Mathematics and Statistics			
COURSE TITLE	Applied Computational Finance II			
COURSE NUMBER	779	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE ( )**	**QUARTER (MODULE) (X)**
INSTRUCTOR(S)	To be assigned			
PREREQUISITE(S)	None			

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE	X	**DATE TO BE OFFERED:** Winter 2012 (first half)	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?** No **IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**			
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***			
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**	
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**			
OTHER		**EXPLAIN:**			

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

Monte Carlo methods, simulation of stochastic processes, variance reduction techniques; applications to option pricing and portfolio risk management.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

The course develops computational skills in financial mathematics, and is mandatory for students in the Masters in Financial Mathematics (M-PhiMac) program. The text is likely to be Monte Carlo Methods in Financial Engineering by Paul Glasserman.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

The course Math773 is already a required course in the M-PhiMac program. It is being split into two quarter courses, math 778 and 779 in order to deliver the material in the first half of each of the fall and winter terms. This timing will better balance the workload for students in the program. Math778/779 provide computational training that is necessary for students seeking professional opportunities in financial mathematics.

2. EXPECTED ENROLMENT:

15

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Lectures

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Students will submit assignments, possibly a small project, and a final exam. A "typical" breakdown is 60% from 4 assignments, and 40% from a take-home final exam. However, we allow individual instructors to determine the details of the assessment method, and the instructor is not bound to follow any particular marking system. In addition, the instructor for a particular graduate course is not fixed, and typically changes every year or two.

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

No

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

No

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Nicholas Kevlahan Email: kevlahan@mcmaster.ca Extension: 23412 Date: 2011-01-26

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

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McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

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3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	Mathematics & Statistics			
COURSE TITLE	Model Theory			
COURSE NUMBER	711	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	To be assigned			
PREREQUISITE(S)	Math 4L03 or equivalent			

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:** Winter 2012	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?** No **IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? No **IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.**

CHANGE IN COURSE TITLE	X	**PROVIDE THE CURRENT COURSE TITLE:** Mathematical Logic				
CHANGE IN COURSE DESCRIPTION	X	**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

Structures, theories, quantifier elimination and model completeness, types and saturation, algebraic closure and pregeometries, strong minimality and Morley's theorem, o-minimality. Examples discussed include algebraically closed and real closed fields.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

Originally designed as an introductory course in Mathematical Logic for incoming graduate students cross-listed with Math 4L03. This course is now separate from the latter and provides a much-needed introduction to Model Theory, the foundation for the research done by the members of the Logic group in the department, for the student who already took 4L03 or equivalent. Suggested text: Marker's "Model Theory: an introduction"

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

This course is required for all graduate students intending to work with one of the members of the Logic group. In each of the last few years, Model Theory has been taught in reading courses.

2. EXPECTED ENROLMENT:

5 - 10

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Lectures

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Assignments and/or presentations

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

No

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

N/A

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Patrick Speissegger Email: speisseg@math.mcmaster.ca Extension: 23430 Date: 20.01.2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

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McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

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DEPARTMENT/PROGRAM	Mathematics and Statistics			
COURSE TITLE	Applied computational finance			
COURSE NUMBER	773	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)				
PREREQUISITE(S)	None			

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**	X	
COURSE CANCELLATION	X	**PROVIDE THE REASON FOR COURSE CANCELLATION:** To be replaced by two quarter courses (math 778 and 779). The modular form will allow for delivering the material with more effective timing in the Masters in Financial Mathematics program.				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)
2. EXPECTED ENROLMENT:
3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):
4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the <u>Extra Work</u> to be required of graduate students, i.e., exams, essays, etc.) S
5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).
6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?
PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE: Name: Nicholas Kevlahan Email: kevlahan@mcmaster.ca Extension: 23412 Date: 2011-01-26

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

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McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

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3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	Mathematics & Statistics			
COURSE TITLE	Statistical Modelling in Practice			
COURSE NUMBER	721	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	To be assigned			
PREREQUISITE(S)	None			

