


**Microbiology and Immunology 4100A**  
**Bacterial Pathogenesis**

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. Technical Requirements:**



Stable internet connection



Laptop or computer



Working microphone



Working webcam  
(optional)

**2. Course Overview and Important Dates:**

Delivery Mode	Dates	Time

\*Details about design and delivery of the course are listed below in Section 4

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

**3. Contact Information**

Course Coordinator	Contact Information

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

\* Concerns or questions not related to course content or assignment instruction can be emailed to the instructor

#### 4. Course Description and Design

##### **Delivery Mode:** In Person

This course offers an integrated view of the genetics and biochemistry of microbial structures in bacteria of medical importance. Lectures cover state-of-the-art knowledge on topics such as protein secretion, bacterial structures, uptake of nutrients and other molecules, global regulatory signals, life of intracellular and extracellular bacteria, innate immunity, mobile genetic elements, toxins, and bacterial invasion to eukaryotic cells. Lectures will introduce the students to current information, hypotheses, and working models relevant to the subject areas as listed in the outline. Student participation and questions are encouraged throughout the lectures.

Prerequisite(s): Biochemistry 2280A; Biology 2581B; Microbiology and Immunology 2100A; Microbiology and Immunology 3100A with a mark of at least 70%.

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

- Lecture notes will be posted on OWL on or before the posted date/time for the lecture
- Student presentation videos will be posted on OWL for peer review. Instructions will be posted on the OWL course website.

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. Students interested in evaluating their internet speed, please click [here](#).

#### 5. Learning Outcomes

The primary purpose of this course is to familiarize students with current hypotheses and mechanisms of bacterial pathogenesis and host response to bacterial pathogens. This will include a fairly high-level understanding of bacterial virulence factors and how they interact with facets of the host immune system.

## 6. Course Content and Schedule

Week	Dates	Topic	Instructor
1	Sept 6	Lecture 1: Introduction	
2	Sept 9	Lecture 2: The battle for metals	
	Sept 11	Lecture 3: Regulation of virulence I	
	Sept 13	Lecture 4: Regulation of virulence II	
3	Sept 16	Lecture 5: Antibiotics I	
	Sept 18	Lecture 6: Antibiotics II	
	Sept 20	Lecture 7: Surface proteins in Gram-positive bacteria	
4	Sept 23	Lecture 8: Pathogenicity islands	
	Sept 25	Lecture 9: Discovery/analysis of bacterial virulence factors	
	Sept 27	Lecture 10: Bacterial warfare	
5	Sept 30	NO LECTURE – National Day for Truth and Reconciliation	
	Oct 2	Lecture 11 – Toxins I	
	Oct 4	Lecture 12 – Toxins II	
6	Oct 7	Lecture 13 – Toxins III	
	Oct 9	Review Session <b>Midterm – Lectures 1-13 Inclusive</b>	
	Oct 11	NO LECTURE	
7	Oct 12–20	Reading Week	
8	Oct 21	Lecture 14 - Structure and Function of Public Health in Canada for Infectious Disease Control <b>11:55 PM: PATHOGEN WRITTEN ASSIGNMENT DUE</b>	
	Oct 23	Lecture 15 - Case Studies in Outbreak Management and Public Health Surveillance	
	Oct 25	HSP Presentations – NO LECTURE	
9	Oct 28	Lecture 16 – Innate Immunity I: Inflammatory mediators I	
	Oct 30	Lecture 17 – Innate Immunity II: Inflammatory mediators II	
	Nov 1	NO LECTURE	
10	Nov 4	Lecture 18 – Innate Immunity III: Lymphocyte function I <b>11:55 PM: GROUP PRESENTATION VIDEOS DUE</b>	
	Nov 6	Lecture 19 – Innate Immunity IV: Lymphocyte function II	
	Nov 8	Lecture 20 – Innate Immunity V: Bacterial cell envelopes and septic shock	
11	Nov 11	Lecture 21 - Innate Immunity VI: Microbial evasion of innate immune mechanisms I	
	Nov 13	Lecture 22 - Innate Immunity VI: Microbial evasion of innate immune mechanisms II	
	Nov 15	Lecture 23 – Read through and review of a scientific manuscript	
12	Nov 18	Lecture 24 – Non-tubercular respiratory pathogens	
	Nov 20	Lecture 25 – Intracellular pathogen: <i>Mycobacterium tuberculosis</i>	
	Nov 22	Lecture 26 – Pathogens causing meningitis	
13	Nov 25-29	NO LECTURES – STUDY WEEK	
14	Dec 2	Lecture 27 – Invasion mechanisms of enteric pathogens	
	Dec 4	Lecture 28 – Intracellular survival of enteric pathogens	

