

## Department of Physiology and Pharmacology

### Cellular Molecular Neurobiology (Physiology 4680B)

Course Syllabus for 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	Classes End
Monday, January 8, 2024	Monday, April 8, 2024

\* March 7, 2024: Last day to drop a second-term half course without penalty

Spring Reading Week	Study day(s)	Exam Period
February 17–25	April 9-10	April 15-30

#### 3. Contact Information



Course Coordinator	Contact Information
Wei-Yang Lu	<a href="mailto:wlu53@uwo.ca">wlu53@uwo.ca</a>

Instructor(s) or Teaching Assistant(s)	Contact Information
Wei-Yang Lu (Prof. / Instructor)	<a href="mailto:wlu53@uwo.ca">wlu53@uwo.ca</a>
Julio Martinez-Trujillo (Prof. / Instructor)	<a href="mailto:julio.martinez@robarts.ca">julio.martinez@robarts.ca</a>
Stephen Pasternak (Prof. / Instructor)	<a href="mailto:spasternak@robarts.ca">spasternak@robarts.ca</a>
Sina Ramezani Bajgiran (Teaching Assistant)	<a href="mailto:srameza2@uwo.ca">srameza2@uwo.ca</a>

## 4. Course Description and Design

### Delivery Mode: in-person

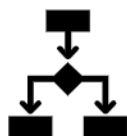
Physiology 4680B is a 0.5-unit course (2-hour every week).

**Prerequisite(s):** Physiology 3120 and 3140A; or Neuroscience 2000 and Physiology 3140A.

**Anti-requisite:** None

This course focuses on the function of neuronal cells in the central nervous system. Topics taught by the three instructors will cover cellular and molecular mechanisms of excitatory and inhibitory synaptic transmission, integrative neuronal activities in the processes of cognition, and protein processing pathways related to neuronal activity of memory. Pathophysiology of some neurological illnesses such as Alzheimer's disease is also introduced. This course is composed of lectures by 3 professors and research paper presentations by students, and lectures vs paper presentation is about 3:2. Lectures and student presentations will be conducted in-person ([Monday 2:30 – 4:30pm at DSB-2016](#)).

Lecture slides and presentation papers (PPT/PDF documents) will be posted on the course OWL site beforehand (usually before noon of the lecture day). Lecture tutorials, Q&A at OWL, or in-class discussions will be conducted. Question(s) regarding any course contents can be posted on the *Forum* at the OWL site. It will make the question be answered/discussed more effectively if the student sends a reminder email to the instructor/professor.



Research papers that are related to lecture topics will be assigned by the course instructors to students for oral presentations. Specifically, two students will be paired up to present one of the research papers. Paper presentation dates will be scheduled through a process of time/date selection by students on OWL, but the final schedule will be coordinated and determined by the course manager. Papers for presentation will be distributed to all students who take the course via the OWL course site ~7 days prior to the time for presentation. Using *PowerPoint*, paper presentation will be performed in-person during the scheduled class time. Each presentation should be about 20 (<25) minutes, during which background and objective(s) of research, relevant experimental methodologies, and results of the presentation paper should be introduced, followed by a summary of primary observations, conclusions, and critical comments by the presentation students. The two presenters should contribute equally to the presentation especially on results and discussion. Please be advised that reading presentation notes is not encouraged. Following the presentation, a question-and-answer discussion period of ~5-8 minutes will be moderated by two Discussion Leaders, with support from the sessional instructor/professor.

The presenters are required to submit a written summary of the presentation paper to the Assignments link on the course site 4 days after the presentation (Friday by 5 PM). The summary should be less than 2 pages (font size = 12 and single line), containing background (hypothesis), objectives, brief methods, main results, and conclusions of the paper. The summary should be submitted as a **Word** document, in case it requires necessary corrections/revisions.

To learn how to select the presentation date and partner, and how to sign up to be a paper Discussion Leader, please watch the instructional videos of "How to: group presentation" and "How to: Discussion Leader Signup", at the OWL site.

**Evaluation of student performance** includes the markers of a paper presentation (15%), a written summary of the presentation paper (5%), paper discussion leader (3%), class attendance (3%), a midterm test (30%), and a final examination (44%). The midterm test and final examination consist of essay and short-answer style questions.

## Timetabled Sessions

Component	Date(s)	Time
Lecture, Paper Presentation,	Mondays	2:30 – 4:30 pm
Midterm Exam	Monday, Feb 12, 2024	2:30 – 4:20 pm (1 hour 50 mins)

- Attendance at all class sessions is required
- Inform the course manager of missed work as soon as possible via email. This must be supported by approved documentation at the students' academic counselling office
- Missed work should be completed within 24 hours after the date/time of documented approved absence

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/explain the cellular and molecular mechanisms of some brain functions such as cognition, learning and memory.
- Effectively present original research articles in the field of neurophysiology.

