November 7, 2003

Professor Carolyn Tuohy
Vice-President and Associate Provost
Room 206, Simcoe Hall
27 King's College Circle
University of Toronto

Dear Professor Tuohy:

At its meeting of October 28, 2003, the Council of the School of Graduate Studies approved the following motion:

> **THAT** SGS Council approve the proposal to modify the Collaborative Program in Toxicology, effective immediately, as follows:
>
> 1) Renaming the Program to the Collaborative Program in Biomedical Toxicology;
> 2) Moving the Program's administration to the Department of Pharmacology; and
> 3) Amending the Memorandum of Agreement for the Collaborative Program to reflect the departments participating in the Program.

The motion sheet and supporting documentation are attached. Division IV Executive Committee approved the proposal on October 7, 2003.

On behalf of the Council of the School of Graduate Studies, I am presenting this item to Governing Council committees, for information.

Yours sincerely,

Jane Alderdice
Secretary to SGS Council
and Coordinator of Policy, Program and Liaison

Encl.
/smr

c.c.	U. De Boni	T. Chan	A. Drummond	D. Grant	A. Gotlieb
	C. Johnston	R. Macgregor	L. Yee	S. Zaky	

H:Council/FollowUp/2003-2004/Oct 28/Toxicology CP program change

Motion

School of Graduate Studies Council
Tuesday, October 28, 2003

Item 8.

Proposals to change program requirements:

8.2: **Toxicology, Collaborative Program**
MOTION (/) **THAT** SGS Council approve the proposal to modify the Collaborative Program in Toxicology, effective immediately, as follows:

1) Renaming the Program to the Collaborative Program in Biomedical Toxicology;

2) Moving the Program's administration to the Department of Pharmacology; and

3) Amending the Memorandum of Agreement for the Collaborative Program to reflect the departments participating in the Program.

See the proposal and supporting documentation attached.

NOTE:
Division IV Executive Committee approved this proposal at its meeting of October 7, 2003.

With SGS Council's approval this item will go to Governing Council committees for information.

FACULTY OF MEDICINE
University of Toronto

Department of Pharmacology
Medical Sciences Building, 1 King's College Circle, Toronto, Canada M5S 1A8
Telephone: 416-978-2723 FAX: 416-978-6395

Denis M. Grant, Ph.D., Professor and Chair
Direct line: 416-946-7959 Direct FAX: 416-946-8305
E-mail: denis.grant@utoronto.ca

Dr. U. De Boni
Associate Dean, Division IV
School of Graduate Studies
University of Toronto
65/63 St George Street
Toronto, Ontario M5S 2Z9

August 27, 2003

Dear Dr. De Boni,

Please find enclosed the documentation in support of our Proposal for Modification of the Collaborative Program in Toxicology. This package has been prepared by Dr. Cindy Woodland of the Department of Pharmacology, the Acting Director of the Program, in close consultation with faculty members of our Department and with other existing members of the Collaborative Program. In brief, at the original request of the Institute for Environmental Studies (the former administrative home of the Collaborative Program in Toxicology), our Proposal consists of the renaming of the program to the Collaborative Program in Biomedical Toxicology, moving its administrative home to the Department of Pharmacology, updating the list of departments that have indicated an interest in remaining as members of the new program, and modification of certain program requirements to reflect the shift in emphasis towards biomedical toxicology. As you know, students whose research interests lean more towards environmental rather than biomedical toxicology will enroll in the existing Environment and Health Collaborative Program, which remains with IES.

We are very excited about assuming our new role as the administrative home for the CPBT, since it represents a logical extension and opportunity for the undergraduate students currently enrolled in our Department's popular Toxicology Specialist undergraduate program. We have already received a large number of queries this year from students interested in taking the program, we are aware that highly trained toxicologists are currently in high demand in industry, and we expect that the rejuvenated CPBT will be a very attractive option for students in the biomedical sciences.

We look forward to a favourable response to our submission.

Sincerely,

Denis M. Grant, Ph.D.
Professor and Chair, Department of Pharmacology

CONDENSED PROPOSAL FOR MODIFICATION OF THE COLLABORATIVE PROGRAM IN TOXICOLOGY

Background

In 1988, a Collaborative Program in Toxicology was created under the administration of the Institute for Environmental Studies. This program enrolled students with research interests in the areas of biomedical or environmental toxicology and successfully graduated approximately 30 students.

In 2002, the Institute for Environmental Studies (IES) reported that it could not afford to continue mounting courses and administering this program in the absence of base funding from the School of Graduate Studies. Given the clear demand for the program by students, faculty, and potential employers, several members of the program met to discuss the possibility of revitalizing the program, rather than terminating it completely.

Following several discussions with members of the Collaborative Program in Toxicology, and at the recommendation of the Institute for Environmental Studies, it was agreed that the optimal resolution for students, faculty, and administration was to distinguish the two streams of students and to move the administration of the biomedical stream of the program to the Graduate Department of Pharmacology.

