

**Physiology and Pharmacology
Human Toxicology PHARM 4660A**

Course Syllabus for Fall 2023



Western University is committed to a **thriving campus**; therefore, your health and wellness matter to us! The following link provides information about the resources available on and off campus to support students: <https://www.uwo.ca/health/> Your course coordinator can also **guide you** to resources and/or services should you need them.

1. **Technical Requirements:**



Stable internet connection



Laptop or computer



Working microphone



Working webcam (suggested)

2. **Important Dates:**



Classes Begin	Classes End	
Thursday, September 7, 2023	Friday, December 8, 2023	
* November 13, 2023: Last day to drop a first-term half course without academic penalty		
Reading Week	Study day(s)	Exam Period
October 30–November 5	December 9	December 10–22

3. **Contact Information**



Course Coordinator	Contact Information
Dr. Ute Schwarz	Use OWL message (preferred) or uschwarz@uwo.ca
Instructor(s) or Teaching Assistant(s)	Contact Information
Dr. Brad Urquhart	Brad.Urquhart@schulich.uwo.ca
Dr. Constance Mackenzie	Constance.Mackenzie@sjhc.london.on.ca
Dr. Facundo Garcia-Bournissen	Facundo.Garcia-Bournissen@lhsc.on.ca
Teaching Assistant(s)	Contact Information
Jeffrey Lawrence Hutchinson	Use OWL message
Chen Bei Hu	Use OWL message

4. Course Description and Design

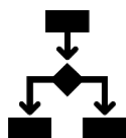
Delivery Mode: in-person

A course dealing with the pharmacological and toxicological principles underlying the adverse effects of xenobiotics in humans. In addition to reviewing mechanisms of toxicity in humans, the course will include overviews of the principles of management of human poisoning, the principles of chronic toxicity and of drug safety in humans.

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

Timetabled Sessions

Component	Date(s)	Time
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- Case study material review must be completed prior to lectures (refer to 6.)
- Attendance at sessions is required
- Missed work should be completed within 24 hours
- A video (or audio) recording will be provided of the sessions
- Closed captioning will be provided on audio or video recordings

All course material will be posted to OWL: <http://owl.uwo.ca>. Any changes will be indicated on the OWL site and discussed with the class.

If students need assistance, they can seek support on the [OWL Help page](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](#).

5. Learning Outcomes

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

- Understand pharmacological and toxicological principles of adverse effects of xenobiotics humans
- Understand the of principles of organ and non-organ directed toxicity
- Discuss principles of management of human poisoning
- Discuss principles of drug safety in humans
- Identify and explain the toxicokinetics, mechanism of toxicity and develop a treatment plan for any assigned toxic compound.
- Analyze and interpret data from literature publications in toxicology and explain the methods used to generate the data.
- Write a succinct, clear and grammatically correct report on an assigned toxicant.



6. Course Content and Schedule



Week	Dates	Topic	Instructor
1	Sept 4–8	N/A	-
2	Sept 11	Course introduction and overview; Principles of Toxicology, Toxicokinetics, and Risk Assessment	Urquhart/ Schwarz
3	Sept 18	Toxic Responses of the Liver: Hepatotoxicology*	Urquhart
4	Sept 25	Toxic Responses of the Kidney: Renal Toxicology*	Urquhart
5	Oct 2	Toxic Responses of the Heart: Cardiovascular*	Urquhart
6	Oct 9	Thanksgiving – No Class	
7	Oct 16	Endocrine Toxicology*	Schwarz
8	Oct 23	MIDTERM EXAM	Schwarz
9	Oct 30	Reading Week – No Class	-
10	Nov 6	Pharmacogenetics and Toxicology*	Schwarz
11	Nov 13	Adverse Drug Reactions: Mechanisms and Examples*	Schwarz
12	Nov 20	Maternal-Fetal Toxicology*	Garcia-Bournissen
13	Nov 27	The Toxicology of Poisoning*	Mackenzie
14	Dec 4	Forensic Toxicology*	Urquhart

*Case study material will be provided one week prior to this lecture at the OWL site. Students are expected to review the information and related questions to be able to discuss these cases during lecture time.