## 6. Course Content and Schedule



Week	Dates	Topic	Instructor
1	Jan 8	Course introduction	Wei-Yang Lu
2	Jan 15	<b>Lecture:</b> Glutamatergic synaptic transmission	Wei-Yang Lu
3	Jan 22	<b>Lecture:</b> Synaptic plasticity	Wei-Yang Lu
4	Jan 29	<b>Lecture:</b> GABA <sub>A</sub> receptor signaling + 1 paper presentation	Wei-Yang Lu
5	Feb 5	<b>Lecture review</b> 1 paper presentation	Wei-Yang Lu
6	Feb 12	<b>Midterm exam</b>	Wei-Yang Lu + Sina Ramezani Bajgiran
7	Feb 17-25	Reading Week (19 <sup>th</sup> – Family day)	
8	Feb 26	<b>Lecture:</b> Neuronal activity and cognition (1)	Julio Martinez-Trujillo
9	Mar 4	<b>Lecture:</b> Neuronal activity and cognition (2) 1 paper presentation	Julio Martinez-Trujillo
10	Mar 11	<b>Lecture review</b> 1 paper presentation	Julio Martinez-Trujillo
11	Mar 18	<b>Lecture:</b> Amyloid genesis and mechanisms of Alzheimer's disease (1)	Stephen Pasternak
12	Mar 25	<b>Lecture:</b> Amyloid genesis and mechanisms of Alzheimer's disease (2) 1 paper presentations	Stephen Pasternak
13	Apr 1	<b>Lecture review</b> 2* paper presentations	Stephen Pasternak
14	Apr 11 - 30	<b>Final examination</b> (date & time -TBA)	Martinez-Trujillo + Pasternak + Sina Ramezani Bajgiran

\*The numbers of paper presentations may change in accordance with the final number of enrolled students

## 7. Participation and Engagement



- Students are expected to participate and engage with all course contents
- Students can participate by interacting in the *forums* at OWL with their peers and instructors
- Students should take part in class discussions of lectures and presentation papers

## 8. Evaluation

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



Assessment	Format	Weighting	Due Date
Paper presentation	Oral presentation	15%	The scheduled day
Paper summary	Writing summary	5%	Send to the session instructor and TA via e-mail 7 days after paper presentation
Discussion leader	Paper discussant	3%	The scheduled day
Attendance	Attending classes	3%	Tracked weekly
Midterm exam	Short answer + essay	30%	February 12, 2024
Final exam	Short answer+ essay	44%	TBA

- The Paper Summary is due within 4 days after paper presentation, i.e., submitted before 5 PM, Friday of the presentation week.
- Written assignments will be submitted to Turnitin (statement in policies below).
- A student might not receive the same grade as their group members (presentation partners) if it is determined that the distribution of work was not equal.
- After an assessment mark is issued, students should wait 24 hours to digest feedback before contacting their evaluator; but must reach out within 7 days.
- Any grade appeals on midterm and/or final exam must be received **within 3 weeks** of the grade being posted.

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 submission without accommodation will be subject to a penalty 25%/day
- If the oral presentation is missed with accommodations, the weight will be shifted to the midterm exam evaluation or final exam evaluation, determined by the course manager.
- If more than 1 lecture is missed, then 0.5% will be deducted per each additional class time missed, from the 3% total for attendance.
- If the written paper summary or discussion leader work is missed, and if an available time slot remains, then this can be reassigned for timing. If no time slots remain, then this missed work will be shifted to the midterm exam evaluation or final exam evaluation, determined by the course manager.
- One makeup exam will be schedule for the midterm exam.
- The midterm exam and final exam must be passed to pass the course.
- If an exam and its makeup is missed with accommodations, then an INC will be reported, and the student will need to write either the midterm or final exam 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 are advised to check the OWL site every 24–48 hours
- Students should contact their instructor(s) and teaching assistant (TA) using email
- Emails to instructors and TA will be monitored daily and responded in 24–48 hours
- 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 in-person or remotely using Zoom when appropriate
- Office hours in each session will be arranged and announced by the session instructor
- Office hours should be booked by communicating with the instructor via e-mail.
- Office hours will be individual or group

## 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 Know Facebook group, Course Hero, Chegg, etc.)
- Recordings are not permitted (audio or video) without explicit permission
- Permitted recordings are not to be distributed
- Students are expected to be aware of issues of EDI (see <https://www.edi.uwo.ca/>)
- Students will be expected to take an academic integrity pledge before some assessments

### Free of harassment and discrimination

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' behavior that may be harassment or discrimination **must report the behavior** 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 based on 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 dealt with 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](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](#)