

Department of Physiology and Pharmacology
Physiology and Pharmacology 4985E: Research Project

Course Outline for Fall 2026/Winter 2027

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

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 30, 2026: National Day for Truth and Reconciliation; non-instructional day

September 17, 2026: Last day to add or drop a Fall/Winter 24-week course

Classes Begin	Reading Week	Classes End	Study day(s)	Exam Period
January 4	February 13–21	April 9	April 10, 11	April 12–30

February 1, 2027: Last day to withdraw from a Fall/Winter 24-week course without academic penalty

3. Contact Information

Course Coordinator	Contact Information
Christine Bell	cwitche@uwo.ca

Teaching Assistant(s)	Contact Information
Elizabeth Cui	ecui3@uwo.ca
Joana Pinto	jribeir7@uwo.ca
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4. Course Description and Design

Delivery Mode: in-person

A major research project in Physiology or Pharmacology which emphasizes experimental design, instrumentation, data collection and analyses, and communication of experimental results by written, oral, and poster presentations. Students will select a research project from options provided by the department and be matched to a supervisor.

Antirequisite(s): [Anatomy and Cell Biology 4985E](#), [Biochemistry 4484E](#), [Biochemistry 4985E](#), [Epidemiology and Biostatistics 4900E](#), [Epidemiology and Biostatistics 4985E](#), [Medical Bioinformatics 4985E](#), [Medical Biophysics 4985E](#), [Medical Sciences 4990E](#), [Microbiology and Immunology 4985E](#), [One Health 4985E](#), [Pathology 4985E](#), the former Anatomy and Cell Biology 4480E, the former Biochemistry 4483E, the former Chemical Biology 4500E, the former Medical Bioinformatics 4980E, the former Medical Biophysics 4970E, the former Medical Biophysics 4971E, the former Microbiology and Immunology 4970E, the former One Health 4980E, the former Pathology 4980E, the former Physiology and Pharmacology 4980E.

Prerequisite(s): [Physiology and Pharmacology 3000E](#), [Physiology 3120](#), and [Physiology 3140A](#); and registration in Year 4 of an Honours Specialization offered by the Department of Physiology and Pharmacology. **Corequisite(s):** [Physiology and Pharmacology 4986Y](#).

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
Interviews with project supervisors	September 11, 2026	1:00 – 3:00 PM
Check-in Meeting (optional) by appointment with one of the TAs	October 19 to November 6, 2026	By Appointment
Research update oral presentations	November 23 and 30, 2026	9:30 – 11:30 AM
Poster presentations	March 29, 2027	9:30 – 11:30 AM or 1:30 – 3:30 PM

☒ Attendance at sessions is required

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:

- Work independently and collaboratively on a project in a specific area of physiology, or pharmacology, or physiology/pharmacology education-related research, where the project includes a substantial literature review, along with experimental design, data collection, analysis, and interpretation of results
- Critically appraise collected data to evaluate a hypothesis or objective and construct an appropriate conclusion
- Effectively communicate a research project in an oral presentation and a poster format to both experts and non-experts in the field
- Write a comprehensive report in a thesis-style format to share all findings of the research project

6. Course Content and Schedule

Fall Schedule

Week	Dates	Activities
1	Sept 9–13	Interviews with project supervisors (Sept 11)
2	Sept 14–20	
3	Sept 21–27	
4	Sept 28–Oct 4	
5	Oct 5–11	
6	Oct 12–18	Reading Week (starts October 10 th 12:01 AM)
7	Oct 19–25	
8	Oct 26–Nov 1	
9	Nov 2–8	
10	Nov 9–15	
11	Nov 16–22	
12	Nov 23–29	Research update oral presentations
13	Nov 30–Dec 6	Research update oral presentations
14	Dec 7–9	

