



Physiology & Pharmacology PHYSPHRM 2000 FW23 INTRO TO THE INTEGRATRION OF PHYS/PHARM

Course Syllabus for Fall/Winter 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	Requirement	ts:
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Stable internet connection



Laptop or computer

2. Important Dates:



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

^{*} 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 Coordinator	Contact Information
Dr. Christine Bell	OWL Messages



Instructor(s) or Teaching Assistant(s)	Contact Information	
Dr. Oana Birceanu	obircean@uwo.ca	
Dr. Stephan Everling	severlin@uwo.ca	
Dr. Lina Dagnino	Idagnino@uwo.ca	
Dr. Anita Woods	Anita.woods@uwo.ca	
Dr. Angela Beye	Abeye2@uwo.ca	
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4. Course Description and Design

Delivery Mode: In-person with online, self-paced learning activities.

Course Description: Students will study the physiological processes and pharmacological treatments of nerve, muscle, central nervous system, renal, cardiovascular, respiratory, endocrine, reproductive and gastrointestinal control systems as they function in living humans, under both healthy and diseased conditions. Antirequisite(s): Physiology 1020, Physiology 1021, Physiology 2130, Physiology 3120, Pharmacology 2060A/B, Pharmacology 3620. Extra Information: 3 lecture hours/week. Recommended background: any 1000-level course in biology, and any 1000-level course in chemistry.

Timetabled Sessions



Component	Date(s)	Time	Location

- Self-paced learning pre-work must be completed 1 day prior to lectures.
- Attendance at lectures is required.
- An audio recording will be provided of the lecture on OWL within 1 week of the lecture.
- Lecture recordings will remain available for 3 weeks after posting, and then will be deleted.
- ☑ 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 <u>OWL Help page</u>. Alternatively, they can contact the <u>Western Technology Services Helpdesk</u>. They can be contacted by phone at 519-661-3800 or ext. 83800.

<u>Google Chrome</u> or <u>Mozilla Firefox</u> 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:

- Explain concepts, and principles regarding the function of the human body, and the function of pharmacological agents.
- Describe the principles that determine how pharmacological agents get into and are handled by the body.
- Explain the principles that determine how pharmacological agents act in the body to produce a pharmacological effect.
- Identify the main therapeutic actions and side effects of pharmacological agents commonly used in clinical practice, and their associated physiological system.
- Integrate information from multiple physiological systems and describe they maintain homeostasis.
- Apply knowledge to clinical and disease situations, by predicting consequences of alterations to normal physiological function and how pharmacological agents act to restore physiological processes.

6. Course Content and Schedule



		Date	Lecturer	Topic
Week 1	1	Sept. 8 th	Dr. Bell	Physiology & Pharmacology Basics Overview
Week 2	2	Sept. 11 th	Dr. Bell	Cell membrane & Transport mechanisms
	3	Sept. 13 th	Dr. Bell	Agonism & Antagonism, Basic receptors
	4	Sept. 15 th	Dr. Bell	Body fluid compartments/Osmosis/Concentration
				Gradients
Week 3	5	Sept. 18 th	Dr. Bell	Pharmacokinetics
	6	Sept. 20th	Dr. Birceanu	Membrane Potentials & Action Potentials
	7	Sept. 22 nd	Dr. Birceanu	Action potential propagation
Week 4	8	Sept. 25 th	Dr. Birceanu	EPSPs & IPSPs – Temporal vs Spatial
				summation
	9	Sept. 27 th	Dr. Bell/Birceanu	Active Learning session – Cue Cards
	10	Sept. 29th	OFF	Truth and reconciliation day
Week 5	11	Oct. 2 nd	Dr. Everling	Sensory Systems (Homunculus)
	12	Oct. 4 th	Dr. Everling	Visual System
	13	Oct. 6 th	Dr. Everling	Auditory and Vestibular System
Week 6		Oct. 9 th	THANKSGIVING	
	14	Oct. 11 th	Dr. Everling	Pathophysiology: Parkinson's
	15	Oct. 13 th	Dr. Birceanu	Muscle 1
Week 7	16	Oct. 16 th	Dr. Birceanu	Muscle 2
	17	Oct. 18 th	Dr. Birceanu	Muscle 3
	18	Oct. 20 th	Dr. Birceanu	Active Learning – Consolidate Nerve/Muscle
Week 8	19	Oct. 23 rd	Dr. Birceanu	Pain, Opioids, NSAIDs, desensitization
	20	Oct. 25 th	Dr. Birceanu	ANS
	21	Oct. 27 th	Dr. Bell	Endocrine Overview
Week 9		Oct. 30 th -	READING WEEK	
		Nov 5 th		
Week 10	22	Nov. 6 th	Dr. Bell	Hypothalamus & Pituitary
	23	Nov. 8 th	Dr. Bell	Reproductive System - Male
	24	Nov. 10 th	Dr. Bell	Reproductive System - female
Week 11	25	Nov. 13 th	Dr. Bell	Reproductive System - Birth control
	26	Nov. 15 th	Dr. Bell	Active learning – Compare male and female
				gametes
	27	Nov. 17 th	Dr. Bell	Thyroid gland
Week 12	28	Nov. 20 th	Dr. Bell	Adrenal glands & SAIDs
	29		Dr. Bell	Pancreas (type I & II diabetes, diabetes mellitus
				treatments)
	30	Nov. 24 th	Dr. Woods	Digestive overview
Week 13	31	Nov. 28 th	Dr. Woods	Small intestine function
	32	Nov. 29 th	Dr. Woods	Fat digestion & absorption
	33	Dec. 1st	Dr. Woods	Water, vitamin & drug absorption, bacteria
Week 14	34	Dec. 5 th	Dr. Woods	ENS & phases of digestion
	35	Dec. 6 th	Dr. Woods	Liver function, drug metabolism
	36	Dec. 8 th	Dr. Woods	Hyperlipidemia & Statins

