

Physiology & Pharmacology
Digestion, Metabolism and Metabolic Disease –
PHYSIOLPHARM 4100B

Course outline for Winter 2022



Although this academic year might be different, Western University is committed to a **thriving campus**. We encourage you to check out the [Digital Student Experience](#) website to manage your academics and well-being. Additionally, the following link provides available resources to support students on and off campus: <https://www.uwo.ca/health/>.

1. **Technical Requirements:**



Stable internet connection



Laptop or computer



Working microphone



Working webcam (optional)

2. **Important Dates:**



Classes Resume	Reading Week	Classes End	Study day	Exam Period
January 10	February 21-25	April 8	April 9	April 10–30

* March 14, 2022: Last day to drop a second-term half course or a second-term full course without penalty

3. **Contact Information**



Course Coordinator	Contact Information
Dr. Rennian Wang	Use OWL message / rwang@uwo.ca
Dr. Nica Borradaile	Use OWL message

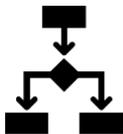
Instructor(s) or Teaching Assistant(s)	Contact Information
Dr. Rennian Wang	Use OWL message / rwang@uwo.ca
Dr. Nica Borradaile	Use OWL message
Ms. Rachel Wilson (TA)	Use OWL Message
Ms. Meg Schuurman (TA)	Use OWL Message

4. Course Description and Design

Delivery Mode: Blended

This course will explore, in depth, concepts of gastrointestinal digestion and absorption, and post-absorptive metabolism, including hepatic and pancreatic physiology. Specific areas covered will include: gut-brain-liver axis and nutrient metabolism, pancreatic exocrine and endocrine physiology, and intestinal and hepatic glucose and lipid metabolism. All areas will be discussed with particular attention to relevant pathologies and disease states, including obesity, diabetes, and metabolic syndrome. Current and emerging therapeutic strategies for the treatment of these metabolic diseases will also be presented. The course will include a series of pre-recorded lectures on selected topics by two faculty members, required in-person guided discussion sessions corresponding to each lecture, and two highly interactive Zoom debate session regarding current policy, treatment(s) and/or guidelines for the management of metabolic disease. Students will be expected to recall facts, recognize general concepts, understand and explain fundamental concepts, and synthesize information presented in lectures to solve problems and generate cohesive arguments. Students will be evaluated through two writing assignments, a midterm test, and a final exam.

Prerequisite: Physiology 3120



Timetabled Sessions

Component	Date(s)	Time
Lectures [Virtual asynchronous]	Jan 10 – Apr 8	maximum 2 hours, weekly
Guided discussion sessions [In class OR on Virtual synchronous]	Jan 10 – Apr 8	1 hour weekly, 11:30AM -12:20PM OR 12:30PM -1:20PM (each student will be assigned to one time slot only)
Debates [Virtual synchronous]	Mar 14, Apr 4	2 hours: 11:30AM-1:20PM

- Asynchronous pre-work must be completed prior to guided discussion sessions
- Attendance at guided discussion sessions is required
- Missed assignments should be completed within 24 hours

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:

- explain the inter-related functions of the gut-brain-liver axis and the pancreas in the control of glucose and lipid metabolism
- integrate concepts of physiological regulation of glucose and lipid metabolism with those of dysregulation during relevant pathologies and disease states
- identify and explain the mechanisms of action of current and emerging therapies for the treatment of metabolic diseases

