



UNIVERSITY  
OF MANITOBA

**University of Manitoba**  
**BIOL2380/ AGRI2180/ENVR2180**  
**Introduction to Toxicology**

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**COURSE DETAILS**

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**Course Title & Number:** BIOL2380/ENVR2180/AGRI2180: Introduction to Toxicology

**Number of Credit Hours:** 3 Credit Hours

**Class Times & Days of Week:** Tuesdays and Thursdays 8:30 AM to 9:40 AM

**Lecture location:** EITC E3 270

**Pre-Requisites:** (Undergraduate level BIOL 1030 Minimum Grade of C or Undergraduate level BIOL 1031 Minimum Grade of C or BIOL 1030 - PQ Substitution 060 or Undergraduate level 071 125 Minimum Grade of C) and (Undergraduate level CHEM 1310 Minimum Grade of C or Undergraduate level CHEM 1311 Minimum Grade of C or Undergraduate level 002 131 Minimum Grade of C or CHEM 1310 - PQ Substitution 060 or Undergraduate level CHEM 1320 Minimum Grade of C or Undergraduate level 002 132 Minimum Grade of C or CHEM 1320 - PQ Substitution 060)

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## Instructor Contact Information

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<b>Instructor Name:</b>	Dr. Ken Jeffries
<b>Preferred Form of Address:</b>	Call me Ken.
<b>Office Location:</b>	Duff Roblin W477.
<b>Office Hours or Availability:</b>	Official office hours are Wednesdays 3pm to 5pm and Thursdays 10am to 12pm. However, you can make appointment by email (preferred!). (The Responsibilities of Academic Staff in Regards to Students – <a href="#">ROASS</a> - requires that instructors/professors must be available to students for consultation out of class or laboratory hours).
<b>Office Phone No.</b>	(204) 424-6429
<b>Email:</b>	<a href="mailto:Ken.Jeffries@umanitoba.ca">Ken.Jeffries@umanitoba.ca</a>
<b>Contact:</b>	Please email me to get a hold of me and I will try to get back to you as soon as I can. I teach two courses concurrently, so please indicate in the email your name, student number and the course to avoid confusion.

## Course Description

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A survey of general principles underlying the effects of toxic substances on biological systems, including consideration of the history, scope and applications of toxicology, the mechanisms of toxic action, and some major types of toxicants.

## Using Copyrighted Material

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Please respect copyright. We will use copyrighted content in this course. I have ensured that the content I use is appropriately acknowledged and is copied in accordance with copyright laws and University guidelines. Copyrighted works, including those created by me, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the *Copyright Act* applies or written permission has been confirmed. For more information, see the University's Copyright Office website at <http://umanitoba.ca/copyright/> or contact [um\\_copyright@umanitoba.ca](mailto:um_copyright@umanitoba.ca).

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## Recording Class Lectures

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The student is expected to take notes during lectures and course materials, provided online, are for the participant's private study and research. Dr. Jeffries and the University of Manitoba hold copyright over the course materials, presentations and lectures which form part of this course. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission from Dr. Jeffries.

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## Textbook, Readings, Materials

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There are no required textbooks for this course. Supplementary readings may be provided through UMLearn over the semester.

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## Course Technology

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It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner. The student can use all technology in classroom setting only for educational purposes approved by instructor and/or the University of Manitoba Disability Services. Student should not participate in personal direct electronic messaging/posting activities (e-mail, texting, video or voice chat, wikis, blogs, social networking (e.g. Facebook) online and offline "gaming" during scheduled class time. If student is on call (emergency) the student should switch his/her cell phone on vibrate mode and leave the classroom before using it. (@S Kondrashov. Used with permission).

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## Class Communication

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The University requires all students to activate an official University email account. For full details of the Electronic Communication with Students please visit:

[http://umanitoba.ca/admin/governance/media/Electronic Communication with Students Policy - 2014 06 05.pdf](http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2014_06_05.pdf)

Please note that all communication between myself and you as a student must comply with the electronic communication with student policy

([http://umanitoba.ca/admin/governance/governing\\_documents/community/electronic communication with students policy.html](http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html)). You are required to obtain and use your U of M email account for all communication between yourself and the university.

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## Expectations: I Expect You To...

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- **SHOW UP TO CLASS.** The concepts of our lectures build on each other throughout the course, and it is crucial to attend all classes to learn the material. ALSO: We will cover material in class that is *not* going to be in the notes, so be there to learn it!!
- **ASK QUESTIONS.** The whole goal of science is to ask questions, and asking questions if you are not completely clear on the material is normal and completely encouraged. You

can ask questions in class, but if you are uncomfortable doing this send me an email and I will try to provide an answer for everyone. I may cover it before lecture in the next class. If enough people indicate that they did not understand a concept, I will go over it again.

