

## Microbiology and Immunology 4100A Bacterial Pathogenesis

Course outline for Fall 2020



Although this academic year might be different, Western University is committed to a **thriving campus**. We encourage you to check out the [Digital Student Experience](#) website to manage your academics and well-being. Additionally, the following link provides available resources to support students on and off campus: <https://www.uwo.ca/health/>.

### 1. Technical Requirements:



Stable internet connection



Laptop or computer



Working microphone



Working webcam (optional)

### 2. Course Overview and Important Dates:



Delivery Mode	Dates	Time
Online	M/W/F	10:30-11:20am

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

Classes Start	Reading Week	Classes End	Study day(s)	Exam Period
September 9	November 2 - 8	December 9	December 10	December 11 - 22

\* November 12, 2020: Last day to drop a first-term half course or a first-term full course without penalty

### 3. Contact Information

Course Coordinator	Contact Information
Dr. David Heinrichs	Use OWL messages

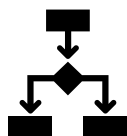


Instructor(s) or Teaching Assistant(s)	Contact Information
Dr. Carole Creuzenet	Use OWL messages
Dr. Martin McGavin	Use OWL messages
Dr. Mariya Goncheva	Use OWL messages
Dr. Stephen Tuffs	Use OWL messages
Thiago Fauerharmel Nunes (TA)	Use OWL messages

#### 4. Course Description and Design

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%.



Mode	Dates	Time	Frequency
Virtual asynchronous	M/W/F (see schedule)	9:30-10:20am	Recorded lectures will be posted on OWL weekly

- A recording of lectures will be posted on OWL on or before the posted date/time for the lecture
- A recording of student presentations will be posted on OWL on or before the posted date/time for the presentation
- Closed captioning will be provided on audio or video recordings upon request

All course material will be posted to OWL: <http://owl.uwo.ca>. 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 Help page](#). Alternatively, they can contact the [Western Technology Services Helpdesk](#). They can be contacted by phone at 519-661-3800 or ext. 83800.

[Google Chrome](#) or [Mozilla Firefox](#) are the preferred browsers to optimally use OWL; update your browsers frequently. 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

DATE	TOPIC	INSTRUCTOR
Wednesday September 9 2020	Lecture 1: Introduction to the course; and host:pathogen interactions – a general overview	Dr. D. Heinrichs
Friday September 11 2020	Lecture 2: Bacterial secretion I	Dr. C. Creuzenet
Monday September 14 2020	Lecture 3: Bacterial secretion II	Dr. C. Creuzenet
Wednesday September 16 2020	Lecture 4: Pili	Dr. C. Creuzenet
Friday September 18 2020	Lecture 5: Bacterial polysaccharides	Dr. C. Creuzenet
Monday September 21 2020	Lecture 6: Bacterial protein glycosylation	Dr. C. Creuzenet
Wednesday September 23 2020	Lecture 7: <i>Helicobacter pylori</i>	Dr. C. Creuzenet
Friday September 25 2020	Lecture 8: Innate Immunity I: Inflammatory mediators	Dr. M. McGavin
Monday September 28 2020	Lecture 9: Innate immunity II: Lymphocyte function	Dr. M. McGavin
Wednesday September 30 2020	Lecture 10: Innate immunity III: Bacterial cell envelopes and septic shock	Dr. M. McGavin
Friday October 2 2020	Lecture 11: Innate immunity IV: Microbial evasion of innate immune mechanisms	Dr. M. McGavin
Monday October 5 2020	Lecture 12: Intracellular pathogens I: <i>Mycobacterium tuberculosis</i> and <i>Listeria monocytogenes</i>	Dr. M. McGavin
Wednesday October 7 2020	Lecture 13: Intracellular pathogens II: Enteric pathogens	Dr. M. McGavin
Friday October 9 2020	Review Session	Dr. M. McGavin Dr. C. Creuzenet
Monday October 12 2020	Thanksgiving Holiday	-
Wednesday October 14 2020	MID-TERM EXAM 7-9 pm EST, online	Dr. M. McGavin D. C. Creuzenet
Friday October 16 2020	NO CLASS	-
Monday October 19 2020	NO CLASS	-
Wednesday October 21 2020	NO CLASS	-
Friday October 23 2020	NO CLASS	-
Monday October 26 2020	NO CLASS	-
Wednesday October 28 2020	NO CLASS	-
Friday October 30 2020	<b>GROUP PRESENTATION VIDEOS DUE BY 10:30 AM</b>	-
Monday November 2 2020	READING WEEK	-
Wednesday November 4 2020	READING WEEK	-
Friday November 6 2020	READING WEEK	-
Monday November 9 2020	Lecture 14: The battle for metals <b>WRITTEN ASSIGNMENT DUE 11:55 PM</b>	Dr. D. Heinrichs
Wednesday November 11 2020	Lecture 15: Regulation of virulence I	Dr. D. Heinrichs
Friday November 13 2020	Lecture 16: Regulation of virulence II	Dr. D. Heinrichs
Monday November 16 2020	Lecture 17: Antibiotics I	Dr. D. Heinrichs
Wednesday November 18 2020	Lecture 18: Antibiotics II	Dr. D. Heinrichs