Why Biomedical Toxicology?

It is apparent that there are two distinct streams of students who enroll in the Collaborative Program in Toxicology; namely, those with a primary interest in biomedical toxicology and those with a primary interest in environmental toxicology. While the students in each stream may examine the same chemical entities, the endpoints of their research studies often differ significantly.

With this proposal, students with an interest in biomedical toxicology would be encouraged to enrol in the ***Collaborative Program in Biomedical Toxicology***, which would be administered by the Department of Pharmacology. Students with an interest in environmental toxicology would be encouraged to enrol in the existing ***Environment and Health Collaborative Program*** administered by the Institute for Environmental Studies.

The Collaborative Program in Biomedical Toxicology would retain many of the elements of the former Collaborative Program in Toxicology:

Current Program Requirements:	**New Program Requirements: ***
JNP1016H Graduate Seminar in Toxicology IES1001H Environmental Decision Making Recommended Courses: *For students in the Biomedical Field:* JNP1017H Molecular & Biochemical Basis of Toxicology or JNP1018H Current Topics in Molecular & Biochemical Toxicology *For students in the Environmental Field:* JBE1434H Applied Ecology	*MSc:* JNP1016H (Graduate Seminar in Toxicology) JNP1014Y (Interdisciplinary Toxicology) Plus attendance at a minimum of six academic seminars related to toxicology during the tenure of their program. *PhD:* The above; attendance at an additional six academic seminars related to toxicology; plus an additional ½ course equivalent (approved by the Director of the Collaborative Program) in a general area of toxicology.

*While not required, students will be encouraged to complete additional courses in toxicology. Two recommended courses for students enrolling in the Collaborative Program in Biomedical Toxicology are the Molecular and Biochemical Basis of Toxicology (JNP1017H) and Current Topics in Molecular and Biochemical Toxicology (JNP1018H).

What are the other requirements of the Collaborative Program in Biomedical Toxicology?

These will remain the same as for all collaborative programs. However, it is expected that the student will complete thesis or research work in the area of biomedical toxicology.

Program Name

It is recommended that the existing Collaborative Program in Toxicology be **renamed the Collaborative Program in Biomedical Toxicology** to reflect the biomedical focus of the program.

We also propose that students in the biomedical stream receive the notation "**Completed the M.Sc. Collaborative Program in Biomedical Toxicology**" or "**Completed the Ph.D. Collaborative Program in Biomedical Toxicology**" on their transcripts. While students in the environmental stream receive the designation of their chosen Collaborative Program on their transcript. Students in each stream will be allowed to take the courses offered by the other stream.

How will the proposed changes affect students currently enrolled in the Collaborative Program in Toxicology?

We recommend that those students enrolled in the Collaborative Program in Toxicology should retain this designation on their transcript. Every effort will be made to see that they are able to complete their programs with as little confusion as possible.

Program Committee

It is inevitable that the current Program Commitee composition will change to reflect the new emphasis on Biomedical Toxicology. We have contacted the graduate units that participated in the Collaborative Program in Toxicology, and those departments who wish to continue to participate in the Collaborative Program in Biomedical Toxicology have already indicated their wish to do so. Those graduate units whose areas of research clearly follow the environment and health route will remain with the Institute for Environmental Studies.

Additional Requirements (e.g., staffing, etc.)

Since the proposed program is collaborative in nature, it will not detract from any existing departmental degree programs, nor will it require additional staffing. In essence, there are numerous researchers with graduate students engaged in biomedical toxicological research who could be additionally enrolled in the Collaborative Program in Biomedical Toxicology

Revised October, 2003

PROPOSAL FOR MODIFICATION OF THE COLLABORATIVE PROGRAM IN TOXICOLOGY

Background

In 1988, a Collaborative Program in Toxicology was created under the administration of the Institute for Environmental Studies. This program enrolled students with research interests in the areas of biomedical or environmental toxicology and successfully graduated approximately 30 students. Unfortunately, in 2002, the Institute for Environmental Studies reported that it could not afford to continue mounting courses and administering this program in the absence of base funding from the School of Graduate Studies. Given the clear demand for the program by students, faculty, and potential employers, several members of the program met to discuss the possibility of revitalizing the program, rather than terminating it completely. **The following proposal will address the recommendation to change the Collaborative Program in Toxicology to the Collaborative Program in Biomedical Toxicology under the administration of the Graduate Department of Pharmacology.**

What is toxicology?

Toxicology is the study of the adverse effects of chemical and physical agents on living organisms and biological systems. It is an interdisciplinary subject with close associations with the fields of biochemistry, biology, chemistry, pharmaceutical sciences, pharmacology, physiology, and public health, to name a few. Toxicology is often subdivided into the areas of biomedical toxicology and environmental toxicology. Biomedical toxicology focuses on the application of toxicology to mammalian/human health, while environmental toxicology goes beyond the individual organism and is concerned with the effects of these agents on biological systems.