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE	X	**DATE TO BE OFFERED:** Fall 2011	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?** No **IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? No **IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.**

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**			
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***			
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**	
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**			
OTHER		**EXPLAIN:**			

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

Sampling distributions, point estimation, interval estimation, linear regression, time series, model fitting and validity, multivariate models and dependence structures. Statistics 743 is an antirequisite to this course.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

Designed originally for the professional Masters in financial mathematics program, the course is intended to provide graduate level students of any discipline the statistical tools they need when modeling observable phenomena. The focus will be primarily on the callibration of modeling parameters to available data, and in the assessment of the appropriateness/best fit of models of continuous distributions. A text has not yet been selected.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

This course would be required by all M-PhiMac students who have not earned a comparable credit elsewhere, and would be made available to graduate students from other disciplines as well. Currently, the only comparable course is the full year statistics course used by the department as a core course for graduate students in statistics. M-PhiMac students are currently required to take that course, but the significant differences in the backgrounds and objectives of the finance students and the statistics students has shown that this is not an advisable approach.

2. EXPECTED ENROLMENT:

15

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Lectures.

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Students would submit assignments, and write a midterm test and final exam. A "typical" breakdown is 60% from 4 assignments, and 40% from a take-home final exam. However, we allow individual instructors to determine the details of the assessment method, and the instructor is not bound to follow any particular marking system. In addition, the instructor for a particular graduate course is not fixed, and typically changes every year or two.

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

No.

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

No.

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Nicholas Kevlahan Email: kevlahan@mcmaster.ca Extension: 23412 Date: 2011-01-11

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/December 2006

McMaster University

SCHOOL OF GRADUATE STUDIES

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DEPARTMENT/PROGRAM	MSc PROGRAM IN STATISTICS, DEPT OF MATHEMATICS AND STATISTICS			
COURSE TITLE	STATISTICS SEMINAR			
COURSE NUMBER	770	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (x)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	N. BALAKRISHNAN			
PREREQUISITE(S)	NONE			

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION	X	**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

A statistics seminar is held weekly during the fall and winter terms, with presentations by faculty, visitors and students. Students are to attend the seminar, participate in discussion, and submit short written critical reviews of 6 seminars delivered during the year.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

The contents of this course will be the seminars delivered in the weekly seminar series and the reports that are prepared by the graduate students on some selected seminars and submitted by them for evaluation. In this process, the research component can be introduced for all students in the Masters program irrespective of whether they are in the thesis option or in the course work option.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

It would become a key course which, in addition to introducing research component to students in course work option, would teach all students the important aspect of technical report writing.

2. EXPECTED ENROLMENT:

25 per academic year

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

6 seminar reports in a year from September to April based on some seminars presented in Statistics Seminar series

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Evaluate the writing and presentation style as well as the technical content and conclusions drawn

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

NO

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

NO

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: N. BALAKRISHNAN Email: bala@mcmaster.caExtension: 23420 Date: JANUARY 31, 2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT	Mathematics and Statistics
NAME OF PROGRAM	Masters Program in Statistics

PROGRAM DEGREE	**Ph.D. ( )**	**M.A. ( )**	**M.A.Sc. ( )**	**M.B.A. ( )**	**M. Eng. ( )**	**M.Sc. (X)**	**Diploma Program ( )**	**Other *(Specify)***

NATURE OF RECOMMENDATION *(PLEASE CHECK APPROPRIATE BOX)*

CHANGE IN ADMISSION REQUIREMENTS		**CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE**		**CHANGE IN COURSE REQUIREMENTS**	X

CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR	X	**EXPLAIN:** Stats 770 "Statistics Seminar" is an elective course until now, but is to be changed to a required course starting Sept 2011
OTHER		**EXPLAIN:**

DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:

Stats 770 "Statistics Seminar" is an elective course until now. It is open for all students in the thesis option or the course work option of the MSc program. For this course, they are expected to attend weekly seminars from both Fall and Winter terms, and then prepare detailed written reports on eight seminars in total and submit them for evaluation. These written reports are then evaluated based on content and presentation.

PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE *(Attach additional pages if space is not sufficient.)*

Stats 770 is an elective course until now. However, in order to make the research component of the course stronger and also to introduce it to the Coursework Option (based on a recommendation made by the OCGS Panel), we would like to make this course as a required course and simultaneously reduce the number of reports to be submitted from 8 to 6.

This would require changes to be made at the following 5 specific places in the Graduate Calendar:

1. On Page 221, at the end of the 5th line of Program Requirements, change to "… Fall and Winter terms, and also submit written reports on six seminars delivered during the year."

2. On Page 221, in the 2nd and 3rd lines of Thesis Option, change "consisting of three compulsory and three elective courses" to "consisting of four compulsory and two elective courses"

3. On Page 221, in the 2nd line of Coursework Option, change "consisting of three compulsory and five elective courses" to "consisting of four compulsory and four elective courses"

4. On Page 222, in the Section on Courses, change the text on 5th line to 10th lines as follows: "STATS *770 is another required course that develops a broad knowledge of statistics through attendance at research seminars as well as report-writing skills through critical written reviews of the seminars. The elective courses are traditional statistics courses covering a sufficient variety of topics to offer students a choice based upon their individual interests."

5. On Page 223, in the 4th line of Stats 770 "Statistics Seminar" Course, change "reviews of at least 8 seminars." to "reviews of 6 seminars delivered during the year."

RATIONALE FOR THE RECOMMENDED CHANGE:

So as to get all graduate students in Statistics to develop technical report writing skills. In addition, this would introduce effectively research component into the Coursework Option Masters Program which was one of the concerns raised in the recent OCGS evaluation of the MSc program in Statistics.

PROVIDE IMPLEMENTATION DATE: ***(Implementation date should be at the beginning of the academic year)***

SEPTEMBER 2011

ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.

NO

PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR:

SEE ABOVE

CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: N. BALAKRISHNAN Email: bala@mcmaster.ca Extension: 23420 Date: january 31, 2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

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DEPARTMENT/PROGRAM	Medical Physics and Applied Radiation Sciences			
COURSE TITLE	Medical Imaging System I			
COURSE NUMBER	MedPhys *770	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	Dr. Hao Peng, Dr. Troy Farncombe			
PREREQUISITE(S)	Permission of the instructors			

NATURE OF RECOMMENDATION *(PLEASE CHECK APPROPRIATE BOX)*

NEW COURSE		**DATE TO BE OFFERED:** Fall semesters	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? YES **IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.**

CHANGE IN COURSE TITLE	X	**PROVIDE THE CURRENT COURSE TITLE:** Imaging in Medical Physics				
CHANGE IN COURSE DESCRIPTION	X	**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**				
OTHER	X	**EXPLAIN:** To be cross-listed as Biomedical Engineering *770				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

Medical imaging is important for both clinical medicine, and medical research. This course will provide an introduction to several of the major imaging modalities, focusing on the aspects of imaging physics, signal processing and system design. The topics to be covered include projection-imaging systems (projection X-Ray), backprojection based systems (CT, PET, and SPECT). Ultrasound, optical imaging and MRI will be covered in the second part of this course Medical Imaging System II.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

In summary, the course is designed to introduce several general concepts and address some critical questions in medical imaging system: 1) How do the major medical imaging modalities work (physics, image formation, image quality)? What are the main sources of noise, distortion, artifact, and contrast recovery? 2) What is the role of system theory in the performance analysis of medical imaging systems? What is the transfer function of the system? On what design parameters and imaging protocol that the signal-to-noise ratio (SNR) of medical imaging systems depend? 3) How is a medical imaging technology used in clinical practice? What are the trends and emerging areas of future study? 4) General imaging concepts and multi-mode imaging system design such as PET/CT, PET/MRI and SPECT/MRI?

Text: Bushberg, Seibert, Leidholdt & Boone, The Essential Physics of Medical Imaging, Lippincott Williams & Wilkins

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

One of the foci of medical physics is medical imaging. Complementary to the introductory medical imaging course MedPhys 4T3, this graduate course will teach students several advanced topics in medical imaging.

