

## Microbiology & Immunology MicroImm3610F – Microbiology Laboratory

Course Syllabus for Fall 2024



Western University is committed to a **thriving campus**; therefore, your health and wellness matter to us! The following link provides information about the resources available on and off campus to support students: <https://www.uwo.ca/health/> Your course coordinator can also **guide you** to resources and/or services should you need them.

### 1. Land Acknowledgment

The University of Western Ontario resides on the traditional lands of Indigenous nations belonging to the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples. During MicroImm 3610 we will explore the microbial community present in these lands. We recognize that there are historical and ongoing injustices that Indigenous Peoples endure in Canada, and we accept responsibility as students, professors and as a public institution to contribute toward renewing respectful relationships with our Indigenous communities through our teaching, research, and community service.

### 2. Technical Requirements:



Internet connection



Laptop or computer



Lab Coat



Safety Glasses

### 3. Important Dates:



Classes Begin	Reading Week	Classes End	Study day(s)	Exam Period
September 5	October 12–20	December 6	December 7–8	December 9–22

September 30, 2024, is National Day for Truth and Reconciliation and is a non-instructional day  
December 2, 2024: Last day to withdraw from a first-term half course without academic penalty

### 4. Contact Information

Course Coordinator	Contact Information

Instructor(s) or Teaching Assistant(s)	Contact Information

## 5. Course Description and Design

**Delivery Mode:** in-person

Laboratory techniques used in the broad discipline of microbiology, including bacteriology and virology. Laboratory exercises include the staining, biochemical characteristics and identification of live bacteria, plus genetic techniques used to study microorganisms. This course runs parallel to, and applies basic principles acquired in, Microbiology and Immunology 3100A.

**Prerequisites:** Biochemistry 2280A with a mark of at least 65%; Biology 2581A/B; Chemistry 2213A and Chemistry 2223B with marks of at least 60% in each; Microbiology and Immunology 2500A/B with a mark of at least 60%.

**Pre- or Co-requisites:** Microbiology and Immunology 3400A or the former Microbiology and Immunology 3100A. It is recommended, but not required, that Biochemistry 3381A be taken previously or concurrently.

### Timetabled Sessions

Component	Date(s)	Time
Lectures		
Lab		

- Attendance of lectures and labs sessions are required
- Missed work should be completed within 74 hours, see assignment flexibility section (below) for details
- Closed captioning will be provided on video recordings

All course material will be posted to OWL: <https://westernu.brightspace.com/d2l/login>. 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 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.

## 6. Learning Outcomes

The primary purpose of this course is to familiarize students with basic scientific communication skills, and with the proper design, data collection, analysis, and presentation of data produced by scientific experiments. Students will also become familiar with common laboratory methods used for microbiology research, clinical testing, and for industrial use.

- Students are expected to attend all lectures and labs.
- Students may need to view on-line videos prior to each lecture and lab.
- Prior to each lab, student must read the corresponding section of the lab manual.
- Over the course, students will develop a working knowledge of the microbiological techniques taught in lab, an ability to properly prepare a written scientific document, and learn the proper methods for data collection, analysis and presentation.

## 8. Course Content and Schedule

Week	Dates	Topic	Instructor
1	Sept 5–8	Virtual/independent WHIMIS and biosafety (from H&S), ethics + lab math + partner request survey.	Self-Directed
2	Sept 9–15	<i>Lecture:</i> Course Overview & Your Lab Pet <i>Lab:</i> Introduction to Common Microbiological Techniques	
3	Sept 16–22	<i>Lecture:</i> Media, the uniqueness of microorganisms, and contamination control <i>Lab:</i> Aseptic techniques and basic microscopy	
4	Sept 23–29	<i>Lecture:</i> Introduction to microscopy and image processing <i>Lab:</i> Advanced microscopy	
5	Sept 30–Oct 6	<i>Lecture:</i> Bacterial identification (video lecture)* <i>Lab:</i> Bacterial Identification	
6	Oct 7–13	<i>Lecture:</i> Statistics Part I <i>Lab:</i> Probiotics and food safety	
7	Oct 14–20	<b>Reading Week (starts October 12<sup>th</sup>)</b>	
8	Oct 21–Oct 27	<i>Lecture:</i> Analysis of 16S sequencing and introduction to cloning <i>Lab:</i> Biotechnology I	
9	Oct 28–Nov 3	<i>Lecture:</i> Statistics Part II <i>Lab:</i> Clinical & Environmental Microbiology	
10	Nov 4–10	<i>Lecture:</i> In-Lecture Computational Skills Assessment <i>Lab:</i> Biotechnology II	
11	Nov 11–17	<i>Lecture:</i> Test Digests and Technical Writing <i>Lab:</i> Biotechnology III	
12	Nov 18–24	<i>Lecture:</i> Protein Purification <i>Lab:</i> Biotechnology IV	
13	Nov 25–Dec 1	<i>Lecture:</i> Enzymology and the Beer-Lambert Law <i>Lab:</i> Biotechnology V	
14	Dec 2–6	<i>Lecture:</i> 4P Self Assessment and Course Wrap-up <i>Lab:</i> Elevator Pitches	