Why offer a collaborative program in toxicology at the graduate level?

There are relatively few graduate programs in toxicology offered by Canadian institutions. Since the creation of the Collaborative Program in Toxicology, the Institute for Environmental Studies received numerous inquiries about the program from interested students. It is the feeling of many members of the program that some students were discouraged from joining the program due to a complicated application/admission procedure. However, there is clearly a demand from students for a graduate program. Moreover, there are numerous job opportunities available to students with graduate experience in toxicology and employers request the availability of such training programs.

Why focus on biomedical toxicology?

It is apparent that there are two distinct streams of students who enrol in the Collaborative Program in Toxicology; namely, those with a primary interest in biomedical toxicology and those with a primary interest in environmental toxicology. While the students in each stream may examine the same chemical entities, the endpoints of their research studies often differ significantly.

Following several discussions with members of the Collaborative Program in Toxicology, and at the recommendation of the Institute for Environmental Studies, it was agreed that the optimal option for students, faculty, and administration alike, is to distinguish the two streams of students and to move the administration of the biomedical stream of the program to the Graduate Department of Pharmacology. The Graduate Department of Pharmacology has the financial and administrative support to meet the needs of a Collaborative Program in Biomedical Toxicology and is willing and enthusiastic to promote this program.

It makes sense for the Graduate Department of Pharmacology to administer this program since the Department of Pharmacology at the University of Toronto offers an undergraduate Specialist Program in Toxicology, which has a biomedical focus. With a current undergraduate program enrolment of 114 students, it is a logical feeder program to the graduate stream. In fact, a significant percentage of students in the undergraduate program inquire about graduate studies in toxicology at the University of Toronto.

Furthermore, historically, the majority of students enrolled in the Collaborative Program in Toxicology came from the biomedical sciences. This trend was especially noticeable in recent years due to staffing changes, which resulted in the loss of many faculty members from the environmental stream.

In summary, a Collaborative Program in Biomedical Toxicology will meet the demands of students and the workforce for training in a rapidly expanding area of biomedical research. Member departments have numerous collaborations with industry, government, and other areas of academia that can provide students with access to new technologies and employment. Under this new name, the program can be refreshed and marketed to attract the large existing pool of interested students.

What will happen to the students with an interest in environmental toxicology?

The Institute for Environmental Studies currently administers two environmental collaborative graduate programs; namely, Environment and Health and Environmental Studies. Students with an interest in environmental toxicology will be encouraged to enrol in one of these existing programs. Those students who are currently enrolled in the environmental stream of the Collaborative Program in Toxicology were consulted about the present proposal to modify the Collaborative Program in Toxicology to the Collaborative Program in Biomedical Toxicology. These students wished to remain enrolled with the Institute for Environmental Studies.

How will the proposed changes affect students currently enrolled in the Collaborative Program in Toxicology?

We recommend that those students enrolled in the Collaborative Program in Toxicology should retain this designation on their transcript. However, students who have enrolled in the program since September of 2002, when the administration of the program was transferred to the Graduate Department of Pharmacology, were advised that the program is in a process of transition and that students with an interest in biomedical toxicology should enrol through the Graduate Department of Pharmacology, whereas students with an interest in environmental

toxicology should enrol in the Environment and Health program administered by the Institute for Environmental Studies. We propose that those students in the biomedical stream receive the notation "Collaborative Program in Biomedical Toxicology" on their transcripts, while students in the environmental stream receive the designation of their chosen Collaborative Program on their transcript. Students in each stream will be allowed to take the courses offered by the other stream.

What are the proposed course requirements for the Collaborative Program in Biomedical Toxicology?

To provide students with adequate training in biomedical toxicology, without creating a large burden of coursework, the following two courses are proposed as requirements for the Collaborative Program in Biomedical Toxicology. These courses are chosen to provide both breadth and depth of toxicological knowledge. The pedagogical techniques utilized in each of the two required courses differ to maximize learning opportunities. Students enrolled in the Ph.D. program are additionally required to take a half course in any area of toxicology approved by the Director of the Collaborative Program in Biomedical Toxicology.

Interdisciplinary Toxicology

To provide some breadth of knowledge of the field of toxicology, the first proposed course is the existing Interdisciplinary Toxicology course (PCL473Y/JNP1014Y) offered by the Graduate Department of Pharmacology. This course has both an undergraduate and graduate course designation with additional an assignment required in the graduate component. In both sections, students attend lectures on a variety of topics in toxicology with a biomedical focus, and are evaluated by three written examinations and two written assignments.

