1. Course Information

Pharmacology 4660a: Human Toxicology
Fall Term 2019

Human Toxicology is the science dedicated to the interactions between xenobiotics (foreign chemicals) and the human body, leading to acute or chronic adverse events. Adverse responses to drugs and chemicals are a major source of morbidity and mortality in today’s society. Humans, by contaminating the environment, by consuming drugs and by working with potent toxins, are exposed to major health risks. Yet, despite the major effects of drugs and chemicals on human health, very few universities teach this field in a focused and systematic fashion. A substantial proportion of graduating students in science will head to careers in government health departments and the pharmaceutical and health industries. Many of them are ill prepared to deal with various aspects of human toxicology and drug safety. This course in Human Toxicology aims at diminishing this gap.

Lectures:
North Campus Building Room 113, Mondays from 2:30 - 4:30 p.m.

Requisites:
Prerequisite(s): Pharmacology 3620 or permission of the Department.

Senate regulation regarding the student's responsibility regarding requisites:
Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Accessibility Statement
Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.
2. Instructor Information

Dr. Brad Urquhart (Course Manager)
E-mail: Brad.Urquhart@schulich.uwo.ca
Office: Dental Sciences Building Room 2011
Meetings by appointment please e-mail: Brad.Urquhart@schulich.uwo.ca

Dr. Doreen Matsui (Doreen.Matsui@lhsc.on.ca)
Dr. Ute Schwarz (Ute.Schwarz@lhsc.on.ca)
Dr. Connie Mackenzie (Constance.Mackenzie@sjhc.london.on.ca)

OWL:

Students with OWL issues should see: https://owlhelp.uwo.ca

3. Course Syllabus

Course Objectives:

• Review of pharmacological and toxicological principles of adverse human effects of xenobiotics.
• Review of principles of organ and non-organ directed toxicity.
• Review of principles of management of human poisoning.
• Review of principles of drug safety in humans.

Learning Outcomes

After completion of this course, successful students will be able to:

1. Identify and explain the toxicokinetics, mechanism of toxicity and develop a treatment plan for any assigned toxic compound.
2. Analyze and interpret data from literature publications in toxicology and explain the methods used to generate the data.
3. Write a succinct, clear and grammatically correct report on an assigned toxicant.
Course Topics and Lecture Schedule:

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<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>LECTURER</th>
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<tbody>
<tr>
<td>September 9</td>
<td><strong>Principles of Toxicology, Toxicokinetics, and Risk Assessment</strong></td>
<td>BU</td>
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<tr>
<td>September 16</td>
<td><strong>Toxic Responses of the Liver: Hepatotoxicology</strong></td>
<td>BU</td>
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<tr>
<td>September 23</td>
<td><strong>Toxic Responses of the Kidney: Renal Toxicology</strong></td>
<td>BU</td>
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<tr>
<td>September 30</td>
<td><strong>Toxic Responses of the Heart: Cardiovascular Toxicology</strong></td>
<td>BU</td>
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<tr>
<td>October 7</td>
<td><strong>Endocrine Toxicology</strong></td>
<td>US</td>
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<tr>
<td>October 14</td>
<td><em>Thanksgiving – No Class</em></td>
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<tr>
<td>October 21</td>
<td><strong>Midterm Test (in NCB113)</strong></td>
<td>BU</td>
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<tr>
<td>October 28</td>
<td><strong>Pharmacogenetics and Toxicology</strong></td>
<td>US</td>
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<td>November 4</td>
<td><strong>Fall Study Break – No Class</strong></td>
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<td>November 11</td>
<td><strong>Adverse Drug Reactions: Mechanisms and Examples</strong></td>
<td>US</td>
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<td>November 18</td>
<td><strong>Maternal-Fetal Toxicology</strong></td>
<td>DM</td>
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<td>November 25</td>
<td><strong>The Toxicology of Poisoning</strong></td>
<td>CM</td>
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<td>December 2</td>
<td><strong>Forensic Toxicology</strong></td>
<td>BU</td>
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4. Course Materials

*Copyright Statement:*
Course material produced by faculty is copyrighted and to reproduce this material for any purposes other than your own educational use contravenes Canadian Copyright Laws.

*Textbook:* There is no textbook for this course. Readings will be provided in the form of articles each week via OWL.