2. EXPECTED ENROLMENT:

15-20

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Lectures, imaging demonstrations (HHS and preclinical imaging facility), student presentations.

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Three assignments: 20% for each; Final Project: 40%

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

NO

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

N/A

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Dr. Hao Peng Email: penghao@mcmaster.ca Extension: 27126 Date: Feb 17, 2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

McMaster University

School of Biomedical Engineering

Engineering Technology Building, 405
1280 Main Street West
Hamilton, Ontario L8S 4K1

Phone: 905.525.9140 ext.23486
Fax: 905.528.1054
http://bme.mcmaster.ca

To:
Dr. Michael J. Farquharson, Prof, PhD, MSc, BSc, PGCE
Chair, Medical Physics and Applied Radiation Sciences
Tandem Accelerator Building Room 207
McMaster University, Hamilton, Ontario, Canada.
Phone: (905) 525-9140 Ext 23021
Email: farquhm@mcmaster.ca
http://www.science.mcmaster.ca/medphys/faculty/36-michael-faquharson.html

From:
Dr. Michael D. Noseworthy, Ph.D., P.Eng.
Co-Director, McMaster School of Biomedical Engineering,
Associate Professor, Department of Electrical and Computer Engineering,
McMaster University. Hamilton, Ontario, Canada.
Phone: (905) 522-1155 x23727
email: nosewor@mcmaster.ca
http://www.ece.mcmaster.ca/~mikenose/web/HOME.html

Re: Cross listing of Graduate Courses "Medical Imaging Systems I and II"

February 17, 2011

Dear Mic,

I am delighted to see collaboration between Medical Physics and The School of Biomedical Engineering to cross list the 700 level graduate courses "Medical Imaging Systems (I and II)" between us. I agree that Medical Imaging Systems I will be offered through Medical Physics, while being cross listed in Biomedical Engineering. Medical Imaging Systems II will be offered through the School of Biomedical Engineering and Cross listed within your department, Medical Physics. I am positive this will be well received by faculty and students alike. Further, I believe this will lead to superior instruction for all our graduate students who have interest in advanced understanding of medical imaging technology.

Sincerely,

Michael D. Noseworthy, Ph.D., P.Eng.

Dr. Michael J.Farquharson, Prof, PhD, MSc, BSc, PGCE
Chair, Medical Physics and Applied Radiation Sciences
Tandem Accelerator Building Room 207
McMaster University
1280 Main Street West
Hamilton
Ontario
Canada

http://www.science.mcmaster.ca/medphys/faculty/36-michael-faquharson.html

Tel 001 905 525 9140 Ext 23021
Email farquhm@mcmaster.ca

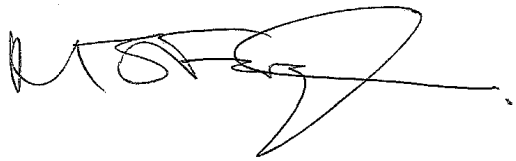
Date 17th February 2011

Dr. Mike Noseworthy
Director Bio Medical Engineering
McMaster University

Dear Mike

I fully agree with the proposal for the two Medical Imaging Systems (MIS-1) graduate courses to be cross listed between BME and Medical Physics. MIS-1 should be crossed listed in Biomedical Engineering in the Graduate Calendar. In a similar manner MIS-2 will be crossed listed in Medical Physics in the Graduate Calendar.

Kind Regards



M.J.Farquharson

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** course changes. All sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	Medical Physics and Applied Radiation Sciences			
COURSE TITLE	Introduction to Operational Health Physics			
COURSE NUMBER	*776	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (x)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	D. Tucker			
PREREQUISITE(S)				

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION	x	**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

An introduction to a number of topics that will be encountered in the practice of health physics. The following topics will be discussed: Dose limitation; dosimetric quantities for individuals and populations; ioinzing radiation risks and hazards; ICRP-60; internal doses and the compartment model; derived air concentrations and annual limit on intake; metabolic models for respiratory system and GI tract, radiation safety at nuclear reactors, particle accelerators, irradiators, X-Ray installations and laboratories; pathway analysis; derived release limits; environmental monitoring, sample collection and preparation, and sources of radiation; atmospheric transport; cost-benefit analysis; derivation of limits for surface contamination. Also listed as UN0805

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

Introduction to occupational and environmental operational health physics. Principal Text: The Handbook of Health Physics and Radiological Health, Third Edtion, Edited by Shleien, Slaback and Birky.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

This course is an essential component of the Health and Radiation MSc program. It introduces the students to the most important aspects of radiation protection from ionizing radiation.

