

Biology 1020: Fall 2025 – A05

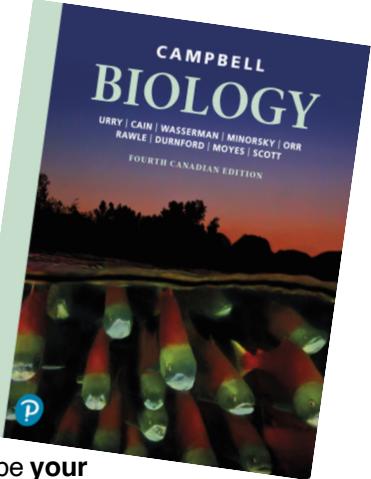
BIOLOGY 1: Principles and Themes

The University of Manitoba campuses are located on original lands of the Anishinaabeg, Ininewuk, Anisininewuk, Dakota Oyate, and Denesuline, and on the National homeland of the Red River Métis. We respect the Treaties that were made on these territories, we acknowledge the harms and mistakes of the past, and we dedicate ourselves to move forward in partnership with Indigenous communities in a spirit of Reconciliation and collaboration.

Personally, I recognize the harms of the past, and present, and I am committed to doing my part to right these wrongs in the spirit of Truth and Reconciliation. I welcome all Indigenous and non-Indigenous students to this classroom and respect the diversity, unique skills, and life experiences that students of all Nations bring.

Our understanding of biological systems can only be whole through the sincere collaboration between the Academy and Indigenous Peoples and the incorporation of their traditional Indigenous knowledge and traditional ecological knowledge with that of Western science.

INSTRUCTOR	KEVIN G-E. SCOTT (he/him/his, Ally)	Role: Lecture Instructor/Course Coordinator Office: W473 Duff Roblin Email: kevin.scott@umanitoba.ca
MY COMMITMENT TO EQUITY AND INCLUSION	I acknowledge the privileges granted to me during my academic career and I am keenly aware that not all students have had or will have the same opportunities. I am committed to equity, diversity, inclusion, and anti-oppression in and out of my classroom. I respect the identities of all students and strive to take action to remove barriers and ensure that all students are supported in their endeavours.	
STUDENT HOURS	I have student hours in my office (W473 Duff Roblin) every Tuesday and Friday from 2:00–3:00 . If you can't make these times and want to ask questions, please email me a few times that you are available, and we can pick one that works for us both.	
COURSE DESCRIPTION	A laboratory-based course in unifying principles of biology including cell biology, bioenergetics, cell division, genetics and evolution. This course is intended for major and honours students in the biological sciences as well as those in other faculties (Agriculture, Kinesiology, Environmental Sciences etc.) requiring a comprehensive lab-based introduction to the Biological Sciences.	
LECTURE TIME	TR 10:00 AM – 11:15 PM	270 EITC E3
PRE-REQUISITES	Biology 40S, one of any 40S Mathematics, MATH 1018, or MSKL 0100 offered by Extended Education, and one of 40S Chemistry, CHEM 1018, CSKL 0100 offered by Extended Education, 40S Physics, PHYS 1018, or PSKL 0100 offered by Extended Education; or BIOL 1000	
COURSE OBJECTIVE	Biology 1020 is the first course of two that develops the fundamental basis of your biological education. The objective of this course is to give students a broad and comprehensive background in modern biology and thus to prepare them for entry into biology-oriented programs in the Faculty of Science and in other Faculties and Schools. All subsequent courses in the Department of Biological Sciences will draw on what you learn here.	
COURSE SYLLABI	<p>This syllabus is your guide to what exactly is expected of you for the lecture component of BIOL 1020. Being unaware of any of the information included herein is not a valid excuse for missing any term work.</p> <p>There is a separate laboratory syllabus that is available on your lab's UMLearn page. It's a good read, you should totally check it out! Also, you are expected to totally check it out.</p>	

