

## Department of Physiology and Pharmacology

### Cellular Molecular Neurobiology (Physiology 4680B)

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

#### 2. Important Dates:



Classes Resume	Reading Week	Classes End	Study day(s)	Exam Period
January 10	February 19–27	April 4	April 5-10	April 11–30

\* **Class time: Monday, 2:30 pm – 4:30 pm; Class location: DSB-3008**

\* 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. Wei-Yang Lu	<a href="mailto:wlu53@uwo.ca">wlu53@uwo.ca</a>

Instructor(s) or Teaching Assistant(s)	Contact Information
Instructor: Dr. Wei-Yang Lu	<a href="mailto:wlu53@uwo.ca">wlu53@uwo.ca</a>
Instructor: Dr. Julio Martinez-Trujillo	<a href="mailto:julio.martinez@robarts.ca">julio.martinez@robarts.ca</a>
Instructor: Dr. Stephen Pasternak	<a href="mailto:spasternak@robarts.ca">spasternak@robarts.ca</a>
Teaching Assistant: Oren Princz Lebel	<a href="mailto:oprinczl@uwo.ca">oprinczl@uwo.ca</a>

#### 4. Course Description and Design

**Delivery Mode:** in-person

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

**Anti-requisite:** None

Physiology 4680B is a 0.5-unit course. This exciting course focuses on the function of neuronal cells in the central nervous system. Topics taught by the three instructors/professors 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, **if possible** (Monday 2:30 – 4:30pm at DSB-3008). Lecture slides and presentation papers (PPT/PDF documents) will be posted on the course OWL site beforehand. These in-person live classes can also be participated via Zoom-classroom provided by the OWL site. In addition, these lectures and paper presentations will be recorded, and the relevant videos (MP4 files) could be posted on the OWL site if requested by most students in the class. Students may post question(s) regarding any course contents in the *Forum* on the OWL site. It would make the question be answered/discussed more rapidly if a reminding email sent to the professor from the student who posts questions.

Research papers that are directly related to lecture topics will be assigned by the instructor professor 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 via the OWL course site ~7 days prior to the time for presentation. Using PowerPoint, paper presentation will also be performed in-person (Monday 2:30 – 4:30pm at DSB-3008). Each paper presentation should be about 20-25 minutes, in which the objectives and background of the research, relevant experimental methodology and results, as well as a summary of observations and conclusions are to be introduced. Two presenters should contribute equally to the presentation especially on results and discussion. Attention should focus on the physiological mechanisms studied. Following the presentation, a question-and-answer discussion period of ~5-8 minutes will be moderated by a **Discussion Leaders**, with support from the sessional instructor/professor.

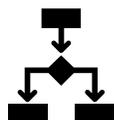
The presenters are required to submit to the sessional instructor/professor a written summary of the presentation paper within a week after their presentation. The summary should be less than 2 pages, containing hypothesis, objectives, brief methods, main results, and conclusions of the paper. The summary should be submitted as a **Word document** in case the professor needs to make necessary corrections.

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 marks for paper presentation (15%), a written summary of the presentation paper (5%), participation in paper discussion (5%), a midterm test (31%), and a final examination (44%). The midterm test and final examination will consist of essay and short-answer style questions.

### Course delivery with respect to the COVID-19 pandemic

Although the intent is for this course to be delivered in-person, the changing COVID-19 landscape may necessitate some or all the course to be delivered 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.



## Timetabled sessions

Component	Date(s)	Time
Lecture & Paper Presentation	Mondays	2:30 – 4:30 pm

- ✓ Attendance at all sessions is strongly encouraged.
- ✓ Absence of any timetabled sessions, particularly scheduled paper presentation, must be reported to the course professor as early as possible.
- ✓ Missed assignments should be reported to the professor and completed within 24 hours.

All course material will be posted to OWL: <https://owl.uwo.ca/portal>  
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 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 10	<b>Course introduction</b>	Wei-Yang Lu
2	Jan 17	<b>Lecture:</b> Glutamatergic synaptic transmission	
3	Jan 24	<b>Lecture:</b> Synaptic plasticity + Review	Wei-Yang Lu
4	Jan 31	<b>Lecture:</b> GABA <sub>A</sub> receptor signaling + <b>3<sup>#</sup></b> paper presentation	Wei-Yang Lu
5	Feb 7	<b>4<sup>#</sup></b> paper presentation	Wei-Yang Lu
6	<b>Feb 14</b>	<b>Midterm exam</b>	Wei-Yang Lu
7	Feb 21	<b>Reading week</b>	N/A
8	Feb 28	<b>Lecture:</b> Neuronal activity and cognition	Julio Martinez-Trujillo
9	Mar 7	<b>Lecture review</b> <b>3<sup>#</sup></b> paper presentation	Julio Martinez-Trujillo
10	Mar 14	<b>4<sup>#</sup></b> paper presentation	Julio Martinez-Trujillo
11	Mar 21	<b>Lecture:</b> Amyloidogenesis and mechanisms of Alzheimer's disease	Stephen Pasternak
12	Mar 28	<b>Lecture review</b> <b>3<sup>#</sup></b> paper presentations	Stephen Pasternak
13	Apr 4	<b>4<sup>#</sup></b> paper presentations	Stephen Pasternak
14	Apr 11 – 30	<b>Final examination (date &amp; time -TBA)</b>	Julio Martinez-Trujillo + Stephen Pasternak

