

**Department of Biology Course Outline**

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| Introduction to Medical Microbiology  BIOL2905 Fall 2021  **All components of this course are online**  There are no in-person interactions or activities on campus  This course is presented in Toronto time (Eastern Time Zone) |

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| Course Description |
| Fundamentals of microbiology; microbial organisms; microbe-host interactions; microbial genetics and evolution; microorganisms and human disease; environmental and applied microbiology – all with a focus on Medical applications and associated interaction with the Human Immune system. Three lecture hours. One term. Three credits.  All lectures and test are delivered remotely – some will be live and others prerecorded using Zoom. All lectures are recorded and posted on the website when they become available. It is expected that students attend the live lectures and participate and that all lectures are watched as they contain information that may not be covered in reading sources |

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| Prerequisites |
| Prerequisites: SC/BIOL 1010 or SC/BIOL1000/1001 OR EQUIVALENT  Degree Credit Exclusion: SC/BIOL2900 or SC/BIOL 3150.04. |

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| Course Instructors and Contact Information |
| Course Director: Dr. Mike Gadsden  Habitat: Room My home – for now!  Email: [mgadsden@yorku.ca](mailto:mgadsden@yorku.ca)  Phone: Unavailable now.  Office appointments by request. Please use email to book a time. I do not schedule strict office hours as they may not be accessible to all but we can certainly make time to Zoom meet |

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| Schedule |
| One three hour lecture;  Thursdays 6- 9 pm  Lecture Hall – Virtual  It is essential that you keep up with the work and do not fall behind. We suggest you develop a personal schedule that permits you to complete all aspects of the course within the recommended time-lines and/or deadlines.   * Refer to the Lecture and Lab eClass sites daily. * This course runs on Toronto time (Eastern Time Zone). Accomodations for other time zones unfortunately are not possible. |

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| Evaluation |
| Midterm 1: 20% **Oct. 7th – First hour of class. A lecture will follow the test period.**  Midterm 2: 20% **Nov. 18th – First Hour of class. A lecture will follow the test period.**  Assignment/Essay(s): 15% (may include components. Due dates will be announced in class)  Activities and Quizzes: 10%  Final exam: 35%  \*\* Tests include Multiple Choice and Short answer.  Details regarding the midterm/exam format, project components and mini-assignments and activities will be provided in class. |

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| Important Dates |
| Test Dates are listed under “Evaluation” above.  Assignment specifics and dates will be discussed in class. The assignment information will be found on the course Moodle site under “Assignments”.  **First Class:** Sept 9th 2021  **Last day to Drop the course**: There are 2 dates – the first is November 7th and you will not receive a grade or note on your transcript. After that you have until the last day of classes (December 7th). This part is new “*You may withdraw from a course using the registration and enrolment system after the drop deadline until the last day of class for the term associated with the course. When you withdraw from a course, the course remains on your transcript without a grade and is notated as "W". The withdrawal will not affect your grade point average or count towards the credits required for your degree*.”  **Reading days: Oct. 11 -15**. No classes  NOTE: for additional important dates such as holidays, refer to the “Important Dates” section of the Registrar’s Website at http://www.yorku.ca/yorkweb/cs.htm |

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| Resources |
| **Microbiology Fundamentals: A Clinical Approach by M.K. Cowan, Heidi Smith, and Jennifer Lusk 4th Edition**  Additional readings (e.g. review and primary research articles) will be assigned during the course. **Articles** will be available via the instructor or the York libraries. Students are expected to read relevant sections of the text and readings prior to class**.** Some assignments will also require additional research and reading of scientific literature. |