e-MAIL POLICY	<p>All e-mail communication must conform to the Communicating with Students university policy.</p> <p>You MUST use your @myumanitoba.ca email address for all University related correspondence.</p> <p>e-Mails are for making appointments only. I will not answer questions about lecture material that require complex answers via email. I am always willing to answer any of your questions, but I prefer to do this in person. Prior to emailing me, check the following:</p> <ul style="list-style-type: none"> • Check this Syllabus first. If you are asking about course or exam information, chances are the answers are already in this syllabus. • Use full, properly structured sentences and not textese. The overall structure of your email should be professional. • Use a proper salutation. “Hey prof” is too casual and not appropriate. • Always include your name in a signature. If I don’t know who you are, I will not respond. • Provide a few times that you can meet in person. <p>I make every effort to respond to all properly structured emails within 24-36 hours except for weekends, holidays, or exam days. e-Mails sent on Fridays may not get a response until the following Monday. If you do not get a response in this timeframe, it is likely that your original email was improperly structured, and you should reformat and try again.</p>																																																
REQUIRED MATERIALS	<p>Campbell Biology (4th Canadian Edition) by Reese et al., Pearson Canada Inc.</p> <p>Disclosure: As a member of the author team for this textbook, KG-E. Scott earns royalties from its sale. All royalties from sales at the University of Manitoba Bookstore are donated to charity.</p> <p>eText (with Mastering) ISBN: 9780137335053 \$119 24-month access</p> <p>eText (without Mastering) ISBN: 9780137335039 \$79 12-month access</p> <p>ePub (2 downloads) ISBN: 9780137334964 \$107 indefinite access</p>  <p>The third Canadian Edition will be <i>sufficient</i>, but some information has changed, and the referenced figure numbers may not match. It will be your responsibility to ensure that you are getting the correct information.</p>																																																
LECTURE SCHEDULE	<p>This schedule is subject to change at the discretion of the instructor and/or based on the learning needs of the students but such changes are subject to Section 2.8 of the – ROASS- Procedure.</p> <table border="0"> <thead> <tr> <th colspan="2">~Lecture(s) Topic</th> <th>Assigned Readings (Concepts)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Intro to the course</td> <td>2.1–2.4, 3.1–3.3</td> </tr> <tr> <td>Online</td> <td>Chemistry Review</td> <td>4.2–4.3</td> </tr> <tr> <td>Online</td> <td>Organic Molecules</td> <td></td> </tr> <tr> <td>2–3</td> <td>1– Evolution</td> <td>1.1–1.2, 22.1–22.3, 23.4</td> </tr> <tr> <td>4–5</td> <td>2– Lipids & Membrane Dynamics</td> <td>5.3, 7.1–7.4</td> </tr> <tr> <td>6</td> <td>3– Cell Structure</td> <td>6.2–6.7</td> </tr> <tr> <td>7–8</td> <td>4– Cell Division & DNA Replication</td> <td>12.1–12.3, 5.5, 16.1–16.3</td> </tr> <tr> <td>9</td> <td>5– Meiosis</td> <td>13.1–13.4</td> </tr> <tr> <td>10–11</td> <td>6– Gene Expression</td> <td>11.1–11.5, 17.1–17.5, 18.1–18.2, 18.5</td> </tr> <tr> <td>12</td> <td>7– Proteins & Enzyme Function</td> <td>5.4, 8.1–8.5</td> </tr> <tr> <td>13–17</td> <td>8– Carbohydrates & Metabolic Pathways</td> <td>5.2, 9.1–9.5, 10.1–10.3</td> </tr> <tr> <td>18–19</td> <td>9– Mendelian Genetics</td> <td>14.1–14.4</td> </tr> <tr> <td>20–21</td> <td>10– Chromosomal Genetics</td> <td>15.1–15.4</td> </tr> <tr> <td>22–23</td> <td>11– Population Genetics</td> <td>23.2–23.3</td> </tr> <tr> <td>24</td> <td>12– Speciation</td> <td>24.1–24.2, 25.1–25.3</td> </tr> </tbody> </table>	~Lecture(s) Topic		Assigned Readings (Concepts)	1	Intro to the course	2.1–2.4, 3.1–3.3	Online	Chemistry Review	4.2–4.3	Online	Organic Molecules		2–3	1– Evolution	1.1–1.2, 22.1–22.3, 23.4	4–5	2– Lipids & Membrane Dynamics	5.3, 7.1–7.4	6	3– Cell Structure	6.2–6.7	7–8	4– Cell Division & DNA Replication	12.1–12.3, 5.5, 16.1–16.3	9	5– Meiosis	13.1–13.4	10–11	6– Gene Expression	11.1–11.5, 17.1–17.5, 18.1–18.2, 18.5	12	7– Proteins & Enzyme Function	5.4, 8.1–8.5	13–17	8– Carbohydrates & Metabolic Pathways	5.2, 9.1–9.5, 10.1–10.3	18–19	9– Mendelian Genetics	14.1–14.4	20–21	10– Chromosomal Genetics	15.1–15.4	22–23	11– Population Genetics	23.2–23.3	24	12– Speciation	24.1–24.2, 25.1–25.3
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LEARNING OUTCOMES	<p>Please note that the textbook covers some material in more detail than will be covered in lecture and that some topics are not covered in the textbook. You are responsible for the lecture material. Some figures from the text have been modified for use in lecture and may not appear as in the textbook.</p> <p>A detailed list of learning outcomes will be posted on UMLearn. You are encouraged to use these lists as a guide for your studying. They represent EVERYTHING that you are expected to gain in this course and are the basis for ALL assessments.</p>		
COURSE EVALUATION	ASSESSMENT	DUe DATE(S)	VALUE
	UMLearn Quizzes (x4)	See Below	4%
	In-Class iClicker Questions Participation 33% Correctness 67%	Most Classes	3%
	Concept Map Assignments	See Below	3%
	Two-Stage Term Test 1 <i>Topics 1–3 (incl. Chemistry)</i>	October 14th, 18:00 – 19:30 Rooms TBA	15%
	Two-Stage Term Test 2 <i>Topics 4–7</i>	November 17th, 18:00 – 19:30 Rooms TBA	22.5%
	Two-Stage Term Test 3 <i>Topics 8–12</i>	Scheduled by the Registrar's Office	22.5%
	Laboratory Assignments	See Lab Syllabus	30%
	<p>Students MUST complete all term tests to get a grade in the course. If you are unable (with legitimate reason) to write a Term Test, a single opportunity to complete a deferred test will be made. If you are unable to write the scheduled deferred exam, you will write a CUMULATIVE FINAL EXAM, worth the combined value, with NO group stage at the time scheduled by the Registrar's Office.</p>		
SELF-DECLARATION FORMS	<p>If you are unable to write a term test, you can complete and submit a self-declaration form through the app within 48 hours of the exam. You will be given one opportunity to write a deferred exam. Any deferred exams will be single-stage only.</p> <p>Any subsequent use of the SDF in this course MUST be accompanied by additional supporting documentation (medical or compassionate).</p> <p>Students should not be using the Self-Declaration form for strategizing (for example, missing a lab in the afternoon and then writing a midterm in the evening). Please be aware that submitting a Self-Declaration form either dishonestly or for a non-valid reason is the same as submitting any other fraudulent (false) document which may result in disciplinary action under the UM Student Discipline Bylaw.</p> <p>Please do not submit self-declaration forms for missed quizzes or classes. There are no alternatives make-up opportunities for quizzes or iClicker questions.</p>		
GRADING	Grades are assigned at the end of the year by converting your cumulative percentage mark into a letter grade, using the following table. Slight modifications of this scheme may be made to compensate for a class average that may be judged to be too low.	90+ 80–89 76–79 70–75 60–69 55–59 50–54 0–49	A+ A B+ B C+ C D F

