A. General information

1. Number and title of course, number of credits:
   Course Number: PATH652
   Course Title: Molecular Biology of Disease: Environmental Toxicants
   Course Credits: 3 credits

2. Name and title of the Course Coordinator:

   Carolyn Baglole, Assistant Professor, P.hD.
   (Other lecturers are listed in the Course Schedule)

3. Day, place and time of regular classes:

   i) Day: Tuesdays- weekly- from September 3-December 2, 2013
   ii) Time: 2:05-4:55
   iii) Place: Meakins-Christie Laboratories Seminar Room (Room 130)
   3626 St Urbain Street
   Montreal, QC H2X 2P2

4. Registration limit: 10

5. Prerequisites:

   Undergraduate Degree, with an understanding of biology, pharmacology and toxicology

6. Access to the instructor:

   i) Office Location
   Meakins-Christie Laboratories Room 307
   3626 St Urbain Street
   Montreal, QC H2X 2P2

   ii) Office Hours
   13:00-16:00 Monday to Friday

   iii) Phone Number and Email:
   Office Phone: (514) 398-3864 Ext 00277
   Email: Carolyn.baglole@mcgill.ca (**fastest** way to receive a response)

B. McGill policy statements

1. "McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures" (see www.mcgill.ca/students/srr/honest/ for more information) (approved by Senate on 29 January 2003).

   L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires" (pour de plus amples renseignements, veuillez consulter le site www.mcgill.ca/students/srr/honest/).

2. "In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded" (approved by Senate on 21 January 2009 - see also the section in this document on Assignments and evaluation).

   "Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue)."

3. *"If you have a disability please contact the instructor to arrange a time to discuss your situation. It would be helpful if you contact the Office for Students with Disabilities at 514-398-6009 before you do this."*

4. Guidelines for the use of mobile computing and communications (MC2) devices in classes at McGill have been approved by the APC. Consult the guidelines for a range of sample wording that may be used or adapted by instructors on their course outlines.

5. *"McGill has policies on sustainability, paper use and other initiatives to promote a culture of sustainability at McGill."* (See the Office of Sustainability).

6. In keeping with McGill's preparedness planning strategies with respect to potential pandemic or other concerns, the Administration suggests that all course outlines for the 2010-2011 academic year contain the statement: *"In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change."*

7. *"Additional policies governing academic issues which affect students can be found in the McGill Charter of Students' Rights* (The Handbook on Student Rights and Responsibilities is available at www.mcgill.ca/files/secretariat/Handbook-on-Student-Rights-and-Responsibilities-2010.pdf)."