\* This lecture falls on Truth and Reconciliation Day. As this is a non-instructional day, a short video lecture covering key concepts will be provided in lieu of a conventional lecture.

## 9. Participation and Engagement

- Students are expected to work in small groups in the lecture and lab sessions.
- Students will be expected to lead a small group in-lecture at least once during the course.
- Students can also participate by interacting with their peers and instructors.

## 10. Assessment and Evaluation

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

Assessment	Format	Weighting	Due Date	Flexibility
4P's: Preparedness, Professionalism, Participation & Performance	Various	10%		Standard flexibility process applies to self-assessments (see next page)
Biosafety, Ethics, and Lab Math Modules	On-Line Modules	Pass/Fail		Must be completed before the start of first lab.  Students who do not complete these on-time cannot continue with the course.
Short Lab reports	Worksheets	30%		Standard flexibility process (see next page)
Statistics Assignment	Worksheet	10%		Standard flexibility process (see next page)
Computational Skills Assessment	In-Lecture Computer Assignment	10%		Designated Assessment
Biotechnology Portfolio	1 - Executive summary 2 - Elevator Pitch 3 - Technical Report 4 - Lay Report	40%		Standard flexibility process (see next page)

**Designated Assessment:** The following assessment has been designated as requiring supporting documentation:

- Computational Skills Assessment, conducted in-lecture on Monday November 4, 2024.

## 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
- All assignments except for the designated assignment and safety modules have a 72-hour grace period that a student can utilize if required. To use this grace period a student must e-mail The instructor no later than 4:00 PM the day of the deadline. In this email:
  - Select a reasonable new deadline within 72 hours of the initial deadline. *Do not propose a full 72-hour delay unless that delay is justified.*
  - Turn-in their assignment at or before the new deadline.
- Important Notes About Flexibility:
  - Failure to provide sufficient notification, or excess use, may impact 4P grade.
  - Extensions of more than 72 hours require you receive an accommodation from an academic counselor. Note that this extension must start at the original deadline for the assignment.
  - If you miss the new deadline, you will receive a grade of 0% on the assignment.
- The biosafety, Ethics, and Lab Math Modules are not graded, but are required to proceed in the course. As these are required for students to work safely in the lab, they must be completed prior to the students first lab. Students will not be permitted into the lab if these are not completed, and cannot continue in the course.

## 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)
- 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
- 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
- Any grade appeals must be received within 3 weeks of the grade being posted.
- 15% of your course grade will be evaluated and returned 3 days prior to the drop deadline (statement in policies below).
- The biosafety, ethics, and lab math modules, as well as all parts of the Biotechnology Portfolio must be completed to pass the course. Students will not be allowed to advance in the course if the biosafety, ethics and lab math modules are not completed on-time. If you do not complete the Biotechnology Portfolio, you cannot pass the course.
- If a student has been approved by the Academic Counselling Office (in consultation with the instructor/department) to complete term work at a later date, an INC will be assigned. Students with INC will have their course load in subsequent terms reduced to allow them to complete outstanding course work. Students may request permission from Academic Counselling to carry a full course load for the term the incomplete course work is scheduled.

Click [here](#) for a detailed and comprehensive set of policies and regulations concerning examinations and grading. The table below outlines the University-wide grade descriptors.

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 25%/day.
- An assessment cannot be submitted after it has been returned to the class; the weight of that assessment will be transferred to the final grade.
- An accommodated absence for the Computational Skills Assessment will result in the weight of this assignment being transferred to the Technical Report component of the Biotechnology Portfolio.
- Failure to complete the Biotechnology Portfolio with a passing grade will result in an INC and the student will have to complete it the next time the course is offered. The Biosafety, Ethics, and Lab Math Modules must be completed prior to the first lab. Students will not be permitted to continue in the course if these modules are not completed on-time.

