



**REVISED COURSE OUTLINE FOR REMOTE LEARNING**

To account for the necessary transition to remote learning from March 13 onward, adjustments have been made to assessment deadlines and requirements so that all coursework tasks are in line with the necessary and evolving health precautions for all involved (students and staff). If you are unable to meet the deadlines or requirements specified, please connect with your course instructor to work out alternative dates/assessments.

1. **Course:** CMMB 431, Bacterial Pathogens - Winter 2020

Lecture 01: MWF 10:00 - 10:50 - Remote Learning (check with your instructor or coordinator for details)

Instructor	Email	Phone	Office	Hours
Dr Joe Harrison	jjharris@ucalgary.ca	403 220-7627	BI 429B	TBA

**Course Site:**

D2L: CMMB 431 L01-(Winter 2020)-Bacterial Pathogens

**Note:** Students must use their U of C account for all course correspondence.

2. **Requisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

**Prerequisite(s):**

Cellular, Molecular and Microbial Biology 343.

3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Component(s)	Weighting %	Date(s)
Midterm Exams (2 x 15%) In Class	30%	February 5 and March 9
Student Group Pitch Presentation Video	20%	April 8
Term Paper	25%	March 30
Take-home final exam (Cumulative)	25%	due 12pm, April 25

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
<b>Minimum % Required</b>	92 %	85 %	80 %	77%	73%	70 %	66 %	62%	60%	55 %	50 %

4. **Missed Components Of Term Work:**

The University has suspended requirements for students to provide evidence for reasons for absences so please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations. Please let your instructor know immediately if you are ill and cannot meet the deadlines specified.

5. **Scheduled Out-of-Class Activities:**

There are no scheduled out of class activities for this course.

## 6. **Course Materials:**

Required Textbook(s):

Ed Yong, *I Contain Multitudes: The Microbes Within Us and a Grander View of Life* HarperCollins Publishers.

## 7. **Examination Policy:**

No aids are allowed on tests or examinations.

Students should also read the Calendar, [Section G](#), on Examinations.

## 8. **Approved Mandatory And Optional Course Supplemental Fees:**

There are no mandatory or optional course supplemental fees for this course.

## 9. **Writing Across The Curriculum Statement:**

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also [Section E.2](#) of the University Calendar.

## 10. **Human & Living Organism Studies Statements:**

If you agree, your course work may be used for research purposes. Your responses will remain anonymous and confidential. Grouped data (no individual responses) may be used in academic presentations and publications. Participation in such research is voluntary and will not influence grades in this course. Students' signed consent forms will be withheld from instructors until after final grades are submitted. More information will be provided at the time student participation is requested.

See also [Section E.5](#) of the University Calendar.

Students will participate in an in-class activity to isolate and culture antibiotic resistant bacteria from human and/or environmental samples. Students may sample the instructor (Dr. Harrison) or self-sample at their own discretion. Isolated bacterial and fungal strains will be destroyed or kept anonymously, depending on student preference.

**STUDIES IN THE BIOLOGICAL SCIENCES INVOLVE THE USE OF LIVING AND DEAD ORGANISMS.** Students taking laboratory and field-based courses in these disciplines can expect involvement with and experimentation on such materials. Students perform dissections on dead or preserved organisms in some courses. In particular courses, students experiment on living organisms, their tissues, cells, or molecules. Sometimes field work requires students to collect a variety of living materials by many methods, including humane trapping.

All work on humans and other animals conforms to the Helsinki Declaration and to the regulations of the Canadian Council on Animal Care. The Department strives for the highest ethical standards consistent with stewardship of the environment for organisms whose use is not governed by statutory authority. Individuals contemplating taking courses or majoring in one of the fields of study offered by the Department of Biological Sciences should ensure that they have fully considered these issues before enrolling. Students are advised to discuss any concern they might have with the Undergraduate Program Director of the Department.

Students are expected to be familiar with [Section SC.4.1](#) of the University Calendar.

## 11. **Reappraisal Of Grades:**

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. Non-academic grounds are not relevant for grade reappraisals. Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections [I.1](#) and [I.2](#) of the University Calendar

b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

## 12. Other Important Information For Students:

- a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **SU Wellness Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see [www.ucalgary.ca/wellnesscentre](http://www.ucalgary.ca/wellnesscentre) or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The University of Calgary is committed to fostering a safe, productive learning environment. The Sexual Violence Policy (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>) is a fundamental element in creating and sustaining a safer campus environment for all community members. We understand that sexual violence can undermine students' academic success and we encourage students who have experienced some form of sexual misconduct to talk to someone about their experience, so they can get the support they need. The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email ([svsa@ucalgary.ca](mailto:svsa@ucalgary.ca)) or phone at [403-220-2208](tel:403-220-2208).
- d. **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/ fabrication of experimental values in a report. **These are only examples.**
- e. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- f. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at [procedure-for-accommodations-for-students-with-disabilities.pdf](#).  
  
Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Associate Head, Undergraduate of the Department of Biological Sciences, Heather Addy by email [addy@ucalgary.ca](mailto:addy@ucalgary.ca) or phone 403 220-6979. Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See [Section E.4](#) of the University Calendar.
- g. **Safewalk:** Campus Security will escort individuals day or night (See the [Campus Safewalk](#) website). Call [403-220-5333](tel:403-220-5333) for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- h. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see [Legal Services](#) website.
- i. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca). SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca). [Student Ombudsman](#), Email: [ombuds@ucalgary.ca](mailto:ombuds@ucalgary.ca).
- j. **Internet and Electronic Device Information:** Unless instructed otherwise, cell phones should be turned off during class. All communication with other individuals via laptop, tablet, smart phone or other device is prohibited during class unless specifically permitted by the instructor. Students that violate this policy may be asked to leave the classroom. Repeated violations may result in a charge of misconduct.

k. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.

l. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.

All topics are tentative due to availability of guest speakers. An asterisk (\*) denotes that the content will be delivered online using Zoom. Lectures will be recorded and notes will be posted online.

Date	Topic	Lecturer
Jan. 13	1 - Introduction - What are bacterial pathogens?	Harrison
Jan. 15	2 - How bacterial pathogens survive, infect, and attack their hosts	Harrison
Jan. 17	3 - How the host fights back: Innate immunity	Harrison
Jan. 20	4 - How the host fights back: Adaptive immunity	Harrison
Jan. 22	5 - Sanitation and vaccination	Almblad
Jan. 24	6 - <i>Pseudomonas aeruginosa</i>	Almblad
Jan. 27	7 - Antibiotics and resistance	Harrison
Jan. 29	8 - <b>Research seminar:</b> Bacterial temperature-sensing	Harrison
Jan. 31	9 - <b>Clinician seminar:</b> Chronic lung infections in Cystic Fibrosis	Parkins
Feb. 3	10 - <i>Haemophilus influenzae</i>	Harrison
Feb. 5	11 - MIDTERM EXAM (in class)	Harrison
Feb. 7	12 - <i>Neisseria</i>	Harrison
Feb. 10	13 - <b>Research seminar:</b> Vaccine development	Schryvers
Feb. 12	14 - <i>Staphylococcus aureus</i>	Harrison
Feb. 14	15 - <i>Listeria monocytogenes</i>	Harrison
Feb. 15	Winter Break	--
Feb. 17	Winter Break	--
Feb. 19	Winter Break	--
Feb. 24	16 - The human microbiome	Harrison
Feb. 26	17 - <i>Clostridium difficile</i>	Harrison
Feb. 28	18 - Book club	Harrison
Mar. 2	19 - <b>Clinician seminar:</b> Sexually transmitted infections	Ugarte
Mar. 4	20 - <i>Bordetella pertusis</i>	Harrison
Mar. 6	21 - <i>Yersinia pestis</i> and arthropod borne pathogens	Harrison
Mar. 9	22 - MIDTERM EXAM (in class)	Harrison
Mar. 11	23 - <b>Research seminar:</b> <i>Escherichia coli</i>	Savchenko
Mar. 13	24 - Classes suspended	--
Mar. 16	25 - Classes suspended	--
Mar. 18	26 - <i>Legionella</i> *	Harrison
Mar. 20	27 - <b>Research seminar:</b> <i>Borrelia burgdorferi</i> and Lyme disease*	Chaconas
Mar. 23	28 - <i>Mycobacterium tuberculosis</i> *	Harrison
Mar. 25	29 - <b>Research seminar:</b> Human gut microbiome and asthma*	Arrieta
Mar. 27	30 - <b>Research seminar:</b> The vaginal microbiome*	Sycuro
Mar. 30	31 - <i>Corynebacterium diphtheriae</i> *	Harrison
Apr. 1	32 - <b>Research seminar:</b> <i>Vibrio cholerae</i> and type VI secretion*	Dong
Apr. 3	33 - Open office hour (Zoom)*	Harrison
Apr. 6	34 - Open office hour (Zoom)*	Harrison
Apr. 8	35 - Student presentations (D2L, view student videos online)	--
Apr. 10	Holiday - Good Friday	--
Apr. 13	Holiday - Easter Monday	--
Apr. 15	36 - Student presentations (D2L, view student videos online)	--

#### Course Outcomes:

- Explain, and discuss the major principles and concepts of a range of bacterial pathogens at various levels including: i. Specific bacterial pathogens ii. Diseases caused by the bacterium iii. Mechanisms of pathogenesis
- Describe host immune response to bacterial infections and how we fight off bacterial infections using antibiotics and how we prevent disease using vaccines
- Explain the role of the human microbiome in health and protection against bacterial invaders
- Communicate scientific information by writing a scientific literature review and in particular be able to

recognize and present primary scientific literature

- Sharpen your ability to reason logically and critically evaluate information
- Deepen skills needed to work with a group of your peers and present a research approach i. Apply your knowledge of scientific research on bacterial pathogens by presenting a research grant ii. Sharpen your oral communication Skills
- Recognize members of the U of C community carrying out research on bacterial pathogens and infections and describe their findings

Electronically Approved - Mar 17 2020 13:16

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**Department Approval**

Electronically Approved - Mar 20 2020 16:36

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**Associate Dean's Approval for alternate final examination arrangements or remote learning**