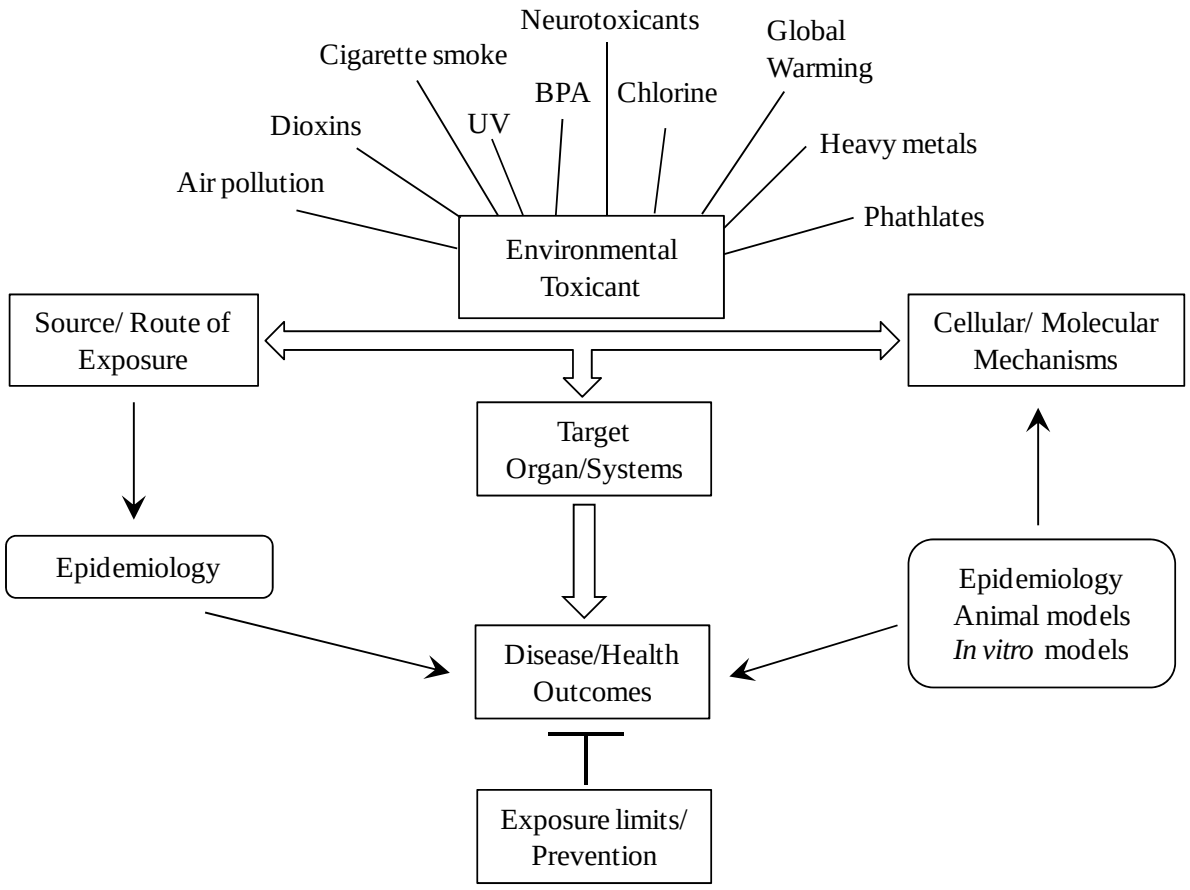
C. Learning outcomes

By the end of this course, students should be able to:

1. Identify environmental factors and their sources, which influence human health
2. Integrate the effects of environmental exposures on human health
3. Illustrate mechanisms by which toxins can contribute to human diseases
4. Propose effective ways to limit environmental exposures

D. Course content

1. Concept Map of the course:



2. Topics to be addressed in the course

   The health impact of environmental factors (broadly defined as any substance to which the individual is exposed) is of great public and scientific interest. The subject matter for this course is the action of various environmental toxicants approached from different scientific viewpoints, including an emphasis on cellular mechanisms. It will cover the following topics: (i) What are the environmental toxicants linked to prevalent human diseases? (ii) What are the main routes of exposure? (iii) What are the cellular and mechanisms associated with environmental

exposures and human disease outcomes? (iv) How can we reduce exposure limits or prevent disease caused by exposures? (v) What are the scientific methods used to evaluate exposure/disease/cellular mechanisms?

3. Sequence of the Course Lectures:

Week	Date	Lecturer	Topic
1	Sept 3rd	Dr. C. Baglole	Introduction/ Cigarette smoke/COPD
2	Sept 10th	Dr. E. Zorychta	Neurotoxicology
3	Sept 17th	Dr. J. Martin	Chlorine exposure and lung injury
4	Sept 24th	Dr. L. Chalifour	Estrogenizing endocrine disruptors
5	Oct 1st	Dr. K. Mann	Metals/cancer/CVD
6	Oct 8th	Dr. M. Goldberg	Air pollution- breast cancer
7	Oct 15th	Dr. M. Goldberg	Global Warming- health effects
8	Oct 22nd	Student Presentations	
9	Oct 29th	Student Presentations	
10	Nov 5th	Dr. C. Baglole	Dioxins/ Immunotoxicology
11	Nov 12th	Dr. S. Lehnert	UV- Skin Cancer
12	Nov 19th	Dr. M. Culty	Phthalate-Reproduction
13	Nov 26th	Dr. C. O'Flaherty	ROS/ infertility

E. Instructional method

The course will take the form of a series of seminars and discussions led by experts in their respective fields. In most cases recent papers on the specific topics will be assigned to be read and discussed by the students.

F. Course materials

1. Handouts and other materials of the required reading:

   Recent research papers on the specific topics may be assigned to be read by instructors. These will be given to you in advance of each lecture.

G. Assignments and evaluation

1. Student Oral Presentations: You will be asked to present for 10-20 minutes (plus 5 minutes of questions) on a topic pertaining to an aspect of environmental exposures related to adverse human health effects. The length of the lecture will be determined by the number of students enrolled in the course and this information will be conveyed to you at the beginning of the semester. The topics will also be given to you at the beginning of the semester. However, other

relevant topics not listed may be proposed by the student but topics proposed by the student must be agreed on with the Instructor. Students are encouraged to provide an overview of the toxicant, route of exposure and adverse heath effect (disease). Be sure to include cellular and molecular mechanisms in your presentation. The challenge will be to provide a concise presentation that is clear and easy to follow. Feedback from the instructor(s) will be beneficial to you in preparing your paper. You will also be graded on your participation when others are presenting (*i.e.* asking questions, contributing to the discussion).
Percentage of grade: 20% for presentation + 5% participation = 25%

2. Student Paper: Students will be asked to write a paper on the topic they gave the oral presentation. The length of the paper must not exceed 15 double-spaced typed paged (Times 12 pt font). An additional 2 pages are allowed for references and/or figures. Comments provided from the presentations will assist you as you write the paper. In general, the paper should not rely on one or two reviews but rather be a thorough review of the literature, being sure to address the cellular/molecular mechanisms linking exposure to disease. Thus, the term paper should be based on both reviews for background information and research articles to incorporate up-to-date information not presented in review articles. Ideally, any controversies in the literature should be highlighted and discussed within the paper. The body of the term paper should be divided into subsections that are labeled and must include the references (individual statements need to be referenced). Percentage of grade: 25%.

3. Final Exam: A final exam will test the knowledge obtained throughout the semester and will be in the format of multiple choice/short essay question.
Percentage of grade: 50%.