Winter Schedule

Week	Dates	Activities
1	Jan 4–10	
2	Jan 11–17	
3	Jan 18–24	
4	Jan 25–Jan 31	
5	Feb 1–7	
6	Feb 8–14	
7	Feb 15–21	Reading Week (starts February 13 th 12:01 AM)
8	Feb 22–Feb28	
9	Mar 1–7	
10	Mar 8–14	
11	Mar 15–21	

12	Mar 22–28	
13	Mar 29–Apr 4	Poster Presentation (March 29)
14	Apr 5–11	

7. Participation and Engagement

- ☒ Students are expected to participate and engage in the research experience as much as possible, this includes engagement with peers during oral and poster presentation sessions
- ☒ Students are expected to work **15 hours/week** on their research project

8. Assessment and Evaluation

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

Assessment	Format	Weighting	Due Date	Flexibility
Research proposal	Written	10%	Oct 23, 11:59 PM	72-hour no late penalty
Research update	Visual and oral presentation	15%	One of November 23 or 30 at individually designated time	Not applicable – designated assessment
Literature review	Written	15%	January 25, 11:59 PM	72-hour no late penalty
Poster	Visual/written and oral presentation	15%	March 29, 9:30–11:30 AM or 1:30– 3:30 PM	Not applicable – designated assessment
Thesis	Written	35%	Apr 5, 11:59 PM	72-hour no late penalty
Project Engagement and Contribution	Grade submitted by supervisor at end of each term	10% (2x5%)	Dec 7, Apr 5	Not applicable

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 following assessments have been designated as requiring supporting documentation:

- Research update oral presentation
- Poster Presentation

Information about flexibility in assessment

- ☒ Flexibility in assessment has been applied to this course; therefore, academic consideration requests may be denied on the assessments where flexibility is included
- ☒ Where flexibility is indicated, no late penalty will apply for written assignments (Research proposal and Thesis) submitted within 72 hours of the deadline;

General information about assessments

- ☒ All assignments are due at 11:59 PM EST unless otherwise specified
- ☒ Students are responsible for ensuring that the correct file version is uploaded; incorrect submissions including corrupt files could be subject to late penalties (see below) or a 0
- ☒ Written assignments will be submitted to Turnitin (statement in policies below)
- ☒ Students will have unlimited 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

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:

- ☒ Late assessments without academic consideration will be subject to a late penalty of **15%/day**
- ☒ An assessment cannot be submitted after it has been returned to the class; an alternate assessment will be assigned
- ☒ For the Poster, an alternate presentation format will be determined

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.

9. Communication

- ☒ Students should check the OWL Brightspace site every 24–48 hours
- ☒ Students should email their instructor(s) and teaching assistant(s) 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 with Dr. Bell are by appointment, either in-person or on zoom, depending on what the student would prefer.

11. Course Materials

- ☒ All resources will be posted on OWL Brightspace
- ☒ Student may be required to purchase lab books.

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

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. Ask for clarification when needed.
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](#)

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. Essay Course Guidelines

The guidelines for the minimum written assignments refer to the cumulative amount of written work, including examinations. An essay course must normally involve total written assignments (essays or other appropriate prose composition) as follows:

- Full course (1000 to 1999): at least 3000 words
- Half course (1000 to 1999): at least 1500 words
- Full course (2000 and above): at least 5000 words
- Half course (2000 and above): at least 2500 words

and must be so structured that the student is required to demonstrate competence in essay writing to pass the course. The structure of the essay course must be such that in order to pass the course, the student must exhibit some minimal level of competence in essay writing and the appropriate level of knowledge of the content of the course.

Policy: [Course Numbering Policy, Essay Courses, and Hours of Instruction](#)

G. Statement on the Use of Electronic Devices

N/A

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

Please discuss with your supervisor what is considered appropriate use of GenAI within the scope of your project. As a guiding principle, within this course, students are permitted to use AI tools 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.

I. Turnitin and other similarity review software

All required papers may 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](https://turnitin.com).

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