**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. 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 exam or the student misses the makeup exam for reasons approved by the Academic Advising Office, the student will write the exam the next time the course is offered. Outstanding SPCs will reduce the course load for the term the exam is deferred as outlined in [Types of Examinations](#) policy.

### 11. Communication

- Students should check the OWL Brightspace site every 24–48 hours
- Students should email their instructor(s), and contact teaching assistant(s) using MS Teams
- Emails will be monitored daily; students will receive a response in 96 hours
- This course will use Brightspace and MS Teams
- Students should post all course-related queries to the General Channel in MS Teams so that everyone can access the questions and responses

### 12. Office Hours

- Student hours will be held in-person or via Zoom, with these meetings booked via email.
- Office hours can be individual or group

### 13. Resources

- All resources will be posted in OWL Brightspace
- Required textbook: A Brief Manual of Microbiological Techniques, 6<sup>th</sup> Edition. This will be available in the University Bookstore.

### 14. Professionalism & Privacy

Western students are expected to follow the [Student Code of Conduct](#). Additionally, the following expectations and professional conduct apply to this course:

- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared (e.g., Must Knows Facebook group, Course Hero, Chegg, 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).

## 15. 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. Read the lab manual, and prepare a timeline of experiments to be conducted, prior to each lab.
2. 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.
3. Make it a daily habit to log onto OWL Brightspace to ensure you have seen everything posted to help you succeed in this class.
4. Follow checklists created on OWL Brightspace or create your own to help you stay on track.
5. 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.
6. Connect with others. Try forming an online study group and try meeting on a weekly basis for study and peer support.
7. 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).
8. Reward yourself for successes. It seems easier to motivate ourselves knowing that there is something waiting for us at the end of the task.

## 16. Western Academic Policies and Statements

### A. Absence from Course Commitments

Students must familiarize themselves with the Policy on [Academic Consideration – Undergraduate Students in First Entry Programs](#)

Students missing course work 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.

#### Accommodation for Religious Holidays

Students should review the policy for [Accommodation for Religious Holidays](#). 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.

#### 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. These dates as well as other important information about examinations and academic standing can be found [here](#).

#### **B. 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.

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.

#### **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 or review [The policy on 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. You can read about the privacy and security of the UWO email accounts [here](#).

#### **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. The details of this policy and the deadlines can be found [here](#).

#### **F. Essay Course Guidelines**



The guidelines for the minimum written assignments refer to the cumulative amount of written work in a course but excludes written work in examinations. You can read about essay course guidelines [here](#).

An essay course must normally involve total written assignments (essays or other appropriate prose composition, excluding examinations) 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

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.

### **G. 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](http://Turnitin.com).

## **17. 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, 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.

### **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., 74.45 becomes 74, and 74.50 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.

## Statement on the use of Generative Artificial Intelligence (AI) Platforms

This course involves extensive writing and analysis/presentation of graphical data. While the use of generative AI tools for information gathering is acceptable, students should be aware that these tools tend to produce non-factual and incorrect scientific information, and to generate fake citations. Therefore, the use of these tools for research purposes should be treated with a high degree of skepticism, and any scientific claims made by these systems confirmed by the student via primary sources (e.g. scientific papers, review papers, textbooks, etc).

The use of AI for suggesting edits to your writing can be a powerful method for improving your writing abilities, catching grammatical errors, and improving readability. If using AI tools for these purposes, always start with your own writing, and carefully consider the AI's suggestions, as these suggestions are often suitable for lay communication but are inappropriate for scientific and technical communication.

Students are 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. Consequently the use of AI-generated text (excluding AI-suggested edits to your work), and the use of generative AI to produce image-based data (graphs, micrographs, etc) are considered academic misconduct.

## 18. Support Services

- Students who are in emotional/mental distress should refer to Mental Health @Western Health <https://www.uwo.ca/health/> for a complete list of options about how to obtain help.
- To connect with a case manager or set up an appointment, please contact [support@uwo.ca](mailto:support@uwo.ca).
- Other important links:
  - [Academic Advising \(Science and Basic Medical Sciences\)](#)
  - [Appeal Procedures](#)
  - [Registrarial Services](#)
  - [Student Development Services](#)
  - [Student Health Services](#)

## 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:

[https://www.uwo.ca/health/student\\_support/survivor\\_support/get-help.html](https://www.uwo.ca/health/student_support/survivor_support/get-help.html).