Since many of the students expected to apply for the Collaborative Program in Biomedical Toxicology would have taken this course at the fourth-year undergraduate level, they will be expected to complete an additional independent study with the Course Coordinator to complete the graduate component of the course. This additional component is typically the preparation of a review paper on a current issue in toxicology that has not been recently reviewed. Students are expected to meet with the Course Coordinator during the preparation of their assignments to discuss their progress and relevant issues in toxicology. Students meet with the Course Coordinator both individually and with the other graduate students in the course to additionally learn about the areas of toxicology that their peers are studying.

Thus, students who did not complete Interdisciplinary Toxicology at the undergraduate level (PCL473Y) will be required to complete it at the graduate level (JNP1014Y). Students who completed this course at the undergraduate level, will be required to complete an additional independent study component, but they will not receive an additional academic credit further to that which they received at the undergraduate level.

Graduate Seminar in Toxicology

To encourage students to discuss current issues in toxicology, while honing their skills at presenting and critiquing scientific papers, students will be expected to complete the existing Graduate Seminar in Toxicology course (JNP1016H) offered by the Graduate Department of Pharmacology. At the first meeting of this course, students address the current issues in

toxicology and select a number of topics to discuss in more depth throughout the course. Each student is responsible for selecting scientific papers and providing both an oral and written critique of these papers. The other students in the class are expected to also read these papers and to be prepared to discuss them at the presentation. The student presenter is assigned a faculty member to approve the selection of papers and to provide the student with greater insight into that particular area of toxicology. The faculty member also attends the student presentation and provides the class with clarification and expansion of the issues in that field. Following the formal student presentation, the entire class engages in an in-depth discussion/critique of the study designs, appropriateness of the research, writing style and presentation, etc.

With typical class sizes, each student has at least two opportunities to present and critique scientific research. In addition to being rigorously evaluated on these presentations, the student is evaluated based on his or her preparedness and participation in the class discussions, and by a final examination testing the critiquing skills developed throughout the course.

Other Courses

While not required, students will be encouraged to complete additional courses in toxicology. Two recommended courses for students enrolling in the Collaborative Program in Biomedical Toxicology are the Molecular and Biochemical Basis of Toxicology (JNP1017H) and Current Topics in Molecular and Biochemical Toxicology (JNP1018H).

What are the other requirements of the Collaborative Program in Biomedical Toxicology?

In accordance with other collaborative programs, students will select a "home" department and will be expected to complete all course and degree requirements of that department. Students will additionally be expected to meet the course requirements of the Collaborative Program in Biomedical Toxicology. Furthermore, to encourage students to attend academic seminars in a variety of areas outside of their own research, students will be required to attend a minimum of either six (for M.Sc. students) or twelve (for Ph.D. students) academic seminars during the tenure of their program. Upon registering in the Collaborative Program in Biomedical Toxicology, each student will be given a form that requires the signature of a graduate faculty member acknowledging the student's attendance at the seminar.

Students accepted into the Collaborative Program in Biomedical Toxicology will be expected to provide a thesis topic related to biomedical toxicology. The applications of graduate students pursuing non-thesis degrees will be considered on a case-by-case basis, to examine their involvement with other qualified projects related to biomedical toxicology.

The Collaborative Program in Biomedical Toxicology

In summary, this proposal recommends that the existing Collaborative Program in Toxicology be renamed the Collaborative Program in Biomedical Toxicology and that it be revised to distinguish itself from the existing Environment and Health program offered by the Institute for Environmental Studies.

The objectives of the Collaborative Program in Biomedical Toxicology are to provide outstanding training in the area of biomedical toxicology at the graduate level by encouraging advanced research training, participation in challenging academic courses in biomedical toxicology, and attendance at academic seminars conducted by leading researchers in the field of biomedical toxicology. Since no Graduate Department of Toxicology exists at the University of Toronto, the Collaborative Program in Biomedical Toxicology will enable students enrolled with biomedical departments to gain additional specialized training in biomedical toxicology.

A need for this Collaborative Program in Biomedical Toxicology has been expressed by students, faculty, and the workforce. Based on the number of inquiries received by the Institute for Environmental Studies and the Graduate Department of Toxicology, it is expected that a minimum of ten new students will enrol in this program each year. We suspect that with appropriate marketing strategies, this number will increase significantly in the next few years.

Since the proposed program is collaborative in nature, it will not detract from any existing departmental degree programs, nor will it require additional staffing. In essence, there are numerous researchers with graduate students engaged in biomedical toxicological research that could be additionally enrolled in the Collaborative Program in Biomedical Toxicology. It is our opinion that by communicating effectively with the existing "home" departments, the application procedure for entry into the collaborative program will be simplified such that students will not be prevented from enrolling due to previously perceived complicated administrative procedures.

We have contacted the graduate units that participated in the Collaborative Program in Toxicology, and many departments wish to participate in the Collaborative Program in Biomedical Toxicology. Thus, we have the support of both individual faculty members and graduate departments.