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| Learning Outcomes |
| Upon successful completion of this course, students should be able to:   * Understand and apply basic cellular and molecular biology concepts.   ● explain major concepts, methodologies and issues in microbiology, demonstrating detailed knowledge in certain topics (i.e. listed course topics).  ● gather, review, evaluate and interpret microbiology information (in reviews, primary sources and mass media articles).  ● **apply learning from other areas (e.g. biochemistry, genetics) to microbiological**  **problems/situations**.  ● solve basic microbiological problems.  ● analyze microbiological situations/techniques.  ● Predict the outcome of microbiological tests and symptoms.  ● identify problems and suggest possible solutions in terms of microbiology and society.  ● communicate (orally and in writing) microbiological concepts clearly to peers and a scientific audience.  ● Understand microbiological laboratory activities with safety, reliability and a good understanding of aseptic technique.  ● discuss and debate current issues relating to microbiology.  ● effectively and collegially work with others in the microbiology class setting.  ● Understand the variety of potential employment avenues  ● Connect the basic function of the Human immune system to pathogen detection  ● Learn the positive impact of microbes in society and on/in Human physical and mental health |
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| Course Content |
| **Planned course topics: May be changed by Course Director**  In the context of particular issues/cases/problems, we will explore key aspects of:  • History of microbiology and Biology Background  • Microbe Characteristics  • Cell structure/function of Eukaryotes, Bacteria, and Archaea  • Bacterial growth  • Environmental factors affecting growth of bacteria and archaea  • Evolution/systematics/taxonomy of bacteria and archaea  • Genetics/genomics of bacteria  • Bacterial regulation/signal transduction (e.g. chemotaxis, quorum sensing)  • Control of bacterial growth  • Human-microbe interactions  • Epidemiology  • Applied microbiology  • Social impact of microbiology   * **All the above will be taught in context with Pathogenicity, various therapies, and benefit of the Human microbiota** |

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| Experiential Education and E-Learning |
| Students will be expected to search resources in Literature and on the internet to comment/discuss the latest microbiological trends in Healthcare. A guest speaker currently working in Healthcare may address the class to relate real life experience. |

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| Other Information |
| **Some information about BIOL2950 (Microbiology) from the course director.**  The main questions driving this course are:  •What do you need to know about microbiology as an upper-year prospective Nursing student?  • What do you need to know about microbiology as an informed citizen?  🡪 Some notes about this course:  • You’ll learn about key issues and concepts in microbiology by dealing with ***real world,***  current issues/examples.  • The textbook is a good resource to help you learn, but you will need to delve into  additional reference sources. (We ***won’t be*** marching linearly through the textbook,  by the way. You’ll need to use the index and table of contents.)  • Class time should be focused on interesting/complicated/problematic topics, rather  than material that is easy to learn (e.g. from reading the text).  • ***To deal with complex issues, you will need to be able to apply and integrate***  ***information, and use problem-solving skills*.**  • I’ll happily share the resources I’ve got, but you’ll need to seek, read and understand  all resources.  • Please ask me for guidance – I’m here to help you learn. I’ll try to highlight what I  think students might have trouble with anyhow, but you can (and should) direct me  to concepts you find problematic so that we can explore them in class.  🡪 If/when you encounter problematic concepts – you can:  • talk to your fellow students (After class, in Moodle, in study groups)  • seek and read additional reference sources  • Ask questions of me in class  **What will we do in class?**  Specific examples or issues will be reviewed/discussed in class in the context of real-world  problems, news stories, issues and/or recent research reports. Class time will provide an  opportunity to discuss and explore aspects of topics that might be more difficult to learn on your  own. Thus, it will be most effective if you have read the appropriate portions of the textbook  and other recommended references prior to class. Confusing or problematic aspects can be  brought up ahead of time or in class. (Mini-assignments/activities may be based on these topics,  or others.) We may also have some guest experts in some classes.  A few example topics are listed below, with the themes that will be used in understanding and  discussing the particular item/issue. **We will look at additional topics, and even the example**  **topics are subject to change.**  ***Bugs in the news – what are those crazy “germs” up to now?***  - Microbiology in the news  ***Antibiotic resistance – Superbugs (e.g. Vancomycin resistance)***  - Cell structure/function  - Evolution  - Genetics  - Control of microbial growth  - Epidemiology  - Microbiology in the news  - Social impact  ***Cell Structure and Lifestyle***  - Cell structure/function  - Growth/environmental factors  - Themes in microbiology  -Humans and pathogenic bacteria (e.g. *S. aureus*)  - Regulation (chemotaxis, quorum sensing)  - Human-microbe interactions including knowledge of the Human immune system and reactivity to invading pathogens from all three Domains. |