- SEEK HELP if you are experiencing difficulty, the earlier the better!
- Use cellphones and laptops in lecture *only if you are following along with the lecture slides*. Doing other things on your electronic devices is very distracting you your learning *and* to those around you. Studies have shown that a student using their laptop distracts those around them to the point that their final grade is reduced.
- BE RESPECTFUL to me and your peers.

### **Expectations: You Can Expect Me To...**

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- BE AVAILABLE after class for questions.
- BE AVAILABLE for you to come see me to ask questions during office hours, or you can make an appointment by booking a time via email.
- HAVE LECTURE SLIDES POSTED to UMLearn at least the night before lecture at the latest.
- ANSWER YOUR EMAILS as quickly as I can. If it gets lost in the deluge of emails, send me another email after 48 hours to remind me!
- PROVIDE you with test grades within one week.

### **Students Accessibility Services**

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If you are a student with a disability, please contact Student Accessibility Services (SAS) for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g., mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

<http://umanitoba.ca/student/saa/accessibility/>

520 University Centre

(204) 474-7423

[Student\\_accessibility@umanitoba.ca](mailto:Student_accessibility@umanitoba.ca)

## Class Schedule

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This schedule is subject to change at the discretion of the instructor and/or based on the learning needs of the students but such changes are subject to Section 2.8 of the – [ROASS-Procedure](#)).

Lecture	Date	Topic
1	Jan 4	Course introduction to toxicology
2	Jan 9	Introduction (continued) and detection of toxicants
3	Jan 11	Dose response curves & bioassays
4	Jan 16	Dose response curves & bioassays II
5	Jan 18	Factors affecting toxicity
6	Jan 23	Absorption & toxicokinetics
7	Jan 25	Metabolic conversion and elimination of toxicants
8	Jan 30	Cellular and tissue targets of toxicity
	Feb 1	<b>Midterm 1</b>
9	Feb 6	Metals
10	Feb 8	Food-borne toxicants
11	Feb 13	Particulates and air pollution
12	Feb 15	Solvents/hydrocarbons and (perhaps) drugs of abuse
	Feb 20	<b>Winter Break!</b>
	Feb 22	<b>Winter Break!</b>
13	Feb 27	Pesticides
14	Mar 1	Radiation
15	Mar 6	Plant and animal toxins
	Mar 8	<b>Midterm 2</b>

16	Mar 13	Bioaccumulation and biomagnification
17	Mar 15	Wastewater effluent and surface run-off in freshwater systems
18	Mar 20	Case studies: The Great Lakes and San Francisco Bay
19	Mar 22	Hot topics in toxicology (Declines in the birds and bees)
20	Mar 27	Hot topics in toxicology (CO <sub>2</sub> pollution) – Guest Speaker Dr. Caleb Hasler, University of Winnipeg
21	Mar 29	Hot topics in toxicology (Plastic pollution)
22	Apr 3	Hot topics in toxicology (Toxicogenomics)
23	Apr 5	Review

## Course Evaluation Methods

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### TESTS/EXAMS:

- a.** There will be two non-cumulative midterm exams and a final exam, which will consist of entirely multiple choice questions. The two midterm exams will be held in the classroom during the normal class schedule. The final exam, which will be held in a yet to be determined location, will be comprised of two parts – one part covering material specific to the last third of the lectures, and the other part will be comprised of questions that cover content from the entire course.
- b.** There will be no make-up exams unless you provide a doctor's note or made arrangements with me BEFORE the exam.
- c.** You must write the final exam to pass the course.
- d.** If you miss the final exam, you will require a doctor's note or you must provide other documentation to the Faculty of Science office (i.e., Not to me) in order to qualify to write a deferred final exam.

Due Date:	Assessment Tool	Value of Final Grade*
Feb 1, 2018	Midterm I	30%
March 8 <sup>th</sup> , 2018	Midterm II	30%
TBD	Final exam	40%

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## Grading

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Letter grade calculations for this course follow the standard Department of Biological Sciences scale:

Letter Grade	Percentage out of 100	Grade Point Range	Final Grade Point
A+	90-100	4.25-4.5	4.5
A	80-90	3.75-4.24	4.0
B+	74-79	3.25-3.74	3.5
B	68-73	2.75-3.24	3.0
C+	62-67	2.25-2.74	2.5
C	56-61	2.0-2.24	2.0
D	50-55	Less than 2.0	1.0
F	Less than 50		0