PATHOLOGY AND LABORATORY MEDICINE
PATHOL 4985E
APPLIED PATHOLOGY RESEARCH

Fall 2025 / Winter 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.

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1. TECHNICAL REQUIREMENTS

Stable internet connection   Laptop or computer

Culminating capstone experience in PATHOL 4985E will require a mix of in-person research activities and access to internet connection and a computer.

2. IMPORTANT DATES

2.1 Fall 2025

Classes Begin	Reading Week	Classes End	Study day(s)	Exam Period
September 4	November 3–9	December 9	December 10	December 11–22

September 30, 2025: National Day for Truth and Reconciliation; non-instructional day
September 12, 2025: Last day to add or drop a Fall/Winter 24-week course

2.2 Winter 2026

Classes Begin	Reading Week	Classes End	Study day(s)	Exam Period
January 5	February 14–22	April 9	April 10, 11	April 12–30

January 30, 2026: Last day to withdraw from a Fall/Winter 24-week course without academic penalty

3. CONTACT INFORMATION

Instructor(s) and Teaching Assistant(s)	Contact Information
Dr. Zia A. Khan (Coordinator and Instructor)	_____
	_____

4. COURSE DESCRIPTION, DESIGN, AND DELIVERY

4.1 Course delivery mode: N/A

4.2 Research activities: IN-PERSON / MIXED

4.3 Course description: A major research project in pathology emphasizing study design, data collection and analyses, and interpretation of results. Students select a project from a list provided by the department and are matched to a supervisor in a wet-, clinical-, or dry-laboratory, fostering a comprehensive understanding of investigative methods in pathology.

4.4 Prerequisite(s): Pathology 3500 with a mark of at least 70% and registration in Year 4 of the Honours Specialization in Pathology, the Honours Specialization in Biochemistry and Pathology of Human Disease, or the Honours Specialization in Microbiology and Immunology with Pathology.
4.5 Corequisite(s): Pathology 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.

4.6 Timetabled Sessions

Component	Date(s)	Time
Research activities	Varies	Varies

- ☑ Participation in research activities is required.
- ☑ Research activities may include in-person, remote, or blended work.
- ☑ Dates and times for research activities are scheduled in consultation with the research supervisor.

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:

☐ Critically evaluate and synthesize scientific literature to identify knowledge gaps, forming novel research questions or hypotheses;
☐ Design the research study, including appropriate methodologies for data collection, management, and analyses;
☐ Collect and analyze data, assess its quality, and interpret results with consideration of their strengths and limitations;
☐ Effectively share findings and insights from self-generated work through dissemination of knowledge, contributing to the scientific community and advancing understanding in the field of Pathology;
☐ Apply critical thinking to critique scientific knowledge, including self-generated work, through reasoned arguments and analysis.

6. COURSE CONTENT AND SCHEDULE

In this culminating capstone course, learners assume full ownership of their scholarly inquiry; there are no timetabled course sessions to attend. Instead, the content emerges directly from each student's selected research topic, allowing for a highly tailored academic journey. Research supervisor(s) provide essential reading materials and expert guidance to enrich the investigation including project milestones.

Deadlines for course assessments, anchored in the individual research projects, is provided below.

7. PARTICIPATION AND ENGAGEMENT

☑ Students are expected to participate and engage in research activities as much as possible.
☑ Students are required to dedicate at least 15 hours per week to research activities. This time does not include research-related readings or preparation of written assignments.

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	25	December 17, 20025	short no-late-penalty
Research Abstract	Written	10	February - March	Not applicable
Final Research Report (i.e. thesis)	Written	45	April 15, 2026	short no-late-penalty
Research competency	N/A	20	April	Not applicable

[supervisor's assessment of research competency]				

*8.1 Information about flexibility in assessment
- ☑ Research Proposals and Final Research Reports may be submitted within 72 hours of the original deadline without late penalty. However, it is critical for students to understand that a short no-late-penalty period does **not** extend the original deadline.
- ☑ If extenuating circumstances arise after the original deadline, academic consideration may not be granted beyond the no-late-penalty period.
- ☑ Beyond the 72-hour no-late-penalty period, late assessments without supporting documents or academic consideration will be subject to 10% penalty/day.
- ☑ Research competency is evaluated by research supervisor(s). Flexibility in assessment does not apply.

8.2 General information about assessments
- ☑ All assignments are due at 11:55 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.
- ☑ 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.
- ☑ 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

8.3 Information about late or missed assessments:
- ☑ Late assessments without academic consideration will be subject to a late penalty of 10%/ day.
- ☑ Late assessments with approved accommodation consideration should be submitted within 24 hours of the end of the consideration period.

☑ The written Research Proposal and Final Research Report must be completed to pass the course, in the absence of these elements, an INC will be recorded as the course grade.

8.4 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.

8.5 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 or the student misses the makeup for the final exam for reasons approved by the Academic Advising Office, 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.

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; students will receive a response in 24-48 hours.

10. OFFICE HOURS
☑ Office hours may be for individual meetings or a group meeting.
☑ Office hours may be scheduled by emailing the instructor.

11. COURSE MATERIALS
☑ All resources will be posted on OWL Brightspace.

12. PROFESSIONALISM AND 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/uploaded.
☑ 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 COURSE

Students enrolled in this class should understand the level of autonomy and self-discipline required to be successful.

- ☐ 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.
- ☐ Make it a daily habit to log onto OWL Brightspace to ensure you have seen everything posted to help you succeed in this class.
- ☐ Follow checklists created on OWL Brightspace or create your own to help you stay on track.
- ☐ 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.
- ☐ Connect with others. Try forming an online study group and try meeting on a weekly basis for study and peer support.
- ☐ 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).
- ☐ 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 and Research Commitments
Medical, Compassionate, or Extenuating Circumstances
Students missing course work, including research activities, for medical, compassionate, or extenuating circumstances can request academic consideration by completing a request at the central academic consideration 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. 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
Electronic devices including tablets and laptops may be used for capstone research-related purposes, upon agreement with and approval of the research supervisor(s).

H. Statement on the Use of Generative Artificial Intelligence (AI)
Artificial intelligence (AI) language models, such as ChatGPT, and online assignment help tools, such as Chegg, are examples of online learning support platforms. While these tools have a place in biomedical and health research and education, students are responsible for writing and preparing their assignments themselves. This is a question of research integrity, with matters related to plagiarism. AI-enabled research-writing tools are imperfect, amplify biases and should not be depended on to craft course assignments.

The online learning support platforms cannot be used for course assignments, except as for the following:

- ☐ Using AI language models and online assignment help tools to brainstorm ideas for written assignments;
- ☐ Using AI language models and online assignment help tools to summarize source materials;
- ☐ Submitting your *own* work for this class to an online learning support platform for iteration or improvement;

If you are in doubt as to whether you are using an online language model or learning support platform appropriately in this course, discuss your situation with the course coordinators.

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](#).

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

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](#)

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