5. Evaluation:
A detailed and comprehensive set of regulations concerning the scheduling of tests, assignments, etc. is available at:
http://www.westerncalendar.uwo.ca/PolicyPages.cfm?PolicyCategoryID=5&command=showCategory&SelectedCalendar=Live&ArchiveID=

<table>
<thead>
<tr>
<th>Component</th>
<th>Date</th>
<th>% of Final Mark</th>
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</thead>
<tbody>
<tr>
<td>Toxicology Report</td>
<td>October 7, 2019 @ 2:30PM</td>
<td>15%</td>
</tr>
<tr>
<td>Midterm test</td>
<td>October 21, 2019</td>
<td>40%</td>
</tr>
<tr>
<td>Final exam</td>
<td>TBA (Dec 2019)</td>
<td>45%</td>
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The examination format will consist of fill in the blank and both short and long answer questions. Questions will be derived from the lecture slides, lecture content described or assigned in class and from the assigned reading. The final examination will be minimally cumulative.

**Toxicology Report (15% of final grade)**

Each student will be required to write a toxicology report. Students will be able to sign up for the topic of this report on OWL by going to the "Wiki" tool on the left side of the OWL page. The report should be no longer than two typewritten, single spaced pages with 12-point font and 2 cm margins. One additional page should be added for figure(s) (generated by the student or from the literature) that are relevant to the report. You should have at least one figure that summarizes your toxicology report. An unlimited number of pages may be added to the end for references. The report should contain information on: mechanism of toxicity, toxicokinetics, stages/signs/symptoms of toxicity, treatment plan and/or antidote (if appropriate). The report will be evaluated based on succinct, clear, concise and grammatically correct English in addition content presented. Late assignments will be penalized 10% of the assignment grade per day. Turnitin service will be used to confirm the originality of all reports against literature sources and peer reports. It is your responsibility to check your turnitin report and make sure that the similarity report does not indicate plagiarism. Similarity reports suggesting plagiarism and will be investigated and subjected to a penalty, most often a grade of zero.

**Policy on the Rounding and Bumping of Marks:**
Across the Basic Medical Sciences Undergraduate Education programs and within the department of Physiology and Pharmacology we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. **Final grades** on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 becomes 74, and 74.5 becomes 75. Marks WILL NOT be bumped to the next grade or GPA, e.g. a 79 will NOT be bumped up to an 80, an 84 WILL NOT be bumped up to an 85, etc. The mark attained is the mark you achieved and the mark assigned; requests for mark "bumping” will be denied.

6. **Additional Information/Statements**

**Statement on Academic Offences**
"Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following website:
Plagiarism

“All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).”

Statement on the use of Cell Phone and Electronic Devices

The Schulich School of Medicine and Dentistry is committed to ensuring that testing and evaluation are undertaken fairly across all our departments and programs. For all tests and exams, it is the policy of the School and the Department of Physiology and Pharmacology that any electronic devices (e.g. cell phone, tablet, camera, watch, smart watch, ipod, ear buds, headphones) are strictly prohibited. These devices MUST be left either at home or with the student’s bag/jacket at the front of the room and MUST NOT be at the test/exam desk or in the individuals pocket. Any student found with one of these prohibited devices will receive a grade of zero on the test or exam. Non-programmable calculators are only allowed when indicated by the instructor. The Department of Physiology and Pharmacology is not responsible for stolen/lost or broken devices.

Statement on Discussion of Grades

The Department of Physiology and Pharmacology is committed to fair assessment of student work and encourages students to discuss course content and graded work with their peers in an effort to improve learning.

For Students: While all students have the right to question their grade should they feel it’s inaccurate, this exercise should be undertaken in a respectful manner. Professionalism and respect should be demonstrated in all interactions with instructors and peers. When discussing a grade or exam question with a professor or teaching assistant, the discussion should focus on your individual concern. Students should remember that some forms of assessment or specific questions are designed to be more challenging than others. In this situation, there may be several students that don’t receive the correct answer and this does not necessarily mean that there is a problem with the question or assessment. Concerns from one student that indicate that they are communicating on behalf of a larger group of peers (mob/crowd mentality) will not be considered. Concerns with an assessment should be communicated to the instructor and should reflect your individual concern. Threats of any sort will not be tolerated and will be considered a violation of the student code of conduct. It is a requirement that you treat your instructors with respect and you should expect the same respect returned to you by your instructor.
For Professors and Teaching Assistants: All professors and teaching assistants should keep an open mind when discussing graded work with students. Make an effort to listen to students and try and see their point of view. If there was ambiguity in a question or multiple correct answers that a student brings to your attention, you should revise the grade. If the student concern is not adequately justified, explain your reasoning. Students that have concerns regarding an exam question or graded assignment deserve to be treated with respect. Treat with them with the same respect that you expect from them. That being said, concerns from one student that indicate that they are communicating on behalf of a larger group of peers (mob/crowd mentality) should not be considered.