UMLEARN QUIZZES	<p>Over the course of the term, on the dates noted below, you will have four 20-minute quizzes (1% each) administered through UMLearn. Each quiz will be available for the 4 days indicated below. During this time, you have up to three attempts to take the quiz and your average score will count for that quiz. You may or may not get the same questions each attempt.</p> <p>Quiz 1 September 25th – 28th Quiz 2 October 16th – 19th Quiz 3 November 6th – 9th Quiz 4 December 4th – 7th</p>
iCLICKER QUESTIONS	<p>During class, I will be asking questions for you to answer using iClicker for 3% of your final mark. To answer these questions, you are required to create a free iClicker Reef account and bring your own device (phone, tablet, or laptop) to class. To create an iClicker Reef account, first download the app via the App Store or Google Play, or by visiting iclicker.com, then follow the instructions to sign up.</p> <p>For each question, 1/3 of the mark comes from participating and answering the question, the other 2/3 will be based on correctness. That is, you will get 0.33 for any incorrect answer and 1 for answering correctly.</p> <p>There will be no way to make up for questions posed in classes that you miss, regardless of reason. However, to account for legitimate absences and technological difficulties, I will decrease the denominator at the end of the term by 10% while keeping the numerator the same. For example, if I ask 50 questions (50 marks) and you get 45 correct, I will calculate your mark as 45/45 and you will get the full 3%.</p>
CONCEPT MAP ASSIGNMENTS	<p>Throughout the course, you will be exposed to key terms and concepts that are to be presented in three concept maps. The first map will be submitted to UMLearn for grading by the instructor, and the other two will be submitted for peer review through Peerceptiv. The scheduled due dates are listed in the assignments' outline on UMLearn.</p>
TWO-STAGE EXAMS	<p>Two-stage exams are an effective way to not only assess your understanding of the course material but to also improve it! The two-stage exam is an evidence-based assessment/teaching tool that have been shown to improve student learning gains. The exams will be structured into two stages: an individual stage (85% of your exam mark) and a group stage (15% of your exam mark) as follows:</p> <ol style="list-style-type: none">1. In stage one, you write the exam as an individual2. You will randomly be sorted into groups according to a number on your exam booklet. After stage one is complete, you will relocate throughout the room into your groups.3. In stage two, the group stage, you will collaborate with 2 to 3 of your peers and rewrite the same exam<ul style="list-style-type: none">• No additional materials are permitted, it is still an exam!4. Your group will be given a single bubble sheet to complete the exam again. You MUST come to consensus with your answers. <p>If you have special accommodations to write through SAS, you can choose either: 1) to write the individual stage (worth 100%) with SAS and any extra time and forego the group stage; or 2) to write with the class without your extra time and gain the benefit of the group stage.</p>
EXAM IRREGULARITIES	<p>If you notice an error on the exam (i.e., typographical error), please bring it to the course instructor's attention as soon as possible. Adjustments to the key, if necessary, will occur after the exam. Make sure you select the single best answer.</p> <p>If you are caught in a dishonest act during an examination, you will be reported to University authorities. Penalties may be imposed at the discretion of the relevant authorities.</p>