2. EXPECTED ENROLMENT:

6-10

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Lectures

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

Students are required to complete two to three assignments requiring several hours of work each for 45% of the mark. They are required to complete a three hour closed book examination consisting of multiple choice and long answer questions for the remainig 55% of the grade. The criteria for marking assignments and long answers questions is consistent with the American Board of Health Physics grading criteria for the Part II Certification Exam.

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

NO

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

n/a

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Dave Tucker Email: tuckerdm@mcmaster.ca Extension: 24099 Date: February 17,2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:

1. This form must be completed for **ALL** course changes. All sections of this form **must** be completed.
2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	Medical Physics and Applied Radiation Sciences			
COURSE TITLE	Medical Imaging Systems II			
COURSE NUMBER	702	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE (X)**	**QUARTER (MODULE) ( )**
INSTRUCTOR(S)	Dr. MD Noseworthy, Dr. N Bock			
PREREQUISITE(S)	Permission of the Instructor(s)			

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:** Winter Semesters	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? YES **IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.**

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION		**PROVIDE THE REASON FOR COURSE CANCELLATION:**				
OTHER	X	**EXPLAIN:** This is a course in Biomedical Engineering, *702, (with a new title, Medical Imaging Systems II, and description). Medical Physics is requesting to cross list this course as Medical Physics *702.				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

This course will compliment Medical Imaging Systems I. In this course imaging methods that rely on non-ionizing radiation will be discussed. The course content focuses on magnetic resonance imaging (MRI), in vivo nuclear magnetic resonance (NMR), ultrasound (US), and optical imaging methods. Advanced concepts such as multi-modality imaging appraches, image fusion, and functional medical image processing will be discussed.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

The course will revolve around principles of magnetic resonance imaging (MRI), ultraosund (US) and optical imaging. A plethora of textbooks and current review papers will be used as course materials.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)

One of the foci of biomedical engineering in the McMaster Engineering faculty is medical imaging. As this is also an important facet of medical physics it is cross listed there too.

2. EXPECTED ENROLMENT:

15-20

3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):

Lectures, imaging demonstrations (Imaging Research Centre, St. Joseph's Healthcare), student seminars.

4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)

50% Student Seminar
50% Assignments (2 each 25%). These will involve programming and advanced manipulation of imaging data.

5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).

no

6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?

n/a

PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Dr. Michael D. Noseworthy Email: nosewor@mcmaster.ca Extension: 35218 Date: February 14, 2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy

Medical Imaging SYSTEMS II: BME-702

Course Outline

Instructor
Michael D. Noseworthy, Ph.D., P.Eng.
Email: nosewor@mcmaster.ca
Web: http://www.ece.mcmaster.ca/~mikenose/web/HOME.html
Campus Office: ETB-406 Phone: ext.23727
Hospital Office/Lab:
Imaging Research Centre, St. Joseph's Healthcare,
Fontbonne Bldg, room F-127, Phone: ext.35218

Course Schedule and Location
One lecture every week; next offered in winter 2011.
Lecture times: Tuesdays, 9:30am - 12:20pm
Location: IRC Conference room, Imaging Research Centre, St. Joseph's Healthcare,
Fontbonne Bldg, room F-129

Course Objectives
This course is designed to have students develop a solid understanding of imaging modalities that work on non-ionizing radiation. The course will focus on magnetic resonance imaging (MRI) and associated techniques (e.g. in vivo NMR), ultrasound, and optical imaging. Students will become familiar with these technologies, from a physics and engineering perspective. Practical aspects will be investigated throughout the course.

