

The Department of Physiology and Pharmacology
Neurobiology of Aging – PhysPharm 4750

Course Outline for Fall 2026

This course takes place at Western University, which is located on the traditional territories of the Anishinaabek, Haudenosaunee, Lūnaapéewak, and Chonnonton Nations, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum.

Students who are in emotional and/or mental distress should refer to <https://www.uwo.ca/health/> for a complete list of options about how to obtain help.

1. Technical Requirements:



Stable internet connection



Laptop or computer



Working microphone



Working webcam

2. Important Dates:

Classes Begin	Reading Week	Classes End	Study day(s)	Exam Period
September 9	October 10–18	December 9	December 10	December 11–22

September 17, 2026	Last day to add or drop a Fall/Winter 24-week course or a Fall 12-week course. Courses dropped by this date will not appear on a transcript; no fee penalty.
September 30, 2026	National Day for Truth and Reconciliation; non-instructional day
November 30, 2026	Last day to withdraw from a Fall 12-week course resulting in a grade of 'WDN' (withdrawn, without academic penalty).

3. Contact Information

Course Coordinator & Instructor	Contact Information
Taylor W. Schmitz	tschmitz@uwo.ca

4. Course Description and Design

Delivery Mode: in-person

The neurobiology of aging is a rapidly growing field of research spanning the physiological mechanisms of brain resilience to aging and age-related neurodegenerative diseases, as well as clinical-pharmacological research aimed at slowing or preventing brain aging and neurodegenerative disease.

In this course, students will investigate the neurobiology of aging. Topics include causes of brain aging; comparing pathological versus normal brain aging; reviewing current models of origins and progression of diseases like Alzheimer's and Parkinson's; examining translational work in non-human models; and discuss the future of biomarkers and treatments for age related diseases.

Prerequisite(s): Either [Physiology 3120](#) or [Pharmacology 3620](#), and one of [Physiology 3140A](#) or [Biology 3316A/B](#) OR [Neuroscience 2000](#) and [Physiology 3140A](#) and registration in [Year 4 of an Honours Specialization in Neuroscience](#).

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Timetabled Sessions

Component	Date(s)	Time
Lectures and Seminars	Thursdays	9:30 AM – 11:20 AM

- ☒ Attendance at seminar sessions is required to complete assigned Presenter and Evaluator responsibilities.
- ☒ Missed assessments are handled according to the academic consideration and missed work policies in Section 8.

All course material will be posted to OWL Brightspace: <https://westernu.brightspace.com/d2l/login>. Any changes will be indicated on the OWL Brightspace site and discussed with the class.

If students need assistance, they can seek support on the [OWL Brightspace Help](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

Current versions of all popular browsers (e.g., Safari, Chrome, Edge, Firefox) are supported with OWL Brightspace; what is most important is that you update your browser frequently to ensure it is current. All JavaScript and cookies should be enabled.

5. Learning Outcomes

Upon successful completion of this course, students will be able to:

- Understand and explain:
 - Current theories on the neurobiological basis of Alzheimer's and Parkinson's disease
 - Cross-species translational strategies for studying age-related neurological diseases
 - Principles of biomarker development and evaluation
 - Current and next generation treatment options for age-related neurological diseases
- Critically evaluate scientific data from primary research papers
- Give an oral scientific presentation
- Develop, debate and field scientific questions

6. Course Content and Schedule

Week	Dates	Topic	Instructor
1	Sept 10	Neurobiology of aging: mechanisms, resilience and vulnerability	TW Schmitz
2	Sept 17	Seminar 1: Mechanisms of brain aging and resilience	TW Schmitz
3	Sept 24	Alzheimer's and Parkinson's disease	TW Schmitz
4	Oct 1	Seminar 2: Alzheimer's disease	TW Schmitz
5	Oct 8	Seminar 3: Parkinson's disease	TW Schmitz
6	Oct 15	Reading Week (starts October 10th 12:01 AM)	N/A
7	Oct 22	Midterm exam (in class)	TW Schmitz
8	Oct 29	Translational models of age-related neurological disease	TW Schmitz
9	Nov 5	Seminar 4: Translational models	TW Schmitz
10	Nov 12	Biomarkers for age-related neurological disease	TW Schmitz
11	Nov 19	Seminar 5: Biomarkers	TW Schmitz
12	Nov 26	Treatment strategies for age-related neurological disease	TW Schmitz
13	Dec 3	Seminar 6: Treatment strategies and future directions	TW Schmitz
14	Dec 10	Study Day	N/A