ALLOWABLE RESOURCES FOR ASSESSMENTS	<p>You are free to discuss the questions I pose in class with your neighbours. You will benefit from the social learning aspect of these exercises.</p> <p>UMLearn quizzes are open book but you can consult ONLY your lecture notes and textbook during the assessments. You will NOT be permitted to browse the internet (i.e., Google) or consult with anyone through any means (i.e., Telegram, Chegg, text, etc.).</p> <p>All in-person tests will be closed book.</p> <p>Responses to ANY written questions MUST be in your own words.</p> <p>Do not post answers to any assignment in any format. Doing so makes you accomplice to plagiarism and you can be disciplined for it. When discussing assignments with others, ask questions, give advice, but never give your work to another student.</p>
OTHER IMPORTANT DATES	<p>Classes begin: September 3rd Last day to drop a course: September 16th Last day to add a course: September 17th Fall Term break: November 10th – 14th VW deadline: November 18th Classes end: December 8th Exam Period: December 9th – 20th</p> <p>You MUST be available for the entire exam period until the schedule is finalized.</p>
USING COPYRIGHTED MATERIAL	<p>Please respect copyright. We will use copyrighted content in this course. I have ensured that the content I use is appropriately acknowledged and is copied in accordance with copyright laws and University guidelines. Copyrighted works, including those created by me, are made available for private study and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UMLearn), or any website, unless an exception to the <i>Copyright Act</i> applies or written permission has been confirmed. For more information, see the University's Copyright Office website at http://umanitoba.ca/copyright/ or contact um_copyright@umanitoba.ca.</p>
EXPECTATIONS I WILL EXPECT You To...	<p>Punctual attendance to lecture is expected. If you come late, you may spend some time in the waiting room before your presence is noticed and you are admitted.</p> <p>I expect students to respond and attempt to answer the questions I ask in class, but I do not expect perfection. This produces a much more enjoyable and effective learning environment for everyone when all parties are engaged.</p> <p>I expect you to ask me questions. I do not mind interruptions to answer content-specific questions. Doing so only improves the learning environment.</p> <p>You may use computers to take notes in class, however, studies have shown that you will learn better if you use a pen. If you do use an electronic device, I expect you to only use it for note taking during class. Please refer to the section on using technology in the classroom.</p>
EXPECTATIONS I WILL EXPECT GROUPS To...	<p>You will be asked to participate in group activities. For everyone's success, I expect you to value and respect the diversity of your classmates. Treat each other with respect and fairness.</p> <p>I expect reciprocity between you and your peers. Despite the common misconception, you are not in competition with each other, and your chances of success will improve by working together.</p> <p>You will be expected to participate in group discussions. This means that you will need to come to class prepared having completed all assigned readings and self-guided learning tasks assigned to you.</p>