Second Semester

Week 1	31	Jan. 8 th	Dr. Birceanu	Antimicrobials I
	32	Jan. 10 th	Dr. Birceanu	Antimicrobials II
	33	Jan. 12 th	Dr. Bell	Active Learning and in-class assignment. – Case study
Week 2	34	Jan. 15 th	Dr. Beye	Cardiovascular Overview
	35	Jan. 17 th	Dr. Beye	Cardiac Cycle
	36	Jan. 19 th	Dr. Beye	Nervous control of the heart
Week 3	37	Jan. 22 nd	Dr. Beye	Beta-blockers
	38	Jan. 24 th	Dr. Beye	Anti-arrhythmic
	39	Jan. 26 th	Dr. Beye	Active Learning and in-class assignment
Week 4	40	Jan. 29th	Dr. Beye	Resistance to blood flow
	41	Jan. 31 st	Dr. Beye	Blood vessel structure & bulk flow
	42	Feb. 2 nd	Dr. Beye	Myogenic and metabolic theory, ACE inhibitors
Week 5	43	Feb. 5 th	Dr. Beye	Blood clotting & anti-coagulants
	44	Feb. 7 th	Dr. Beye/Bell	Active Learning and in-class assignment – Cardiac
	45	Feb. 9 th	Dr. Woods	Renal Overview & Drug excretion
Week 6	46	Feb. 12 th	Dr. Woods	Tubular transport I
	47	Feb. 14 th	Dr. Woods	Tubular transport II
	48	Feb. 16 th	Dr. Woods	Water balance & diuretics
Week 7		Feb. 19 th – 25 th	READING WEEK	
Week 8	49	Feb. 26 th	Dr. Woods	Sodium regulation
	50	Feb. 28 th	Dr. Woods	ACE inhibitors, ARBs
	51	Mar. 1 st	Dr. Woods	Active Learning and in-class assignment- Renal
Week 9	52	Mar. 4 th	Dr. Beye	Respiratory overview
	53	Mar. 6 th	Dr. Beye	Asthma & COPD
	54	Mar. 8 th	Dr. Beye	Puffers/adrenergic & cholinergic antagonists
Week 10	55	Mar. 11 th	Dr. Beye	Partial pressures of gases
	56	Mar. 13 th	Dr. Beye	Carbon dioxide transport
	57	Mar. 15 th	Dr. Beye	Regulation of Respiration
Week 11	58	Mar. 18 th	Dr. Beye	Active Learning and in-class assignment- Respiratory
	59	Mar. 20 th	Dr. Dagnino	Cancer/Chemotherapy I
	60	Mar. 22 nd	Dr. Dagnino	Cancer/Chemotherapy II
Week 12	61	Mar. 25 th	Dr. Dagnino	Cancer/Chemotherapy III
	62	Mar. 27 th	Dr. Dagnino	Cancer/Chemotherapy IV
	63	Mar. 29 th	GOOD FRIDAY	1,
Week 13	64	Apr. 3 rd	Dr. Bell	Integrative Physiology & Pharmacology- Drug-Drug Interactions
	65	Apr. 5 th	Dr. Bell	Integrative Physiology & Pharmacology I – Metabolism
		Apr. 8 th	Dr. Bell	Integrative Physiology & Pharmacology II – Pregnancy
Week 14	66	Apr. 10 th	Dr. Bell	Active Learning Session – Cue cards
		Apr. 13 th – 30 th	EXAM PERIOD	