Prerequisite
At least one course in medical imaging physics or engineering, and the instructor's permission.

Textbook and Recommended Readings
A number of key review papers that fully complement the course material will be suggested to students throughout the term. Required texts are:
1) Bernstein MA. *Handbook of MRI Pulse Sequences*.
2) de Graaf R. *In vivo NMR Spectroscopy: Principles and Techniques*.
3) Oppelt, A. *Imaging Systems for Medical Diagnostics: Fundamentals, Technical Solutions and Applications for Systems Applying Ionizing Radiation, Nuclear Magnetic Resonance and Ultrasound*.
4) Szabo T. *Diagnostic Ultrasound Imaging: Inside Out*.
5) Drexler W, and Fujimoto JG. *Optical Coherence Tomography: Technology and Applications*

Grading

There are 12 three hour lectures this term. Students will be required to do 2 in-class presentations (each 45 minutes long).

Presentations (2 x30% each)	*60%*
Class Participation	*10%*
Final EXAM (date TBA)	*30%*

Please note that announcements concerning any type of graded material may be in any format (e.g. announcements may be made only in class). Students are responsible for completing the graded material regardless of whether they received the announcement or not.

Course Content (approximately by week)

1. Basics of nuclear magnetic resonance signal (NMR)- Quantum and Newtonian approaches
2. Going from NMR to magnetic resonance imaging (MRI): Basics of pulse sequences
3. Sampling and Reconstruction: Hermitian symmetry, spiral, rectilinear, keyhole, tricks
4. RF pulses: Basic, spectral-spatial and Adiabatic pulses
5. Gradients: Imaging, motion sensitizing, correction gradients
6. Parallel Imaging: SENSE vs. SMASH, parallel transmit
7. Advanced MRI pulse sequences 1: SE, GRE, FSE, angiography, fat/water,
8. Advanced MRI pulse sequences 2: diffusion- DWI, DTI, HARDI, q-space
9. In vivo MR Spectroscopy
10. Ultrasound Imaging: Part I (A-mode, B-mode, M-mode)
11. Ultrasound Imaging: Part II (Doppler, 3 and 4D modes, co-registration)
12. Optical Imaging: Part I- basic techniques, NIRS, Raman
13. Optical Imaging: Part II- Tomography

McMaster University

SCHOOL OF GRADUATE STUDIES

RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

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2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: *espiritu@mcmaster.ca*).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

DEPARTMENT/PROGRAM	Psychology			
COURSE TITLE	Scientific Ethics and Professional Issues			
COURSE NUMBER	#721	**COURSE CREDIT**		
		FULL COURSE ( )	**HALF COURSE ( )**	**QUARTER (MODULE) (x)**
INSTRUCTOR(S)	varies from year to year			
PREREQUISITE(S)	(anti-requisite: PSYCH 720)			

NATURE OF RECOMMENDATION ***(PLEASE CHECK APPROPRIATE BOX)***

NEW COURSE		**DATE TO BE OFFERED:**	**WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL? IF YES, PROVIDE THE DATE:**

WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.

CHANGE IN COURSE TITLE		**PROVIDE THE CURRENT COURSE TITLE:**				
CHANGE IN COURSE DESCRIPTION		**600-LEVEL COURSE** ***(Undergraduate course for graduate credit) Please see #4 on page 2 of this form***				
CHANGE TO FULL COURSE		**CHANGE TO HALF COURSE**		**CHANGE TO QUARTER COURSE**		
COURSE CANCELLATION	X	**PROVIDE THE REASON FOR COURSE CANCELLATION:** This course no longer is taught because its content overlaps significantly with SGS #101.				
OTHER		**EXPLAIN:**				

BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description *(maximum 6 lines)* to be included in the Graduate Calendar.

CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.

1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)
2. EXPECTED ENROLMENT:
3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):
4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the Extra Work to be required of graduate students, i.e., exams, essays, etc.)
5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).
6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?
PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE: Name: Patrick Bennett Email: Extension: 23012 Date: Feb 22, 2011

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/medy