Statement on Appeals

The Department of Physiology and Pharmacology follows the Western University student academic appeals policy (http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#SubHeading_181). All appeals to individual graded course components must be submitted to the course instructor within 3 weeks of the grade being released. All final course grade appeals must be received by January 31 (1st term classes) or June 30 (2nd term half classes and full year classes). You must first appeal to the course instructor. If this appeal is rejected, then you can appeal to the Undergraduate Chair of the Department of Physiology and Pharmacology. If this appeal is rejected, you may then appeal to the Associate Dean of the Bachelor of Medical Sciences Undergraduate Education Committee.

You must have suitable grounds for appeal which may include: 1) appeal on medical or compassionate grounds; 2) appeal based on extenuating circumstances beyond your control; 3) appeal based on bias, inaccuracy or unfairness. All appeals must be accompanied by a detailed explanation along with supporting documentation. You should submit your appeal as an e-mail with a single attachment. If you have multiple supporting documents, you should merge them into a single document.

Absence from course commitments

Medical/Compassionate Relief Program Policy

A. Absence for medical illness or non-medical absence:

Students must familiarize themselves with the Policy on Accommodation for Medical Illness for Undergraduate Students, located at:
If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Students should familiarize themselves with the procedures for academic consideration and note the process for self-reporting.

Approval can be granted either through a **self-reporting of absence** or via the **Academic Counselling** unit. The Academic Counselling is located in NCB 280, and can be contacted at scibmsac@uwo.ca.

### B. Accommodation for Religious Holidays

The policy for accommodation for Religious Holidays can be found at:

http://www.westerncalendar.uwo.ca/PolicyPages.cfm?PolicyCategoryID=1&Command=showCategory&Keywords=absence&SubHeadingID=323&SelectedCalendar=Live&ArchiveID=#SubHeading_323

### C. Special Examinations

http://www.westerncalendar.uwo.ca/PolicyPages.cfm?PolicyCategoryID=5&Command=showCategory&Keywords=special%20examination&SubHeadingID=70&SelectedCalendar=Live&ArchiveID=#SubHeading_70

A Special Examination is any examination other than the regular final examination, and it may be offered only with the permission of the Dean/Academic Counselling Office of the Faculty in which the student is registered, in consultation with the instructor and Department Chair. Permission to write a Special Examination may be given on the basis of compassionate or medical grounds with appropriate supporting documents.

A Special Examination must be written at the University or an Affiliated University College no later than 30 days after the end of the examination period involved. To accommodate unusual circumstances, a date later than this may be arranged at the time permission is first given by the Dean/Academic Counselling Office of the Faculty. The Dean/Academic Counselling Office will consult with the instructor and Department Chair and, if a later date is arranged, will communicate this to the Office of the Registrar.
If a student fails to write a scheduled Special Examination, permission to write another Special Examination will be granted only with the permission of the Dean/Academic Counselling Office in exceptional circumstances and with appropriate supporting documents. In such a case, the date of this Special Examination normally will be the scheduled date for the final exam the next time the course is offered.

When a grade of Special (SPC) or Incomplete (INC) appears on a student’s record, the notations will be removed and replaced by a substantive grade as soon as the grade is available.

A student that is unable to attend a scheduled test, examination or special examination may be tested using an alternate format (e.g. oral test/exam).

**Support Services:**
Registrarial Services: [http://www.registrar.uwo.ca](http://www.registrar.uwo.ca)

Academic Counselling (Science and Basic Medical Sciences): [http://www.uwo.ca/sci/counselling](http://www.uwo.ca/sci/counselling)

USC Student Support Services: [http://westernusc.ca/services/](http://westernusc.ca/services/)

Student Development Services: [http://www.sdc.uwo.ca](http://www.sdc.uwo.ca)

Student Health Services: [http://www.shs.uwo.ca/](http://www.shs.uwo.ca/)

Students who are in emotional/mental distress should refer to Mental Health@Western [https://www.uwo.ca/health/mental_wellbeing/self/student.html](https://www.uwo.ca/health/mental_wellbeing/self/student.html) for a complete list of options about how to obtain help.