7. Participation and Engagement

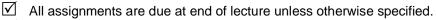


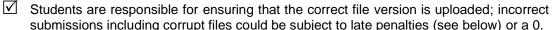
- Students are expected to participate and engage with content both in-class and through OWL, and the self-paced learning material.
- Students can participate during Active Learning sessions or post on Forums after watching the self-paced learning recordings prior to attending lectures.
- Students can also participate by interacting in the forums with their peers, TAs, and instructors

8. Evaluation

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

Assessment	Format	Weighting	Due Date	Make-up Date
Assignments	In-Class	16%- Drop	Sept 27, Oct 20, Nov	No make-up
	Group and	the lowest	15, Jan 12, Feb 7, Mar	assignments
	Individual		1, Mar 18, Apr 10	will be
	Assignments			provided
Midterm 1	MC and Short	10%	Nov.10 at 7-8 PM (1	Nov. 15 from
(non-cumulative)	Answer		hour)	7-8 PM
Midterm 2	MC and Short	20%	Dec. Exam Period (2	Usually, the
(non-cumulative)	Answer		hour)	first week in
				Jan.
Midterm 3	MC and Short	20%	Mar. 8 from 7-9 PM (2	Mar. 13 from
(non-cumulative)	Answer		hour)	7-9 PM
Final Exam	MC and Short	34%	Apr. Exam Period (2.5	Usually, the
(cumulative)	Answer		hours)	second week
				of May





- Written assignments and short answers will be submitted to Turnitin (statement in policies below).
- 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, 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, which is Nov. 30 (statement in policies below).
- Students will be allowed to use crib sheets for all tests and exams as outlined by Dr. Bell during the first in-class activity.

Click <u>here</u> 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:

- Message Dr. Bell through OWL with valid accommodation requests (see page 8 for details) to missed in-class assignments. These requests must occur within 7 days of the in-class assignment, otherwise, a zero will be given.
- Message your academic advisor for all other accommodation requests.
- Missed assessments without accommodation will be given a zero.
- Missed in-class assignments with an accommodation will have the weight moved to the remaining in-class assignments.
- Minimum of four in-class assignments must be completed.
- One make-up Midterm or Exam will be offered and will occur in a format of Dr. Bell's choosing. This could mean that the make-up exam is not in the same format as the original exam.
- At least 3 of the Midterms and Exam must be completed to pass the course. If not completed and accommodations have been granted, then an INC will be placed on the student record and the student will be given the opportunity to complete it the next time the course is offered.
- Students must pass at least one of the four tests to pass the course.
- If one of the Midterms is not completed, and an accommodation has been granted for both the original midterm and the make-up, then the weight of that midterm will be moved to the final exam.
- If a student is unable to attend the make-up exams in person, they will have to seek an accommodation through Academic Counseling. Please note, travel is NOT an accommodated reason to miss a make-up. Exams will NOT be proctored online in the event a student is unable to attend in person.

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(s) and teaching assistant(s) using OWL
- Emails will be monitored daily between Monday and Friday; students will receive a response in 24–48 hours between Monday to Friday. Emails will not be regularly monitored on weekends.
- This course will use Forum through OWL 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 virtually through Zoom.
- Office hours will be held Thursdays from 2-3 with Dr. Bell.
- Office hours with Dr. Bell will be drop-in for the first half hour, and sign-up for the second half hour.
- Office hours with Dr. Bell will be group/individual for the first half hour, and individual for the second half hour.
- Other instructors will provide details regarding their office hours during their lectures.

11. Resources



- ☑ All resources will be posted in OWL
- ✓ No required text books

12. Professionalism & Privacy:

Western students are expected to follow the <u>Student Code of Conduct</u>. 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 of lectures are not permitted (audio or video) without explicit permission from the instructor presenting the lecture.
- 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 <u>Non-Discrimination/Harassment Policy</u> (M.A.P.P. 1.35) and <u>Non-Discrimination/Harassment Policy</u> – <u>Administrative Procedures</u> (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 <u>Human Rights Office</u>. 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. Ask questions. If you need clarification with a topic, check the online discussion boards or contact your instructor(s) and/or teaching assistant(s), or come to Dr. Bell's office hours.
- 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 <u>Accommodation for Religious Holidays</u>. 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 <u>here</u> 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 <u>here</u>.

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. 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% Rule

According to the <u>Evaluation of Academic Performance</u> policy, at least three days prior to the deadline for withdrawal (November 30, 2022) from a 1000- or 2000-level course without academic penalty, students will receive assessment of work accounting for at least 15% of their final grade. Generally, students can expect some form of feedback on their performance in a course before the drop date. In rare instances, at the Dean's discretion, an exemption can be issued, which also must be noted in the course syllabus. Deans should review exemptions on a course-by-course basis each time an exempted course is offered.

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, smart glasses or iPods 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.

Academic Counselling (Science and Basic Medical Sciences)

Appeal Procedures

Registrarial Services

Student Development Services

Student Health Services