EXPECTATIONS You CAN EXPECT ME To...	<p>In my teaching practice, I will ask questions in class. This is a useful way to increase student engagement and promotes deeper thought on the subject material. I also try to engage students in other ways.</p> <p>I will treat you with respect in a professional and equitable manner and would appreciate the same courtesy in return. This means there can be no extra credit assignments or individual changes to the evaluation in the course. See Respectful Work and Learning Environment Policy.</p> <p>I will be in class for ~5 minutes prior to and after the class time and am willing to answer questions if you don't mind me setting up/taking down as we talk.</p>
RECORDING CLASS LECTURES	<p>No audio, video, or photographic recording of lecture presentations is allowed in any format, openly or surreptitiously, in whole or in part without written permission of Kevin Scott. Course materials (both paper and digital) are solely for the participant's private study and may not be used for any other purpose including posting to a note-sharing website.</p>
LAB INFORMATION	<p>A separate Lab Syllabus will be available on UMLearn. This document contains all the necessary information about your labs including the schedule and lab assessments.</p>
FREQUENTLY ASKED QUESTIONS	<p>Should I read the textbook for the exam? Absolutely! While the exam will be based largely on the lecture material, reading the text offers an alternative explanation for the concepts we expect you to know. This will undoubtedly help you in your understanding of these concepts. Reading through the indicated modules will undoubtedly help you.</p> <p>If I have a conflict with the midterm, what happens? If you have a regularly scheduled course activity on the evening of one of the exams show your class schedule to Kevin Scott and I will schedule a deferred exam. If the exam conflicts with your work schedule, I expect you to reschedule your shift to sit the exam. If this is impossible, I require a letter from your employer on company letterhead explaining that your shift cannot be changed.</p> <p>If I miss a quiz, what happens? There will be no make-up opportunity for missed quizzes. You have 4 days to at least attempt the quiz, if you fail to do so, your score for the quiz will be recorded as a zero.</p> <p>If I miss the midterm, what happens? There will be a single opportunity for a deferred exam. If this cannot be made, the value of the midterm will be prorated to the final exam. You MUST email your self-declaration to me within 48 hours of the missed midterm to make arrangements.</p> <p>If I am sick for the final, what can I do? The only thing you can do in this situation is to contact your home faculty. They are the only office that can grant a deferred final exam. You can start the process by going to the following site: https://sci.umanitoba.ca/academicadvising/</p>
STUDENT ACCESSIBILITY SERVICES	<p>If you are a student with a disability, please contact Student Accessibility Services (SAS) for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g., mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.</p> <p>Student Accessibility Services https://umanitoba.ca/student/accessibility/about-us.html 520 University Centre 204 474 7423 Student_accessibility@umanitoba.ca</p>