7. Participation and Engagement



- Students are expected to participate and engage with content as much as possible
- Students can participate in discussions during lectures
- Students can also participate by interacting in the forums with their peers and instructors

8. Evaluation

Below is the evaluation breakdown for the course. Any deviations will be communicated.



Assessment	Format	Weighting	Due Date
Toxicology report (Part 1): <i>ChatGPT critical evaluation</i>	Written assignment	5%	September 25, 2023
Toxicology report (Part 1): <i>ChatGPT critical evaluation</i>	Student peer review assignment	-	October 2, 2023
Toxicology report (Part 2)	Written assignment	15%	October 6, 2023*
Midterm test	Written exam	40%	October 23, 2023
Final exam	Written exam	40%	TBA (December)

*Flexible deadline. Submission by October 10 without penalty (in case you are sick, please submit documentation before or not later than October 6)

- All assignments are due at 6:00 pm EST unless otherwise specified

- ✓ Students are responsible for ensuring that the correct file version is uploaded; incorrect submissions including corrupt files could be subject to late penalties (see below) or a 0
- ✓ Written assignments will be submitted to Turnitin (statement in policies below)
- ✓ Students will have unlimited submissions to Turnitin
- ✓ Rubrics will be used to evaluate assessments and will be posted with the instructions
- ✓ A student might not receive the same grade as their group members if it is determined that the distribution of work was not equal
- ✓ After an assessment is returned, students should wait 24 hours to digest feedback before contacting their evaluator; to ensure a timely response, reach out within 7 days
- ✓ Any grade appeals on assignments or midterms must be received within 3 weeks of the grade being posted.

Written Exams

The examination format for exams will consist of fill-in-the-blank, short and long answer questions. Questions will be derived from the lecture slides, information provided for the case studies and related discussions during lectures as well as assigned reading of scientific publications. The final examination will be minimally cumulative.

Toxicology Report

Part 1: ChatGPT critical evaluation (5% of final grade)

Part 2: Written report (15% of final grade)

Each student will be required to write a toxicology report that will involve the critical evaluation of a ChatGPT academic answer.

1. **Sign up:** Students will be able to sign-up for a molecule to write this report on in OWL. Please go to the *Site Info* tool on the left side of the OWL page starting **Monday, September 11 (first class) at 5 PM**. Choose **one molecule** for the ChatGPT critical evaluation by **Sunday, September 17**. One of four report components will be assigned to you by the course manager (refer to 2.).

2. **ChatGPT critical evaluation (Part 1):** There will be four students in a group for a chosen molecule. Each student will individually access ChatGPT (<https://openai.com/blog/chatgpt>) and prepare and submit a question(s) to obtain the answer concerning one report component: i. mechanism of toxicity, ii. toxicokinetics, iii. stages/ signs/ symptoms of toxicity, or iv. treatment plan and/ or antidote (if appropriate). Subsequently, the student will evaluate critically the answer generated by ChatGPT. Accordingly, the *ChatGPT evaluation* written assignment has to include the following information: a) the question(s) used for ChatGPT, b) the answer(s) generated by ChatGPT, and c) the critical evaluation of the ChatGPT-generated answer. Please make sure references are generated by ChatGPT; fact checking of references should be included in the evaluation. This **written assignment** should be no longer than one typewritten, single-spaced page with 12-point font and one-inch margins (normal). Please save the assignment as a Word file using the following naming convention: ChatGPT_name of the molecule. Do **not** include your name in this document to keep it anonymous for peer review (refer to 4.).

3. **Submit the ChatGPT evaluation assignment** via Turnitin in OWL (in Assignments) no later than **September 25 at 6 PM** and confirm successful file upload afterwards.