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| Course Policies |
| 1. If you miss a test or exam with a legitimate documented reason, you must bring in acceptable documentation PROMPTLY (**within 1 week**)! **Only the newest version of the "York Attending Physician's Statement Form**" (can be downloaded as part of the Petitions Package) OR ***a similarly detailed*** doctor’s note (i.e. not a form stating that the student visited a clinic) will be accepted for medical excuses. All documentation supporting your excuse for missing a test must be received by me **within 1 week** of the missed test. **YOU MUST ALSO CONTACT ME ON THE DAY OF THE TEST/EXAM NOTIFYING ME THAT YOU WILL NOT BE ATTENDING – JUST AS YOU WOULD AT A JOB.** Your final exam mark will be used for the missed test grade. If the final is missed, you must write a deferred exam (if granted) as scheduled by the department. Late assignments will be assessed a 10% penalty (of the total grade value) a day for a maximum of 5 days late (including weekends). After that it will not be accepted**. *If an extension*** has already been granted then late assignments **will not** be accepted after the extended due date.  2. The tests and final exam will include written questions. If you believe that an answer on a test was marked incorrectly, you must submit your (written) rationale and paper for remarking within 1 week of the test being made available to you (if you completed your test in ink). ***Note: Remarking can result in the mark being raised, confirmed or lowered.***  3. In order to be fair and consistent with regards to the entire class, individual grades are not  negotiable. **Contact me about marks ONLY if there is a clear error in your mark** (calculation, clerical, etc.) as soon as possible. It is highly unlikely that you will receive a response regarding any other mark-related queries.  4. Students who do not write the final exam, but have completed all midterms, and project assignments by the scheduled dates, must contact me for permission to write a deferred exam (i.e. sign the Deferred Standing Agreement form). It is Senate Policy that "*Normal requests for deferred standing must be* ***communicated within one week following a missed examination****, or on the last day to submit course work whichever comes first*". Please check out the Registrar’s Office Deferred Standing FAQs:  (http://www.registrar.yorku.ca/services/ds\_faq.htm) for more details.  **Students who have missed one or more of the midterms (or other major components) will likely be required to petition to write a deferred exam. Students who miss both test and the scheduled exam CANNOT pass the course since their evaluation cannot be directly comparable to their peers with respect to a timely examination of the material.** |