**OTHER STUDENT
RESOURCES**

A list of University governing documents pertaining to students can be found at:
http://umanitoba.ca/admin/governance/governing_documents/students/index.html

Academic Recourses

Various academic resources are available to students including the Science and Technology Library, which can be accessed at: <https://umanitoba.ca/libraries/sciences-technology-libraries>

Health & Mental Health Resources

Students with Health and/or Mental Health issues may seek advice and/or help from the Student Counselling Centre: <http://umanitoba.ca/student/counselling/>
Student Accessibility Services: <https://umanitoba.ca/student/accessibility/about-us.html>
and/or University Health Services: <http://umanitoba.ca/student/health/>

Sexual Violence Resource Centre

The Sexual Violence Resource Centre, located at 537 UMSU University Centre on the Fort Garry campus, provides support, resources, information and referral services for any student, faculty or staff member who has been affected by sexual violence. <https://umanitoba.ca/student-supports/sexual-violence-support-and-education>

Copyright and Intellectual Property Resources

Copyrights and intellectual property must be respected by all students. For more information, please refer to the copyright office: <http://umanitoba.ca/copyright/>

Respectful Behaviour Resources

Students are expected to act in a respectful manner. Policies regarding respectful work and learning environment and sexual assault can be found at:

http://umanitoba.ca/admin/governance/governing_documents/community/230.html

Final Examinations, Grades and Grade Appeals Resources

Final examination and grades policies can be found at:

http://umanitoba.ca/admin/governance/governing_documents/academic/1299.html

Additional resources regarding examinations can be found at:

<http://umanitoba.ca/faculties/science/undergrad/resources/Academic%20Resources%20index.html>

Students wishing to appeal their term work grade can do so through the Registrar's office. A fee is charged for each appeal. More information can be found at:

<http://umanitoba.ca/student/records/grades/690.html>

Final exam material will not be returned to you but arrangements can be made to see it. To view your final examination, please check with the department offering the course for policies. More information can be found at:

<http://umanitoba.ca/faculties/science/undergrad/resources/895.html>

To appeal your final grade, you can initiate the process at the Registrar's office. A fee will be charged for each appeal. See the Registrar's office for more information:

<http://umanitoba.ca/student/records/>

**ACADEMIC
INTEGRITY:**

The Faculty of Science and The University of Manitoba regard acts of academic dishonesty in quizzes, tests, examinations, laboratory reports or assignments as serious offences and may assess a variety of penalties depending on the nature of the offence.

Acts of academic dishonesty include, but are not limited to, bringing unauthorized materials into a test or exam, copying from another individual, using answers provided by tutors, plagiarism, and examination personation.

It is YOUR responsibility to know about Academic Integrity.

Penalties that may apply, as provided for under the University of Manitoba's Student Discipline By-Law, range from a grade of zero for the assignment or examination, failure in the course, to expulsion from the University. The Student Discipline By-Law may be accessed at:

http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html

Information regarding academic integrity from the University of Manitoba can be found at:

<https://umanitoba.ca/student-supports/academic-supports/academic-integrity>

Information from the Faculty of Science regarding Cheating and Plagiarism can be found at

<https://www.sci.umanitoba.ca/students/undergraduate-students/academic-resources/academic-integrity-2/>

All Faculty members (and their teaching assistants) have been instructed to be vigilant and report all incidents of academic dishonesty to the Head of the Department.

A separate Lab Syllabus will be available on UMLearn. This document contains all the necessary information about your labs.