4. **Student peer review assignment:** The *ChatGPT evaluation* will be graded anonymously by the four students in each group of a molecule. Each student will grade ChatGPT evaluations from other students in the molecule group (out of 5 points), and the grade will be the average of the mark given by the three other students. Rubrics will be provided to students.

5. **Submit ChatGPT peer review assignment** in OWL by **October 2**. You will have to complete the peer review in order to receive your mark for the ChatGPT evaluation assignment (5%).

6. **Prepare toxicology report (Part 2)**: The report should be no longer than two typewritten, single spaced pages with 12-point font and one-inch margins (normal), and should contain information on: i) mechanism of toxicity (**3 marks**), ii) toxicokinetics (**1.5 marks**), iii) stages/ signs/ symptoms of toxicity (**3 marks**), and iv) treatment plan and/ or antidote (if appropriate) (**1.5 marks**). One additional page should be added for figure(s) including a legend (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 (**1.5 marks**). An unlimited number of pages may be added to the end for references (**1.5 marks**). The report will be evaluated based on succinct, clear, concise, and grammatically correct English in addition content presented (**3 marks**). Please save your report as a Word file using the following naming convention: Report_name of the molecule_your last and first name.

7. **Submit the toxicology report via Turnitin in OWL (in Assignments) by October 6**. 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. The *similarity index* should be around 24% or less and will be evaluated on a case by case basis. Further detail will be provided during the course.

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

90-100	One could scarcely expect better from a student at this level
80-89	Superior work which is clearly above average
70-79	Good work, meeting all requirements, and eminently satisfactory
60-69	Competent work, meeting requirements
50-59	Fair work, minimally acceptable
below 50	Fail

Information about late or missed evaluations:

- Late assessments without accommodation will be subject to a late penalty 10%/day
- An assessment cannot be submitted after it has been returned to the class
- One make-up test will be offered for each written exam (Midterm exam, Fri, October 27 3:30PM; Final exam TBD)
- The midterm and final exam must be passed, and the toxicology report must be completed to pass the course. Failure to complete the exams with a passing grade (+50%) and failure to submit a toxicology report will result in a failing grade.
- If a make-up assessment is missed with documentation, the student will receive an INC and complete the task the next time the course is offered.

INC (Incomplete Standing): If a student has been approved by the Academic Counselling Office (in consultation with the instructor/department) to complete term work at a later date, an INC will be assigned. Students with INC will have their course load in subsequent terms reduced to allow them to complete outstanding course work. Students may request permission from Academic Counselling to carry a full course load for the term the incomplete course work is scheduled.

SPC (Special examination): If a student has been approved by the Academic Counselling Office to write a Special Examination and the final exam is the only outstanding course component, an SPC will be assigned. If the class has a makeup exam, the student is expected

to write the makeup exam. If the class doesn't have a makeup exam or the student misses the makeup exam for reasons approved by the Academic Counselling Office, the student will write the exam the next time the course is offered. Outstanding SPCs will reduce the course load for the term the exam is deferred as outlined in [Types of Examinations](#) policy.

9. Communication:



- Students should check the OWL site every 24–48 hours
- Students should email their instructor (Dr. Ute Schwarz) and teaching assistant(s) using OWL messages
- Emails will be monitored daily; students will receive a response in 24–48 hours
- This course will use OWL forum for discussions
- Students should post all course-related queries on the discussion forum so that everyone can access the questions and responses

10. Office Hours:



- Office hours will be held remotely using Zoom
- Office hours will be booked as needed
- Office hours will be individual

11. Resources



- All resources will be posted in OWL

12. Professionalism & Privacy:



Western students are expected to follow the [Student Code of Conduct](#). Additionally, the following expectations and professional conduct apply to this course:

- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared (e.g., Must Knows Facebook group, Course Hero, Chegg, etc.)
- Recordings are not permitted (audio or video) without explicit permission
- Permitted recordings are not to be distributed
- Students will be expected to take an academic integrity pledge before some assessments

Western is committed to providing a learning and working environment that is free of harassment and discrimination. All **students**, staff, and faculty have a role in this commitment and have a responsibility to ensure and promote a safe and respectful learning and working environment. Relevant policies include Western's [Non-Discrimination/Harassment Policy](#) (M.A.P.P. 1.35) and [Non-Discrimination/Harassment Policy – Administrative Procedures](#) (M.A.P.P. 1.35).