# The numbers of paper presentations may change in response to the change in the number of enrolled students

## 7. Participation and Engagement



- Students are expected to participate and engage with all course contents
- 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	Weight	Due Date
Paper presentation	Oral presentation	15%	The scheduled day
Paper summary	Writing summary	5%	7 days after presentation
Participation / Discussion	Paper discussant	5%	The scheduled day
Midterm exam	Short answer + Essay	31%	* February 14, 2021
Final exam	Short answer + Essay	44%	TBA

\* This date is subject to change in response to changes in the University Calendar.



- All assignments must be completed and are due at 11:55 pm EST of the due date unless otherwise specified.
- Written assignments (paper summary) will be submitted to Turnitin twice when necessary (see policies below).
- A student may not receive the same grade as other group members (or partner) if it is determined that the distribution of work was not equal.
- Rubrics will be used to evaluate assessments/exams and will be provided when requested.
- Of *midterm* or *final examination*, students should wait for one or two weeks for having exam grade because it takes time for instructor(s) to grade each exam carefully.
- Students have one week to digest instructors' evaluation feedback of assignment/exam, and ensure a timely response, i.e., contacting with the related instructor(s)/professor(s) within 7 days after the release of the evaluation grades.

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. Make sure to read through the **Item-14 below**.

**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 submission of paper summary without self-reported absences or accommodation will be subject to a late penalty **50%/day**.
- Late submission of paper summary with self-reported absences or accommodation should be submitted within 24 hours of the end of the self-report or accommodation.
- Missing paper presentation assignment with self-reported absences or accommodation, the assessment will be adjusted to the final exam grade (e.g., presentation grade = final exam grade x 15%).
- Missing paper presentation assignment without self-reported absences or accommodation, the assessment will be weighed as 50% of the final exam grade (e.g., presentation grade = final exam grade x 15% x 50%).
- Missing midterm- or final exam with self-reported absences or accommodation, one make-up test will be offered. The course manager will announce the make-up date.
- Midterm and final exams cover different teaching materials. Therefore, **both midterm and final exams must be completed to pass the course**.
- One make-up assessment of midterm exam or final exam will be provided. **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.
- This course will use Forum of the OWL site for discussions.
- Students should post all course-related queries on the Forum so that everyone can access the questions and responses.
- Students should email their instructor(s) and teaching assistant(s) once a course-related question is posted on the Forum.
- Emails to instructors / professors will be monitored daily; students will receive a response in 24 – 48 hours.

### 10. Office Hours:



- Office hours will be held remotely using Zoom.**
- Date and time of office hours (group or individual) of each course session will be arranged by the instructor professor.

### 11. Resources



- All resources will be posted on the OWL site.
- Additional resources will be indicated when necessary.

## 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.
- 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.

## 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 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.

## 14. 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](mailto: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 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 attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).

## **Discovery Credit Statement**

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

## **Turnitin and other similarity review software**

All assignments will be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. Students will be able to view their results before the final submission. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western University and [Turnitin.com](#).

## **15. BMSUE Academic Policies and Statements**

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

The Schulich School of Medicine & Dentistry is committed to ensuring that testing and evaluation are undertaken fairly across all our departments and programs. For all tests and exams, it is the policy of the School that any electronic devices, i.e., cell phones, tablets, cameras, or iPod are strictly prohibited. These

devices **MUST** be left either at home or with the student's bag/jacket at the front of the room and **MUST NOT** be at the test/exam desk or in the individual's pocket. Any student found with one of these prohibited devices will receive a grade of zero on the test or exam. Non-programmable calculators are only allowed when indicated by the instructor. The program is not responsible for stolen/lost or broken devices.

### **Copyright and Audio/Video Recording Statement**

Course material produced by faculty is copyrighted and to reproduce this material for any purposes other than your own educational use contravenes Canadian Copyright Laws. You must always ask permission to record another individual and you should never share or distribute recordings.

### **Rounding of Marks Statement**

Across the Basic Medical Sciences Undergraduate Education programs, we strive to maintain high standards that reflect the effort that both students and faculty put into the teaching and learning experience during this course. All students will be treated equally and evaluated based only on their actual achievement. **Final grades** on this course, irrespective of the number of decimal places used in marking individual assignments and tests, will be calculated to one decimal place and rounded to the nearest integer, e.g., 74.4 becomes 74, and 74.5 becomes 75. Marks **WILL NOT** be bumped to the next grade or GPA, e.g., a 79 will **NOT** be bumped up to an 80, an 84 **WILL NOT** be bumped up to an 85, etc. The mark attained is the mark you achieved, and the mark assigned; requests for mark "bumping" will be denied.

## **16. Support Services**

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

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

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)