		Dec 6	Review Session <b>CLASSES END</b>	
		TBD	<b>FINAL EXAM – December Exam Period</b> Lectures 14-28 Inclusive OR Lectures 1-28 Inclusive for Cumulative Final if Midterm is Missed	
		TBD	<b>MAKEUP EXAM – January Exam Period</b> Lectures 14-28 Inclusive OR Lectures 1-28 Inclusive for Cumulative Final if Midterm is Missed	

## 7. Participation and Engagement

- Students are expected to keep up with course content.
- Students are expected to participate by asking questions in class and interacting in the OWL forums with their peers and instructors. This is of benefit to everyone in the class.
- Questions emailed to instructors and GTAs on course lecture material will not be answered. Please use the OWL forum.

## 8. Assessment and Evaluation

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

Assessment	Format	Weighting	Due Date	Flexibility
Midterm Test	Mixed format	30%	Oct 9	Designated Assignment
Written Assignment	Written	15%	Oct 21	72-hour no late penalty
Group Presentation	Mixed format	15%	Nov 4	72 hour no late penalty
Final Exam	Mixed format	40%	TBD	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 assessment has been designated as requiring supporting documentation:

- Midterm Test, October 9th

### 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
- This course employs flexible deadlines for the written and group assignments. The assignment deadlines can be found above in the course outline. For each assignment, students are expected to submit the assignment by the deadline listed. Should illness or extenuating circumstances arise, students are permitted to submit their assignment up to 72 hours past the deadline without a late penalty. Should students submit their assessment beyond 72 hours past the deadline, a grade of 0 will be assigned.
- Requests for academic consideration supported by documentation must be submitted within 48 hours of the original deadline. The instructor reserves the right to deny such academic considerations, given the deadline flexibility provided. If you have a long term academic consideration or an accommodation for disability that allows greater flexibility than provided here, please reach out to your instructor at least one week prior to the posted deadline.

### General information about assessments

- All assignments are due at 11:55 p.m. ET 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 grade of 0 at the discretion of the Course Coordinator
- Written assignments will be submitted to Turnitin
- Students will have unlimited attempts for submission to Turnitin
- Rubrics will be used to evaluate assessments and will be posted with the instructions
- A student might not receive the same grade as their group members if it is determined that the distribution of work was not equal
- 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 on assignments, quizzes, or midterms must be received within 3 weeks of the grade being posted.

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:

- Assignments submitted after 72 hours will be subjected to a grade of 0 at the discretion of the Course Coordinator
- An assessment cannot be submitted after it has been returned to the class; an alternate assessment will be assigned OR the weight will be transferred to the final grade at the discretion of the Course Coordinator
- The weight of the missed midterm test will be transferred to a cumulative final
- Midterm and Final or Cumulative Final must be completed to pass the course.

**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.

#### 9. Communication

- Students should check the OWL site every 24–48 hours
- This course will use the OWL discussion forum for student questions and discussions,
- Students should post all course-related queries on the discussion forum so that everyone can access the questions and responses
- The discussion forums will be monitored daily by the teaching assistants.

- Students with personal concerns should email their instructor(s). Students will receive a response within 24 – 48 hours. Questions on course material or assignment instructions sent to instructors or TAs via email, versus the class forum, will not be answered.

## 10. Office Hours

- There are no specified office hours. Instructors and the course TA will monitor the forum on the course OWL site for questions regarding lecture material. One on one meetings with instructors, if required, will be held remotely using Zoom.

## 11. Resources

- All resources will be posted in OWL Brightspace
- Any required reading will be posted to OWL Brightspace
- There is no required textbook for this course

## 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 (e.g., Must Knows Facebook group, Course Hero, Chegg, etc.)
- Students are expected to follow the considerations for online communication provided on OWL.
- Recordings are not permitted (audio or video) without explicit permission
- Permitted recordings are not to be distributed – it is illegal to share them.
- Students will be expected to take an academic integrity pledge before some assessments
- All recorded sessions will remain within the course site or unlisted if streamed.

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 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. Turnitin and other similarity review software**

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

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

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

The Schulich School of Medicine & Dentistry is committed to ensuring that testing and evaluation are undertaken fairly across all our departments and programs. For all tests and exams, it is the policy of the School that any electronic devices, 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.

## **16. 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).