7. Participation and Engagement

- ✓ Seminars are active, in-person sessions organized around the scientific themes introduced in the preceding lectures. At each seminar, up to 15 students will present and all non-presenting students will serve as Evaluators.
- ✓ Each student will present twice during the semester: once for Module 1 (Summary) and once for Module 2 (Strengths/Weaknesses/Context).
- ✓ Presenters do not complete peer evaluations on their presentation days; instead, they are expected to respond to questions and help guide the scientific discussion.
- ✓ On the four seminars in which they are not presenting, students serve as Evaluators and must submit a complete, good-faith set of rubric-based evaluations for all presentations assigned that day. Presentation grades will be informed by the aggregate peer-evaluator ratings using a standardized rubric and will be reviewed and moderated by the course instructor.

8. Assessment and Evaluation

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

Assessment	Format	Weighting	Due Date	Flexibility
Module 1: Summary	Individual oral presentation	18%	Assigned seminar date	See missed work policy
Module 2: Strengths / Weaknesses / Context	Individual oral presentation	18%	Assigned seminar date	See missed work policy
Seminar peer evaluation	Rubric-based peer evaluation	4% (4 x 1%)	Four assigned evaluator seminars	See missed work policy
Midterm: Covering weeks 1-5	Written	25%	In class: Oct 22	Not applicable
Final: Covering post-midterm course material	Written	35%	Final Exam: Dec 11-22	Not applicable

Seminar format: Six seminar sessions will be held during the term. Each student will complete one Module 1 presentation and one Module 2 presentation. Presentations will follow strict time limits provided in the seminar instructions. Non-presenting students serve as Evaluators; each completed evaluator seminar is worth 1 mark, for 4 marks total across four seminars.

Designated Assessment: Instructors are permitted to designate one assessment per course per term as requiring supporting documentation to receive academic consideration. See below for information on academic consideration policy and missed course work. For this course, the Midterm has been designated as requiring supporting documentation. Supporting documentation is also required for the Final Examination in accordance with University policy for examinations scheduled by the Office of the Registrar:

- Midterm: Supporting documentation required within 48 hours after the Midterm exam date
- Final Exam: Supporting documentation required within 48 hours after the Final exam date (University policy for examinations scheduled by the Office of the Registrar)

General information about assessments

- ☒ Rubrics will be used to evaluate assessments and will be posted with the instructions
- ☒ Presentation grades will be informed by the mean of the peer-evaluator ratings submitted using the posted rubric and will be reviewed and moderated by the course instructor.
- ☒ After an assessment is returned, students should wait 24 hours to digest feedback before contacting the TA about their evaluation marks; to ensure a timely response, reach out within 7 days
- ☒ Assessment re-grading could result in the mark, increasing, decreasing, or remaining the same
- ☒ Prior to the filing of a written request for relief, students must attempt to resolve the concern regarding a mark or grade through informal consultation with the instructor. If the student is dissatisfied with the decision of the instructor or does not receive a decision from the instructor, a written request for relief must be submitted to the Department Chair within three (3) weeks from the date that the mark was issued.

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 assessments:

- ☒ Seminar peer evaluation: Each of the four evaluator seminars is worth 1 marks. Full marks require a complete, good-faith set of evaluations for all presentations assigned that day, submitted by the end of the seminar. A missing or incomplete set receives 0/1 unless academic consideration is granted. With approved academic consideration, the missed seminar-evaluation weight will be reweighted across the remaining completed evaluator seminars.

