

Department of Physiology & Pharmacology  
Pharmacology 3620

Course Syllabus for Fall/Winter 2024



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

2. Important Dates:



Classes Begin	Reading Week	Classes End	Study day(s)	Exam Period
September 7	October 30– November 5	December 8	December 9	December 10–22

\* November 30, 2022: Last day to drop a first-term full course without penalty

Classes Resume	Reading Week	Classes End	Study day(s)	Exam Period
January 8	February 17-25	April 8	April 9 - 10	April 11–30

3. Contact Information



Course Coordinators	Contact Information
Dr. Fabiana Crowley	<a href="mailto:fabiana.crowley@schulich.uwo.ca">fabiana.crowley@schulich.uwo.ca</a>
Dr. Anita Woods	Anita.woods@uwo.ca

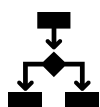
Instructor(s) or Teaching Assistant(s)	Contact Information
Dr. Angela Beye	abeye2@uwo.ca
Dr. Oana Birceanu	obircean@uwo.ca
Dr. Nica Borradaile	nborrad@uwo.ca
Dr. Lina Dagnino	ldagnino@uwo.ca
Dr. Rob Gros	rgros@uwo.ca
Dr. Rommel Tirona	rommel.tirona@schulich.uwo.ca
Dr. Brad Urquhart	brad.urquhart@schulich.uwo.ca
Lujain Ez Eddin (TA)	lezeddin@uwo.ca
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## 4. Course Description and Design

### Delivery Mode: in-person

Pharmacology 3620 is a 1.0 credit, systems-based course that deals with drugs used to treat diseases that affect various systems and organs of the body (e.g., cardiovascular disease, neurological diseases, endocrine disorders etc.). It is a course focused on the fundamental principles of pharmacology and the clinical uses of drugs - i.e., therapeutics. There is an emphasis on how drugs target a system or organ, mechanisms of drug action, and adverse effects of drugs on the system.

Topics in Pharmacology 3620 are closely aligned with topics in Physiology 3120 (Human Physiology). Physiology 3120 is highly recommended as a co-requisite, so that you will learn how an organ system works in physiology and then, in Pharmacology 3620, learn about the drugs that can be used to treat the diseases affecting that system.



### Timetabled Sessions

Component	Date(s)	Time

- Any asynchronous pre-work must be completed prior to lectures
- Lectures will be recorded and posted on OWL

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:



1. Explain the processes by which drugs are absorbed and distributed within the body, and the ways in which the body alters the fate of administered drugs.
2. Explain the processes by which drugs can interact with their target sites to produce a biological effect.
3. List the major classes of drugs used to treat a range of pathological conditions, explaining their mechanism(s) of action at their respective target sites.
4. Compare and contrast the different classes of drugs with respect to their key pharmacological properties, benefits and potential adverse effects.