Friday November 20 2020	Lecture 19: Pathogenicity islands	Dr. M. Goncheva
Monday November 23 2020	Lecture 20: Discovery/analysis of bacterial virulence factors	Dr. D. Heinrichs
Wednesday November 25 2020	Lecture 21: Toxins I	Dr. D. Heinrichs
Friday November 27 2020	Lecture 22: Toxins II	Dr. D. Heinrichs
Monday November 30 2020	Lecture 23: Toxins III	Dr. S. Tufts
Wednesday December 2 2020	Review Session	Dr. D. Heinrichs
<b>Sunday December 20 2020</b>	<b>FINAL EXAM 10:00am - 12:00pm EST, ONLINE</b>	<b>Dr. D. Heinrichs</b>

## 7. Online Participation and Engagement



- Students are expected to keep up with course content.
- Students are expected to post their questions on the OWL forum after watching the lecture recording. These will be answered by the instructors or GTAs in a timely manner.
- Students are expected to participate by interacting in the OWL forums with their peers and instructors, especially with regard to student presentations (see instructions).
- Questions emailed to instructors and GTAs on course lecture material will not be answered. Use the OWL forum and/or attend weekly Instructor/GTA office hours.

## 8. Evaluation

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

Component	Date (or Due date)	% of Final Mark
Mid-Term exam	Wednesday October 14, 7-9 pm	33
Final exam	Sunday December 20, 10AM-12pm	33
Group Presentation	Friday October 30; 10:30 AM	20
Written assignment	Monday November 9; 11:55 PM	14

- Group presentation video is due at 10:30 am EST on October 30; see instructions on the course OWL site
- Written assignment is due at 11:55 pm EST on November 9; see instructions on the course OWL site
- Written assignments will be submitted to Turnitin (statement in policies below)
- There are no make-up exams in this course specific to the exam missed. Instead you will write a comprehensive make-up, regardless of whether you missed the mid-term or the final exam, at a date and time in January 2021 as set by the Department of M&I.
- If a make-up assessment is missed, the student will receive an INC and complete the task the next time the course is offered.



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 evaluations:

- Late assignments without illness self-reports will be subject to a late penalty of 20% per day
- Late assessments with illness self-reports should be submitted within 24 hours of submission of the last illness self-report

## 9. Communication:



- Students should check the OWL site every 24 – 48 hours.
- A weekly update will be provided on the OWL announcements.
- This course will use the OWL forum for student questions and discussions.
- Students should post all course-related content on the discussion forum so that everyone can access answers to questions.
- The discussion forums will be monitored daily by instructors and teaching assistants.
- Students with personal concerns should email their instructor(s) using OWL “messages”. It will be monitored daily; students will receive a response in 24 – 48 hours. Questions on course material sent to instructors or GTAs via OWL messages 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
- Required readings will be posted on OWL
- 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:

- Students are expected to follow online etiquette expectations provided on OWL.
- All course materials created by the instructor(s) are copyrighted and cannot be sold/shared.
- 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.

## 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 time at the start of each week to get organized and manage your time.
2. Make it a daily habit to log onto OWL to ensure you have seen everything posted to help you succeed in this class.
3. Follow weekly checklists created on OWL or create your own to help you stay on track.

4. Take notes as you go through the lesson material. Treat this course as you would a face-to-face course. 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

### Absence from Course Commitments

#### [Policy on Academic Consideration for Student Absences](#)

If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Approval can be granted either through a **self-reported absence** or via the **Academic Counselling** unit. Students have two self-reports to use throughout the academic year; absence from course commitments including tests, quizzes, presentations, labs, and assignments that are worth 30% or less can be self-reported. Self-reported absences cover a student for 48 hours (yesterday + today or today + tomorrow). Your instructor will receive notification of your consideration; however, you should contact your instructor immediately regarding your absence. Students are expected to submit missed work within 24 hours of the end of the 48-hour period. Please review details of the [university's policy on academic consideration for student absences](#).

If you have used both their self-reported absences or will miss more than 48 hours of course requirements, a Student Medical Certificate (SMC) should be signed by a licensed medical or mental health practitioner and you should contact academic counselling. Academic Counselling will be operating virtually this year and can be contacted at [scibmsac@uwo.ca](mailto:scibmsac@uwo.ca).

### Accommodation for Religious Holidays

The policy on Accommodation for Religious Holidays can be viewed [here](#).

### 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](#).

### 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.

### 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](#).

### **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](#).

### **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**

### **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., 74.4 becomes 74, and 74.5 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**

The following links provide information about support services at Western University.

[Academic Counselling \(Science and Basic Medical Sciences\)](#)

[Appeal Procedures](#)

[Registrarial Services](#)

[Student Development Services](#)

[Student Health Services](#)