The attached modification of the existing Memorandum of Agreement for the Collaborative Program in Toxicology outlines the specific objectives and program requirements of the Collaborative Program in Biomedical Toxicology in greater detail.

COLLABORATIVE PROGRAM IN BIOMEDICAL TOXICOLOGY
MEMORANDUM OF AGREEMENT

MEMORANDUM OF AGREEMENT CONCERNING A COLLABORATIVE GRADUATE PROGRAM IN BIOMEDICAL TOXICOLOGY AMONG THE DEPARTMENTS OF LABORATORY MEDICINE AND PATHOBIOLOGY, NUTRITIONAL SCIENCES, PHARMACEUTICAL SCIENCES, PHARMACOLOGY, THE INSTITUTE OF MEDICAL SCIENCES, ZOOLOGY AND THE SCHOOL OF GRADUATE STUDIES.

1. In order to develop co-operative and joint graduate teaching and research in biomedical toxicology, the collaborating units agree to participate in a collaborative program at the Master's and Doctoral levels.

2. The objective of the Collaborative Program is to open and enrich opportunities for studies within the disciplines represented by the departments and other units participating in the Program. Graduate students in the Program will register in the School of Graduate Studies through their home departments and will:

   a) meet all respective degree requirements as outlined by the School of Graduate Studies and the department or other unit, and

   b) pursue a thesis topic relevant to biomedical toxicology that meets the approval of the Director of the Collaborative Program in Biomedical Toxicology and the Graduate Chair/Coordinator of the home department; and

   c) meet the requirements of the Collaborative Program in Biomedical Toxicology which are as follows:

   MSc:
   Students are required to take JNP1014Y (Interdisciplinary Toxicology) and JNP1016H (Graduate Seminar in Toxicology). In addition, students must attend a minimum of six academic seminars related to toxicology during the tenure of their program

   PhD:
   Students are required to take JNP1014Y (Interdisciplinary Toxicology); JNP1016H (Graduate Seminar in Toxicology); plus an additional ½ course equivalent (approved by the Director of the Collaborative Program) in a general area of toxicology. In addition, students must attend a minimum of twelve academic seminars related to toxicology during the tenure of their program.

3. It is agreed that the Collaborative Program in Biomedical Toxicology will be administered by the Collaborative Program Committee, consisting of at least one representative from each collaborating unit, with one member as Director of the Program and Chair of the Program Committee.

4. The Program Committee shall act as the steering committee for the program and shall meet as often as is required to identify policy and other issues that need to be addressed.

5. The Director of the Collaborative Program shall be responsible for:

   a) screening applicants in terms of their general suitability for admission to the Program, as well as
   b) providing advice as necessary for appropriate departments and supervisors, and advising students enrolled in the program on academic matters.

6. The Director of the Collaborative Program will be responsible for certifying to the School of Graduate Studies at the University of Toronto that the requirements of the Collaborative Program have been fulfilled. Each participating department or unit will retain its statutory control over admissions and program content, and its statutory duty to provide adequate research supervision by a member or members of the graduate faculty in the unit. The student will be enrolled in the department in which his/her research is conducted, which is known as the home department.

7. Each student in the Collaborative Program is normally required to have a supervisory committee consisting of:

    a) for a Master's program, a minimum of two persons, including a supervisor from the home department and one member from another collaborating department;

    b) for a Ph.D. program, at least three persons, including a supervisor who is normally a member of the graduate faculty in the home department, and one member from a cognate discipline normally from a unit of the collaborative program.

    When appropriate, an additional member of the supervisory committee may be from outside the University of Toronto.

8. The examination committee will be constituted according to procedures in the home department and should include a member from a collaborating department for both Master's and Doctoral degrees.

9. Graduate courses from each collaborating unit that relate to toxicology will be listed in the calendar of the Collaborative Program in Biomedical Toxicology. In certain instances, a joint listing between departments may be appropriate, and this will be by mutual agreement.

10. The home department recommends to the School of Graduate Studies that a candidate should graduate following successful completion of their M.Sc. or Ph.D. program requirements; and informs the Director of the Collaborative Program of such completion.

    Once successful completion of the Collaborative Program requirements are determined, the Director of the Collaborative Program recommends to the School of Graduate Studies that the student receive the notation "Completed M.Sc. Collaborative Program in Biomedical Toxicology" or "Completed Ph.D. Collaborative Program in Biomedical Toxicology" on the transcript.

Revised October, 2003.