Any **student**, staff, or faculty member who experiences or witnesses' behaviour that may be harassment or discrimination **must report the behaviour** to the Western's [Human Rights Office](#). Harassment and discrimination can be human rights-based, which is also known as EDI-based, (sexism, racism, transphobia, homophobia, islamophobia, xenophobia, antisemitism, and ableism) or non-human rights-based (personal harassment or workplace harassment).

13. How to Be Successful in this Class:

Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.



1. Invest in a planner or application to keep track of your courses. Populate all your deadlines at the start of the term and schedule your time throughout the course.
2. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
3. Follow weekly checklists created on OWL or create your own to help you stay on track.
4. Take notes as you go through the lesson material. Keeping handwritten notes or even notes on a regular Word document will help you learn more effectively than just reading or watching the videos.
5. Connect with others. Try forming an online study group and try meeting on a weekly basis for study and peer support.
6. Do not be afraid to ask questions. If you are struggling with a topic, check the online discussion boards or contact your instructor(s) and or teaching assistant(s).
7. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.

14. Western Academic Policies and Statements

Absence from Course Commitments

A. Absence for medical illness:

Students must familiarize themselves with the [Accommodation for Illness Policy](#).

A student seeking academic accommodation for any **work worth less than 10%** must contact the instructor or follow the appropriate Department or course specific instructions provided on the course outline. Instructors will use good judgment and ensure fair treatment for all students when considering these requests. You are not required to disclose details about your situation to your instructor; documentation is not required in this situation, and you should not send any pictures to your instructor.

If you are unable to meet a course requirement for any **work worth 10% or greater** due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Academic Counseling as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. Please note that the format of a make-up test, exam, or assignment is at the discretion of the course coordinator.

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found at: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

B. Absence for non-medical reasons:

Student absences might also be approved for non-medical reasons such as religious holidays and compassionate situations. Please review the policy on [Accommodation for Religious Holidays](#). All non-medical requests must be processed by Academic Counselling. Not all absences will be approved; pay attention to the academic calendar and final exam period when booking any trips.

C. Special Examinations

A Special Examination is any examination other than the regular examination, and it may be offered only with the permission of the Dean 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. To provide an opportunity for students to recover from the circumstances resulting in a Special Examination, the University has implemented Special Examinations dates. These dates as well as other important information about examinations and academic standing can be found [here](#).

Academic Offenses

Scholastic offences are taken seriously, and students are directed [here](#) to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

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 Accessible Education (AE) at 661-2111 x 82147 for any specific question regarding an accommodation or review [The policy on Accommodation for Students with Disabilities](#)

Correspondence Statement

The centrally administered **e-mail account** provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).

Discovery Credit Statement

Students are permitted to designate up to 1.0 Discovery Credit course (or equivalent) for pass/fail grading that can be counted toward the overall course credits required for their degree program. The details of this policy and the deadlines can be found [here](#).

Turnitin and other similarity review software

All assignments will be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. Students will be able to view their results before the final submission. 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 Western University and [Turnitin.com](#).

15. BMSUE Academic Policies and Statements

Cell Phone and Electronic Device Policy (for in-person tests and exams)

The Schulich School of Medicine & 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 that any electronic devices, i.e., cell phones, tablets, cameras, or iPod 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 individual's 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 program is not responsible for stolen/lost or broken devices.

Copyright and Audio/Video Recording 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. You must always ask permission to record another individual and you should never share or distribute recordings.

Rounding of Marks Statement

Across the Basic Medical Sciences Undergraduate Education programs, 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.

16. Support Services

The following links provide information about support services at Western University.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

[Academic Counselling \(Science and Basic Medical Sciences\)](#)

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)