6. Course Content and Schedule



Week	Dates	Topic**	Instructor
1	Jan 10–14	A journey through the digestive tract	Wang
2	Jan 17-21	Pancreatic exocrine and endocrine function	Wang
3	Jan 24-28	Physiology of Gut Enteroendocrine Cells	Wang
4	Jan 31-Feb 4	Integrated physiology of the liver and intestine	Borradaile
5	Feb 7-11	Glucose and lipid transport and metabolism 1	Borradaile
6	Feb 14-18	Glucose and lipid transport and metabolism 2	Borradaile
7	Feb 21-25	Reading Week	N/A
8	Feb 28-Mar 4	Midterm Exam Feb 28 (2h) check the Announcement Gut-brain-liver axis control food intake and glucose homeostasis Assignment 1 released on Feb 28	Wang
9	Mar 7-11	Gut microbiota in diabetes pathophysiology & therapeutic strategies for type 1 diabetes	Wang
10	Mar 14-18	Zoom Debates of selected topics Assignment 1 due Mar 14 before 5 pm	Schuurman/Wilson Borradaile/Wang
11	Mar 21-25	Pathophysiology of type 2 diabetes and metabolic syndrome Assignment 2 released on Mar 21	Borradaile
12	Mar 28-Apr 1	Pharmacotherapeutic strategies for type 2 diabetes and metabolic syndrome	Borradaile
13	Apr 4-8	Zoom Debates of selected topics Assignment 2 due Apr 4 before 5 pm	Schuurman/Wilson Borradaile/Wang

****Lectures corresponding to listed Topics will be released on the week indicated in the schedule but will be discussed the following week. By necessity of the schedule, some weeks will involve discussion of more than one Lecture Topic.**

Course delivery with respect to the COVID-19 pandemic

Although the intent is for this course was to be delivered in-person, the changing COVID-19 landscape may necessitate some or all of the course to stay online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will not change. Any assessments affected will be conducted online as determined by the course instructor.

When deemed necessary, tests and examinations in this course will be conducted using a remote proctoring service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at: <https://remoteproctoring.uwo.ca>

7. Participation and Engagement



- Students are expected to participate and engage with content as much as possible both online and in person
- 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
Midterm Exam	Short answer and essay, 2h	35%	Feb 28
Writing assignments (2)	Essay, take home	20% (10% each)	Mar 14, Apr 4
Debates (2)	Small groups, 2h on Zoom, mandatory participation	5% (2.5% each)	Mar 14, Apr 4
Final Exam	Short answer and essay, 3h	40%	April, TBA

- All assignments must be saved as a PDF and are due by 5:00 pm EST
- Assignments will be submitted to Turnitin (statement in policies below)
- Students will have two submissions to Turnitin
- Rubrics will be used to evaluate assessments and will be posted with the instructions
- 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

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.



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

Information about late or missed evaluations:

- Late assessments without self-reported absences or accommodation will be subject to a late penalty **25 %/day**
- Late assessments with self-reported absences or accommodation should be submitted within **24 hours** of the end of the self-report or accommodation (e.g., due Fri 11:55 pm; self-report covers Fri/Sat; new deadline is Sun by 11:55 pm OR 24 hours after the end of the accommodation period)
- An assessment cannot be submitted after it has been returned to the class; the weight will be transferred to the final exam
- If the make-up midterm test is missed, the weight will be transferred to the final exam
- In the case of a final exam weighted **at or above 75%** the exam will have an alternate 4 hour format which may include an oral component and additional essay question(s)
- 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

9. Communication:



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

10. Resources



- All resources will be posted in OWL

11. 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
- 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

12. 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 time at the start of each week to get organized and manage your time.
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. Treat this course as you would a face-to-face course. 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.

13. Western Academic Policies and Statements

Absence from Course Commitments

[Policy on Academic Consideration for Student Absences](#)

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. Approval can be granted either through a **self-reported absence** or via the **Academic Counselling** unit. Students have two self-reports to use throughout the academic year; absence from course commitments including tests, quizzes, presentations, labs, and assignments that are worth 30% or less can be self-reported. Self-reported absences cover a student for 48 hours (yesterday + today or today + tomorrow). Your instructor will receive notification of your consideration; however, you should contact your instructor immediately regarding your absence.

Students are expected to submit missed work within 24 hours of the end of the 48-hour period. Please review details of the [university's policy on academic consideration for student absences](#).

If you have used both their self-reported absences or will miss more than 48 hours of course requirements, a Student Medical Certificate (SMC) should be signed by a licensed medical or mental health practitioner and you should contact academic counselling. Academic Counselling will be operating virtually this year and can be contacted at scibmsac@uwo.ca.

Accommodation for Religious Holidays

The policy on Accommodation for Religious Holidays can be viewed [here](#).

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.

14. 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.

15. Support Services

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

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

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)