LABORATORY MEDICINE AND PATHOBIOLOGY, NUTRITIONAL SCIENCES, PHARMACEUTICAL SCIENCES, PHARMACOLOGY, THE INSTITUTE OF MEDICAL SCIENCES, ZOOLOGY AND THE SCHOOL OF GRADUATE STUDIES

COLLABORATIVE PROGRAM IN BIOMEDICAL TOXICOLOGY MEMORANDUM OF AGREEMENT

October 15, 2003

A.I. Gotlieb, Chair
Department of Laboratory Medicine & Pathobiology

J.D. Thomson, Chair
Department of Zoology

T. Wolever, Acting Chair
Department of Nutritional Sciences

O.D. Rotstein, Director
Institute of Medical Sciences

R.B. Macgregor, Chair
Department of Pharmaceutical Sciences

D. Cormack, Vice-Dean
School of Graduate Studies

D.M. Grant, Chair
Department of Pharmacology

M. Marrus, Dean
School of Graduate Studies

AMENDED CALENDAR ENTRY - SEPTEMBER, 2003

Biomedical Toxicology (Collaborative Program)
Program Committee:

Remove:

M.J. Wiley
N.G. Dengler
M.T. Kortschot
S.A. Sheikh
P.H. Byer
G. Gad
G.S. Henderson
D.S.R.Sarma
J. Miller
R. Reithmeier
R.A. Collins
R.D. Prokipcak
J.F. MacDonald
D.W. Dunham
K. Domnick
A. Zimmerman

Retain:
F.S. Silverman, Environment & Health
R.R. White, Environmental Studies
T.M.S. Wolever, Nutritional Sciences
P.G. Wells, Pharmaceutical Sciences
R.I.C. Hansell, Zoology

Add:
H. Elsholtz, Ph.D./ Laboratory Medicine & Pathobiology
M. Liu, M.Sc. M.D./ Medical Science
P. O'Brien, Ph.D./ Pharmaceutical Sciences
D. Grant, Ph.D./ Pharmacology
T. Inaba, Ph.D./ Pharmacology
C. Woodland, Ph.D./ Pharmacology, IES
D. Jackson, M.Sc., Ph.D./ Zoology

Address:
Department of Pharmacology
Room 4207, MSB
Toronto, ON
M5S 1A8

Telephone: 416-978-5244
FAX: 416-978-6395
E-mail: gradpharm.info@utoronto.ca
Website: www.utoronto/grdpharm/biomed.htm

The graduate units of Laboratory Medicine & Pathobiology, Medical Science, Nutritional Science, Pharmaceutical Sciences, Pharmacology, and Zoology participate in the Collaborative Graduate Program in Biomedical Toxicology. Students may pursue an M.Sc or Ph.D. degree. Departments and Institutes participating in the program contribute graduate courses, provide facilities, and provide supervision for graduate research.

Graduate students from departments other than the participating departments listed, who are interested in pursuing a joint degree in toxicology should speak to the Director of the Collaborative Program in

Biomedical Toxicology, and the graduate advisor(s) in their home department to discuss this possibility.

Admission Requirements:

Students in the program must be accepted by one of the participating home departments under its regulations and then register in the Collaborative Program in Biomedical Toxicology with the Program Director. Students planning to begin the program in September should register with the Program Director by October 15th; students planning to begin in January should register by January 31.

Program Requirements:

Students must complete a research thesis or project as required by the home department. It is understood that the research topic will be in the area of biomedical toxicology. A copy of the final thesis or project must be submitted to the Program Director.

MSc:
Students are required to take JNP1014Y (Interdisciplinary Toxicology) and JNP1016H (Graduate Seminar in Toxicology). In addition, students must attend a minimum of six academic seminars related to toxicology during the tenure of their program.

PhD:
Students are required to take JNP1014Y (Interdisciplinary Toxicology); JNP1016H (Graduate Seminar in Toxicology); plus an additional ½ course equivalent (approved by the Director of the Collaborative Program) in a general area of toxicology. In addition, students must attend a minimum of twelve academic seminars related to toxicology during the tenure of their program.

The home department and the Director of the Collaborative Program in Biomedical Toxicology will decide whether these courses are in addition to home departmental requirements or substitutions for home departmental requirements.

Detailed program information is available through the Pharmacology Department or the website: www.utoronto/grdpharm/biomed.htm

Graduation Requirements: In consultation with the Director of the Collaborative Program in Biomedical Toxicology, the home department recommends to the School of Graduate studies that a candidate should graduate following successful completion of the above program requirements. Upon successful completion of the requirements, the student receives, in addition to the Master's or Ph.D. degree in their departmental area, the notation "Completed M.Sc. Collaborative Program in Biomedical Toxicology" or "Completed Ph.D. Collaborative Program in Biomedical Toxicology" on the transcript.