- ☒ One make-up test will be offered for the midterm. The date is TBD. Note that the makeup exams will pose different questions and problem sets from the original versions.
- ☒ Make-up assessments may be a different format than the original assessment
- ☒ Seminar presentations: Students who miss an assigned Module 1 or Module 2 presentation due to an approved academic consideration must contact the instructor immediately. An alternate presentation opportunity or equivalent oral assessment will be arranged where feasible.
- ☒ Both seminar presentations (Module 1 and Module 2), the midterm, and the final exam must be completed to pass the course. If one of these required components is not completed, the student may receive an INC on their transcript and complete it the next time the course is offered (see next point).
- ☒ Only one special examination (see below) will be offered in January

INC (Incomplete Standing): If a student has been approved by the Academic Advising Office (in consultation with the instructor/department) to complete term work at a later date, an INC will be assigned, which could impact program progression. 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 Advising 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 Advising 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 for the final exam, the student will write the exam the next time the course is offered, which could impact program progression. Outstanding SPCs will reduce the course load for the term the exam is deferred as outlined in [Definitions of Types of Examinations](#) policy. If a student misses an SPC exam and is approved for academic consideration, they will be withdrawn from the course without academic penalty. If a student misses an SPC exam and is not approved for academic consideration, they will receive a grade of zero on the exam.

9. Communication

- ☒ Students should check the OWL Brightspace site every 24–48 hours
- ☒ Students should email their instructor using email
- ☒ Emails will be monitored daily; students will receive a response in 24–48 hours
- ☒ This course will use discussions on Brightspace
- ☒ 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
- ☒ Office hours will be booked in advance
- ☒ Office hours will be individual or group

11. Course Materials

- ☒ All resources will be posted on OWL Brightspace

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/upload (e.g., Must Knows Facebook group, Course Hero, Chegg, ChatGPT, 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 Brightspace to ensure you have seen everything posted to help you succeed in this class.
3. Follow checklists created on OWL Brightspace 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/Procedures and Statements

A. Absence from Course Commitments

Medical, Compassionate, or Extenuating Circumstances

Students missing course work for medical, compassionate, or extenuating circumstances can request academic consideration by completing a request at the [Student Absence Portal](#).

Students are permitted one academic consideration request per course per term **without** supporting documentation. Note that supporting documentation is **always** required for academic consideration requests for examinations scheduled by the office of the registrar (e.g., December and April exams) and for practical laboratory and performance tests (typically scheduled during the last week of the term).

Students should also note that the instructor may **designate** one assessment per course per term that requires supporting documentation. This designated assessment is described elsewhere in this document. Academic consideration requests may be denied when flexibility in assessment has already been included. Examples of flexibility in assessment include when there are assessments not required for calculation of the final grade (e.g. 8 out of 10 quizzes) or there is flexibility in the submission timeframe (e.g. 72 hour no late penalty period).

Please note that any academic considerations granted in this course will be determined by the instructor of this course, in consultation with the academic advisors in your Faculty of Registration, in accordance with information presented in this course syllabus. Supporting documentation for academic considerations for absences due to illness should use the Student Medical Certificate or, where that is not possible, equivalent documentation by a health care practitioner.

Policy: [Academic Consideration – Undergraduate Students in First Entry Programs](#)
Procedures: [Student Medical Certificate](#)

Religious Holidays

Students should review the policy for Accommodation for Religious Holidays (Appendix 1). Where a student will be unable to write examinations and term tests due to a conflicting religious holiday, they should inform their instructors as soon as possible but not later than two weeks prior to writing the examination/term test. In the case of conflict with a midterm test, students should inform their instructor as soon as possible but not later than one week prior to the midterm.

Policy: [Accommodation for Religious Holidays](#)

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.

Policy: [Definitions of Types of Examinations](#)

B. Academic Appeals and Scholastic Offenses

Students can file a **request for relief from academic decisions** if the request is based on one or more grounds listed in the policy. Requests for relief generally fall into three categories, which are also listed in the policy. All requests for relief must be supported by evidence. A request for

relief from academic decisions process was formally referred to as an appeal. Refer to the policy and procedures about further details and timelines.