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| University Policies |
| **Academic Honesty and Integrity**  York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty (http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/). The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards.  There is also an academic integrity website with comprehensive information about academic honesty and how to find resources at York to help improve students’ research and writing skills, and cope with University life. Students are expected to review the materials on the Academic Integrity website at - http://www.yorku.ca/academicintegrity/  **No Cheating Rule**  ***Important -* A note from the Faculty of Science Committee on Examinations and Academic Standards:**  Numerous students in Faculty of Science courses have been charged with academic misconduct when materials they uploaded to third party repository sites (*e.g.* Course Hero, One Class, etc.) were taken and used by unknown students in later offerings of the course. The Faculty’s Committee on Examinations and Academic Standards (CEAS) found in these cases that the burden of proof in a charge of aiding and abetting had been met.  *Accordingly, to avoid this risk, students are urged not to upload their work to these sites. Whenever a student submits work obtained through a third party site (e.g. Course Hero, One Class etc.), the submitting student will be charged with plagiarism and the uploading student will be charged with aiding and abetting.*  Note also that exams, tests, and other assignments are the copyrighted works of the professor assigning them, whether copyright is overtly claimed or not (*i.e.* whether the © is used or not). Scanning these documents constitutes copying, which is a breach of Canadian Copyright law, and the breach is aggravated when scans are shared or uploaded to third party repository sites.  ***Penalties associated with charges of Academic Misconduct can include zero on the assignment, letter grade reduction, failure in the course, notation on the transcript, suspension.***  ***Please Do Not Cheat, it is not worth it, and ultimately hurts your learning and the reputation of your University and your degree.***  **Access/Disability**  York University is committed to principles of respect, inclusion and equality of all persons with disabilities across campus. The University provides services for students with disabilities (including physical, medical, learning and psychiatric disabilities) needing accommodation related to teaching and evaluation methods/materials. These services are made available to students in all Faculties and programs at York University.  Student's in need of these services are asked to register with disability services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Please note that registering with disabilities services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.  Additional information is available at the following websites:  Counselling & Disability Services - http://cds.info.yorku.ca/  Counselling & Disability Services at Glendon - http://www.glendon.yorku.ca/counselling/personal.html  York Accessibility Hub - http://accessibilityhub.info.yorku.ca/  **Ethics Review Process**  York students are subject to the York University *Policy for the Ethics Review Process for Research Involving Human Participants.* In particular, students proposing to undertake research involving human participants (e.g., interviewing the director of a company or government agency, having students complete a questionnaire, etc.) are required to submit an *Application for Ethical Approval of Research Involving Human Participants* at least one month before you plan to begin the research. If you are in doubt as to whether this requirement applies to you, contact your Course Director immediately.  **Religious Observance Accommodation**  York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact the Course Director within the first three weeks of class. Similarly, should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the Course director immediately. Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Examination Accommodation Form, which can be obtained from Student Client Services, Student Services Centre or online at http://www.registrar.yorku.ca/pdf/exam\_accommodation.pdf (PDF)  **Student Conduct in Academic Situations**  Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom and other academic settings, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. The policy and procedures governing disruptive and/or harassing behaviour by students in academic situations is available at - http://secretariat-policies.info.yorku.ca/policies/disruptive-andor-harassing-behaviour-in-academic-situations-senate-policy/ |

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| **Technology Requirements** |
| **Technology Requirements:**  As a result of the Covid-19 pandemic, this course will be delivered remotely (entirely online). **There are no in-person or on-campus activities.**  You **must have access to reliable high-speed internet connection (wi-fi) and a computer** in order to take this course.  The following are also required:   * Access to audio (including microphone) and a web cam. Some aspects of the course will involve video conferencing software (*e.g.* Zoom).   Reliable access to eClass and ability to stream videos from eClass. Some tests and the exam may be proctored thus a camera on your computer would be required for this technology. |

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| **Copyright Protection of Course Materials and Netiquette** |
| All material associated with this course is the intellectual property of the instructor and/or protected under Canadian Copyright Law.  All material associated with this course, including lecture recordings, slides, activities, quizzes, tests/exam and laboratories, are to be used for personal study purposes only. **Unauthorized distribution in any form can lead to a violation under Canadian Copyright Law and/or Academic Misconduct charges under York University Senate Policy**. Unauthorized distribution includes sharing and/or uploading of material anywhere and with anyone.  Penalties under Academic Misconduct can include failure in the course, a transcript notation and/or suspension.  **Netiquette**  We want you to get the most out of this course, and that will involve regular electronic communication. We also want everyone to have a positive and supportive experience, so we ask for your help in making this course a positive and safe space for everyone:   * Please use respectful and professional correspondence for all aspects of this course, including email, discussion forums, chat sessions, video sessions and any other online means of communication. * Remember that tone can be misinterpreted through written means as we do not have physical cues to help guide us. Avoid using all capitals (which can represent yelling) and multiple exclamation marks (which can also represent yelling). * Use proper sentences and grammar so your ideas are clearly conveyed. * Consider this an opportunity to practise professional correspondence which you will use throughout your career.   Posts to discussion forums that are not on topic, not relevant to BIOL 1000, or that contain personal insults/ attacks/ intimidation/ profanity will be deleted. Please remember that as per the York University Code of Student Rights and Responsibilities, students have “The responsibility to consider and respect the perspectives and ideas of others, even when the student does not agree with their perspectives or ideas.“  If you notice any inappropriate threads in the Discussion forums please email me. |