Collaborative Program in Biomedical Toxicology

Website: http://www.utoronto.ca/grdpharm/biomed.htm

Left Side of Package

Information Letter for Students
Collaborative Program in Biomedical Toxicology Pamphlet
Registration Form
Welcome Letter
Program Requirements Form
Seminar Attendance Form

Right Side of Package

Proposal for Modification of the Collaborative Program in Toxicology
Condensed Version of Proposal
Memorandum of Agreement

For further information, please contact:

Cindy Woodland, Ph.D.
Acting Director
Tel: 416-978-3102
E-mail: cindy.woodland@utoronto.ca

Collaborative Program in Biomedical Toxicology

Website: http://www.utoronto.ca/grdpharm/biomed.htm

Date

Name

Dear :

The School of Graduate Studies has forwarded your name to us because you have indicated an interest in the Collaborative Program in Toxicology. A proposal to modify this program to the Collaborative Program in Biomedical Toxicology is currently under review by the School of Graduate Studies. Please find enclosed a pamphlet which describes the Collaborative Program in Biomedical Toxicology and a program application form.

To enroll in the Collaborative Program in Biomedical Toxicology, you must first be accepted into one of the collaborating home departments. Once you have discussed a thesis topic in the area of biomedical toxicology with your supervisor, please contact me via e-mail at cindy.woodland@utoronto.ca or by telephone at 978-3102 to arrange an appointment to discuss your specific program requirements. You will be required to bring with you the completed application form and attachments when you come to this meeting.

Sincerely,

Cindy Woodland, Ph.D.
Acting Director
Collaborative Program in Biomedical Toxicology

Encls.

UNIVERSITY OF TORONTO

Collaborative Program in Biomedical Toxicology

This pamphlet has been prepared for prospective graduate students in the Collaborative Program in Biomedical Toxicology. The Collaborative Program in Biomedical Toxicology is administered by the Graduate Department of Pharmacology, which is located in Room 4207 of the Medical Sciences Building at 1 Kings College Circle, Toronto, Ontario, M5S 1A8. For more detailed information, please visit our website at http://www.utoronto.ca/grdpharm/biomed.htm.

What is Toxicology?

Toxicology is the qualitative and quantitative study of the injurious effects of chemical or physical agents or energy on living organisms or ecosystems as observed by alterations in structure or response (function). **Biomedical Toxicology** is a highly integrated field of biomedical sciences that is ultimately concerned with the harmful effects of natural or man-made chemicals on living organisms, usually human beings. Environmental toxicology (Ecotoxicology), on the other hand, goes beyond the individual organism and is concerned with the effects of these agents on populations, biocoenoses, and whole ecosystems.

There are several departments participating in the Collaborative Program in **Biomedical Toxicology** (see list below). Students interested in this program must apply to their department of choice. *For students enrolled in the Home Department of Pharmacology, the research supervisor must be a member of the Pharmacology Graduate Faculty.*

Home Department	**Address**	**Graduate Coordinator**	**Graduate Administrator**
Laboratory Medicine & Pathobiology	Banting Institute 100 College St.	Prof. H. Elsholtz 978-8782	Ms M. Michael 978-2550
Medical Science*	Room 7213, Medical Sciences Bldg.	Dr. Mingyao Liu 978-5012	Ms J. Chapman 978-8886
Nutritional Sciences*	Room 315 Fitzgerald Bldg.	Prof. T. Wolever 978-5556	Ms G. Lim 978-6071
Pharmacology*	Room 4207 Medical Sciences Bldg.	Dr. T. Inaba 978-6042	Ms D. Clark 978-5244
Pharmaceutical Sciences*	Room 413 19 Russell Street	Dr. R.B. MacGregor 978-7332	Ms E. Bodie 978-2179
Zoology	Room 426 Ramsay Wright Bldg.	Prof. Don Jackson 978-3496	Ms Josie Valotta 978-3477

*Part-time degree programs in some departments may be available.

Program Requirements:

Acceptance into the Collaborative Program in Biomedical Toxicology requires a thesis topic or research project in an area of biomedical toxicology, which will be supervised and evaluated in the same manner as others in the home department, but will normally involve, as appropriate, supervisory and examining professors or other professionals from other disciplines.

M.Sc. Students:

Students are required to take JNP1014Y (Interdisciplinary Toxicology) and JNP1016H (Graduate Seminar in Toxicology). In addition, students must attend a minimum of six academic seminars related to toxicology during the tenure of their program.

Ph.D. Students:

Students are required to take JNP1014Y (Interdisciplinary Toxicology); JNP1016H (Graduate Seminar in Toxicology); plus an additional ½ course equivalent (approved by the Director of the Collaborative Program) in a general area of Toxicology. In addition, students must attend a minimum of twelve academic seminars related to toxicology during the tenure of their program.

Students in either program are also encouraged to take either JNP1017H (Molecular & Biochemical Basis of Toxicology); or JNP1018H (Current Topics in Molecular and Biochemical Toxicology).

Career Opportunities

There are numerous career opportunities for graduates with backgrounds in toxicology. Many toxicologists pursue careers in academia, industry, or government. Career information may be obtained from The Society of Toxicology of Canada (www.meds.queensu.ca/stcweb/encont.htm), the Society of Toxicology (www.toxicology.org), or the Director of the Collaborative Program in Biomedical Toxicology.