## 6. Course Content and Schedule

		Date	Lecturer	Topic
Week 1	1	Sept. 7 <sup>th</sup>	Crowley/Tirona	Intro to the course/Introduction to Pharmacokinetics
Week 2	2	Sept. 12 <sup>th</sup>	Tirona	Drug Absorption and Distribution
	3	Sept. 14 <sup>th</sup>	Tirona	Drug Elimination and Dosage Regimens
Week 3	4	Sept. 19 <sup>th</sup>	Tirona	Drug Metabolism
	5	Sept. 21 <sup>st</sup>	Tirona	Drug Transporters
Week 4	6	Sept. 26 <sup>th</sup>	Urquhart	Routes of Drug Administration
	7	Sept. 28 <sup>th</sup>	Urquhart	Pharmacodynamics I
Week 5	8	Oct. 3 <sup>rd</sup>	Urquhart	Pharmacodynamics II
	9	Oct. 5 <sup>th</sup>	Urquhart	Pharmacogenetics I
Week 6	10	Oct. 10 <sup>th</sup>	Urquhart	Pharmacogenetics II
	11	Oct. 12 <sup>th</sup>	Tirona	Drug-Drug Interactions
Week 7	16	Oct. 17 <sup>th</sup>	Dagnino	Introduction to Neoplastic Disease
	17	Oct. 19 <sup>th</sup>	Dagnino	Cancer therapy I
Week 8	19	Oct. 24 <sup>th</sup>	Dagnino	Cancer therapy II
	20	Oct. 26 <sup>th</sup>	Dagnino	Cancer therapy III
Week 9		Oct. 30 <sup>th</sup> – Nov 5 <sup>th</sup>	<b>READING WEEK</b>	
Week 10	22	Nov. 7 <sup>th</sup>	Dagnino	Antimicrobials
	23	Nov. 9 <sup>th</sup>	Dagnino	Antivirals
Week 11	25	Nov. 14 <sup>th</sup>	Crowley	Introduction to Neuro Pharmacology
	26	Nov. 16 <sup>th</sup>	Crowley	Drugs used to treat Depression
Week 12	28	Nov. 21 <sup>st</sup>	Crowley	Drugs used to treat Anxiety
	29	Nov. 23 <sup>rd</sup>	Crowley	Drugs used to treat Psychosis & Mania
Week 13	31	Nov. 28 <sup>th</sup>	Crowley	Drugs used to treat Epilepsy
	32	Nov. 30 <sup>th</sup>	Birceanu	Introduction to Cholinergic Pharmacology
Week 14	34	Dec. 5 <sup>th</sup>	Birceanu	Neuromuscular Junction Pharmacology
	35	Dec. 7 <sup>th</sup>	Birceanu	Drugs used in Surgery/Anesthesia
Week 1	31	Jan. 9 <sup>th</sup>	Urquhart	Drugs of Abuse I
	32	Jan. 11 <sup>th</sup>	Urquhart	Drugs of Abuse II
Week 2	34	Jan. 16 <sup>th</sup>	Beye	Introduction to Adrenergic Pharmacology
	35	Jan. 18 <sup>th</sup>	Beye	Clinical uses of Adrenergic drugs
Week 3	37	Jan. 23 <sup>rd</sup>	Gros	Overview of cardiovascular & arrhythmias
	38	Jan. 25 <sup>th</sup>	Gros	Drugs used to treat hypertension I
Week 4	40	Jan. 30 <sup>th</sup>	Gros	Drugs used to treat hypertension II
	41	Feb. 1 <sup>st</sup>	Gros	Drugs used to treat arrhythmias & angina
Week 5	43	Feb. 6 <sup>th</sup>	Gros	Drugs to treat heart failure
	44	Feb. 8 <sup>th</sup>	Gros	Drugs to treat myocardial infarction
Week 6	46	Feb. 13 <sup>th</sup>	Beye	Drugs used to treat Asthma
	47	Feb. 15 <sup>th</sup>	Beye	Drugs used to treat COPD
Week 7		Feb. 17 <sup>th</sup> – 25 <sup>th</sup>	<b>Spring Reading Week</b>	
Week 8	49	Feb. 27 <sup>th</sup>	Beye	NSAIDS
	50	Feb. 29 <sup>th</sup>	Borradaile	Introduction to Endocrine Pharmacology
Week 9	52	Mar. 5 <sup>th</sup>	Borradaile	Drugs used in Inflammatory Diseases and Osteoporosis
	53	Mar. 7 <sup>th</sup>	Borradaile	Drugs used in Thyroid Disease
Week 10	55	Mar. 12 <sup>th</sup>	Borradaile	Drugs used in Type 1 Diabetes Mellitus
	56	Mar. 14 <sup>th</sup>	Borradaile	Drugs used in Type 2 Diabetes Mellitus
Week 11	58	Mar. 19 <sup>th</sup>	Borradaile	Drugs used to treat Obesity and Hyperlipidemia
	59	Mar. 21 <sup>st</sup>	Borradaile	Drugs used to treat Hyperlipidemia
Week 12	61	Mar. 26 <sup>th</sup>	Borradaile	Drugs used to Control Fertility

	62	Mar. 28 <sup>th</sup>	Crowley	Drugs used to treat nausea and vomiting
Week 13	64	Apr. 2 <sup>nd</sup>	Crowley	Drugs used to treat gastric esophageal reflux disorder
	65	Apr. 4 <sup>th</sup>	Birceanu	Introduction to Toxicology
		Apr. 11 <sup>th</sup> – 30 <sup>th</sup>	<b>EXAM PERIOD</b>	