Policy: [Requests for Relief from Academic Decisions](#)

Procedures: [Undergraduate Student Academic Requests for Relief](#)

Scholastic offences are taken seriously, and students are directed to read the appropriate policy, specifically, the definition of what constitutes a scholastic offence.

Policy: [Scholastic Offences](#)

Procedures: [Undergraduate Scholastic Offences](#)

Students may **appeal** some academic and scholastic disciplinary decisions by a Dean or their designate, to the Senate Review Board Academic (SRBA).

Policy: [Senate Review Board Academic Appeals](#)

Procedures: [Senate Review Board Academic Appeals](#)

C. 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.

Policy: [Academic Accommodation for Students with Disabilities](#)

D. 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.

E. 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.

Policy: [Undergraduate Course Credit](#)

Procedures: [Discovery Credits](#)

F. Statement on the Use of Electronic Devices

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.

G. Statement on the Use of Generative Artificial Intelligence (AI)

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

A. 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 and this will be documented as a Scholastic Offence. Non-programmable calculators are only allowed when indicated by the instructor. The program is not responsible for stolen/lost or broken devices.

B. Copyright and Audio/Video Recording Statement

Course materials produced by faculty are 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.

C. 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** in this course are rounded to the nearest whole number based on the first decimal place. For example, a grade of 74.49 or lower will be rounded to 74, whereas 74.50 or higher will be rounded to 75.

Marks **WILL NOT** be arbitrarily increased to the next grade or GPA, e.g., a 79 will **NOT** be increased to an 80, and 84 **WILL NOT** be increased to an 85, etc. The mark attained is the mark you achieved, and the mark assigned; requests for arbitrary mark increasing will be denied.

Marks will be assigned based on assessments in the syllabus and no extra work or tasks will be assigned to increase a mark.

Course grade rounding provisions, as described above, differ from cumulative and term averages. Cumulative and term averages will be calculated to two decimal places and rounded to the nearest whole number with .45 rounded up, for the purposes of admission to and progression in modules, scholarship retention, and Dean's Honour List.

Policy: [Marks/Grades; Definitions of Grades; Grading Scale for Undergraduate Students](#)

16. Support Services

Students who are in emotional/mental distress should refer to Mental Health @Western <https://www.uwo.ca/health/> for a complete list of options about how to obtain help.

Statement on Gender-Based and Sexual Violence

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 the following website:

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.

Other important links:

- [Academic Advising \(Science and Basic Medical Sciences\)](#)
- [Learning Development and Success](#)
- [Office of the Registrar](#)
- [Wellness & Wellbeing](#)
- [Western USC Services](#)

Appendix 1: Western University Academic Policies and Procedures

The policies and procedures listed in this syllabus are outlined in the table below. In some cases, a policy does not include an accompanied procedures document.

Academic Policy	Name of Policy/Procedure	Links
General Policy	Marks/Grades; Definitions of Grades; Grading Scale for Undergraduate Students	Policy
General Policy	Structure of the Academic Year	Policy
Registration, Progression, Graduation	Course Numbering Policy, Essay Courses, and Hours of Instruction	Policy
Registration, Progression, Graduation	Undergraduate Course Credit	Policy • Procedures
Examinations	Definitions of Types of Examinations	Policy
Examinations	Evaluation of Academic Performance	Policy
Examinations	Examination Conflicts	Policy

Rights and Responsibilities	Academic Accommodation for Students with Disabilities	Policy
Rights and Responsibilities	Accommodation for Religious Holidays	Policy
Rights and Responsibilities	Policy on Academic Consideration – Undergraduate Students in First Entry Programs	Policy • Procedures
Rights and Responsibilities	Requests for Relief from Academic Decisions (Undergraduate)	Policy • Procedures
Rights and Responsibilities	Requests for Relief from Academic Decisions (Graduate)	Policy • Procedures
Rights and Responsibilities	Scholastic Offences (Undergraduate)	Policy • Procedures
Rights and Responsibilities	Senate Review Board Academic Appeals	Policy • Procedures