Program Applications

Applications for admission are reviewed by the Director of the Collaborative Program in Biomedical Toxicology. Applicants to the program should contact the Director to schedule an appointment to discuss their research interests, program requirements, etc.

Arrangements for a position with a thesis supervisor must be made prior to program registration/enrolment.

Applicants may obtain up-to-date information from the Collaborative Program in Biomedical Toxicology website (www.utoronto.ca/grdpharm/biomed.htm) or from the Pharmacology Department, Room 4207, Medical Sciences Building, 1 King's College Circle, Toronto, Ontario, M5S 1A8. Enquiries may also be directed to the Pharmacology Graduate Office at 978-5244 (e-mail: gradpharm.info@utoronto.ca).

Note: Students with research interests on the effects of toxicological agents on the environment (versus on the human being) should consult the Environment & Health Program in the Institute for Environmental Studies, which administers the Environment and Health and Environmental Studies collaborative graduate programs (telephone: 416-978-7077 e-mail d.workman@utoronto.ca).

Updated August 2003

Collaborative Program in Biomedical Toxicology
Registration Form

Name: _____ Student ID #: _____

Degree Sought (please circle): M.Sc. Ph.D. Full-time Part-time

Date first enrolled in the above program: _____

Home Department: _____ Supervisor: _____

Ph.D. Supervisory Committee Members: _____

U of T Telephone Number: _____ U of T Fax Number: _____

U of T Office Location (room and building): _____

E-mail Address: _____

Home Telephone Number: _____

Mailing Address: _____

_____

Permanent Address (if different from above): _____

_____

Please provide a description of your graduate research, indicating how it relates to biomedical toxicology:

_____
_____
_____
_____
_____
_____
_____
_____
_____

This project description was prepared by the: ____Student ____Supervisor
(Please indicate ✓ one or both)

Phone: [416]978-3102
E-mail: cindy.woodland@utoronto.ca

Date

Dear :

Welcome to the M.Sc. Collaborative Program in Biomedical Toxicology! Please find enclosed the form that details your requirements for completion of this program. This form has been signed by you, your program supervisor, the Graduate Coordinator of your home department, and the Director of the Collaborative Program in Biomedical Toxicology. You must inform the Coordinator of the Collaborative Program in Biomedical Toxicology if there are any major changes to your research project or courses.

You will additionally find enclosed a form to document your seminar attendance. When you attend academic seminars related to toxicology, please take this form and have it completed by the host of the seminar or a graduate faculty member. While you are required to attend a minimum of six seminars to meet your program requirements, we strongly encourage you to attend as many seminars as possible.

We look forward to having you in this program and encourage you to drop by at least once a year to update us on your progress. However, please feel free to contact us at any time if you have any questions or concerns.

Sincerely,

Cindy Woodland, Ph.D.
Acting Director
Collaborative Program in Biomedical Toxicology

c.c: _____, Program Supervisor
c.c: Graduate Coordinator, Department of _____

Encls.
CW/dc

Collaborative Program in Biomedical Toxicology Requirements

Student Name: _____ Student No: _____

This form is to be completed at the beginning of the student's registration in the Collaborative Program in Biomedical Toxicology and will be used to determine whether the student has met the Collaborative program requirements when he/she requests graduation. *The Graduate Coordinator of the Home Department is requested to inform the Director of the Collaborative Program of any changes to these requirements (e.g., research project; thesis topic, etc.) during the course of the student's program.*

This section should be completed with the Graduate Coordinator of the Home Department.

Courses required by the home department:

_____

Recommended courses: _____

Other courses that the student intends to take: _____

Time frame for completion of courses: _____

_____

Thesis topic: _____

Thesis title: _____

Seminar attendance requirements: _____

Other home department requirements: _____

_____

NAMES & SIGNATURES:

_____	_____	_____
Student	Signature	Date
_____	_____	_____
Supervisor	Signature	Date
_____	_____	_____
Graduate Coordinator of Home Department	Signature	Date

This section should be completed with the Director of the Collaborative Program in Biomedical Toxicology.

Toxicology courses that the student has already completed:

_____

Courses required by the Collaborative Program in Biomedical Toxicology:

_____

Seminar attendance requirements: _____

_____

_____ _____

Director of the Collaborative Program in Biomedical Toxicology — Date

M.Sc. Collaborative Program in Biomedical Toxicology

Seminar Attendance Form

Student Name: _____

When you attend academic seminars related to toxicology, please take this form and have it completed by the host of the seminar or a graduate faculty member. While you are required to attend a minimum of six seminars to meet your program requirements, we strongly encourage you to attend as many seminars as possible.

Date	Seminar Title	Speaker	Signature