## 7. Participation and Engagement



- Students are expected to participate and engage with lecture content as much as possible
- 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
PeerWise* Assignment #1	Complete authoring and answering by Oct. 12 <sup>th</sup> , 11:59 PM.	2%	Author: Tues, Oct 10 <sup>th</sup> Answer: Thurs, Oct 12 <sup>th</sup>
Online Quiz #1	Online via OWL ( <i>questions taken from PeerWise Assignment 1</i> )	3%	Opens Thurs, Oct 19 <sup>th</sup> at Noon until Fri, Oct 20 <sup>th</sup> at 5 PM
Midterm #1	Multiple Choice & Short Answer	25%	Friday, Nov 10 <sup>th</sup> , 6-8 PM
PeerWise Assignment #2	Complete authoring and answering by Jan. 11 <sup>th</sup> , 11:59 PM.	2%	Author: Tues, Jan. 9 <sup>th</sup> Answer: Thurs, Jan. 11 <sup>th</sup>
Online Quiz #2	Online via OWL ( <i>questions taken from PeerWise Assignment 2</i> )	3%	Opens Thurs, Jan. 18 <sup>th</sup> at Noon until Fri, Jan. 19 <sup>th</sup> at 5 PM
Midterm #2	Multiple Choice and Short Answer (non-cumulative)	25%	Feb. 2 <sup>nd</sup> , 6-8 PM
PeerWise Assignment #3	Complete authoring and answering by Mar. 21 <sup>st</sup> at 11:59 PM	2%	Author: Tues, Mar. 19 <sup>th</sup> Answer: Thurs, Mar. 21 <sup>st</sup>
Online Quiz #3	Online via OWL ( <i>questions taken from PeerWise Assignment 3</i> )	3%	Open Thurs, Mar. 28 <sup>th</sup> at Noon until Fri, Mar. 29 <sup>th</sup> at 5 PM
Final Exam	Multiple Choice & Short Answer (cumulative)	35%	During the Final Exam Period: April 11 <sup>th</sup> – 30 <sup>th</sup> TBD 3 hours
Optional Bonus Assignment	3-minute video	+1%	Due April 8 <sup>th</sup> , 11:59 PM

\*For PeerWise assignments, please see the PeerWise information on OWL for detailed instructions. If you do not fully complete a PeerWise assignment or chose not to complete a quiz, that value of missed assignment(s) will automatically be moved to the next exam that the material is covered.

- Quizzes are due at **Noon**.
- PeerWise assignments will be completed on <https://peerwise.cs.auckland.ac.nz>
- PeerWise assignments will be reviewed by Dr. Woods and Dr. Crowley for originality checks to ensure questions were authored by each student and not shared or taken from internet resources or previous exams. Any sharing of questions between students or taking questions from other resources will be granted a grade of zero on that assignment.
- All assignments are due at **11:59 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 grade of 0.
- Written assignments will be submitted to Turnitin (statement in policies below).
- After an assessment grade is published, students should wait 24 hours to digest feedback before contacting the course managers. To ensure a timely response, students are expected to reach out within 7 days. Any grade appeals on any assignments, quizzes, or midterms must be received within 3 weeks of the grade being posted.
- 15% of your course grade will be evaluated and returned 3 days prior to the drop deadline (statement in policies below).

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:

- There are **no makeup PeerWise** assignments. The weight of the missed assignment will automatically be reallocated to the next exam. No documentation for a missed assignment needs to be submitted.
- There are no makeup **quizzes**. The weight of the missed quiz will automatically be reallocated to the next exam. No documentation for a missed quiz needs to be submitted.
- A **make-up exam** will be offered to students who have received academic accommodations as follows:
  - Wednesday, Nov 16<sup>th</sup> (6-8 PM): Makeup Midterm 1
  - Wednesday, Feb 8<sup>th</sup> (6-8 PM): Makeup Midterm 2
  - The makeup final exam will be scheduled by the department in May 2024.
  - All of these dates are tentative and subject to change.*
  - Only one makeup is offered for each exam.** If a student's documentation covers an absence for both the regular exam and makeup exam, the weight of that exam will be added to the final exam in the course.
- Any exams, or makeup exams that are missed without documentation approved by academic counselling will receive a grade of 0 on that evaluation.
- At least ONE midterm must be written to be permitted to write the final exam in the course.**

**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
- For content related questions or concerns, students should use the forums on OWL
- For course related questions or concerns, students should contact the course coordinators via email, copying both coordinators in all communications
- If needed, students should contact their teaching assistant(s) using email
- Emails will be monitored daily; students will receive a response in 24–48 hours
- This course will use forums 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 scheduling and signup for instructors will be posted on OWL

**11. Resources**



- See course resources tab on OWL for instructor created resources
- No textbook is required

**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](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](#).

### The use of AI tools

Within this course, students are permitted to use AI tools exclusively for information gathering and preliminary research purposes. These tools are intended to enhance the learning experience by providing access to diverse information sources. However, it is essential that students critically evaluate the obtained information, exercise independent thinking, and engage in original research to synthesize and



develop their own ideas, arguments, and perspectives. The use of AI tools can serve as a starting point for exploration, with students expected to uphold academic integrity by appropriately attributing all sources and avoiding plagiarism. Assignments and/or lab reports should reflect the students' own thoughts and independent written work. By adhering to these guidelines, students contribute to a responsible and ethical learning environment that promotes critical thinking, independent inquiry and allows them to produce original written contributions.

## 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, e.g., cell phones, tablets, cameras, smart glasses, smart watch 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., 74.45 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](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](mailto:support@uwo.ca).

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

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)